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REPA3-3502-206v3

Mr. Bernie Orenstein
Regional Project Officer
U.S. EPA Region 5 (DM-7J)
77 West Jackson Boulevard
Chicago, IL 60604

Subject: EPA Contract No. 68-W-02-018, Work Assignment R05802-3, Task 02. TDM No. 17. Final Recommended Approach for Development of Groundwater Target Levels, Rohm and Haas, Reading, Ohio.

Dear Mr. Orenstein:

In response to Work Assignment R05802-3, Task 02, under EPA Contract No. 68-W-02-018, please find attached Booz Allen Hamilton's (Booz Allen's) Final Recommended Approach for Development of Groundwater Target Levels for the Rohm and Haas facility in Reading, Ohio.

This deliverable incorporates comments made by the EPA Technical Advisor (TA) on the July 28, 2005, version of this document. It also includes revisions completed by Booz Allen based on limited discussion with the EPA TA over the past few weeks. It should be noted that extensive discussions have occurred over the past two years regarding this site and the approach addressed by the deliverable. This deliverable only addresses comments that were made by the EPA TA and discussed with Booz Allen over the past few weeks. It may not include changes to the approach that may have been agreed to in the past two years because Booz Allen was not involved in those discussions.

If you have any questions regarding this deliverable, please contact me at (312) 578-4757.

Sincerely,

Frances B. Hodge

BOOZ ALLEN HAMILTON

Frances B. Hodge
Work Assignment Manager
Enclosures

cc: Allen Wojtas, EPA Work Assignment Manager
Mirtha Cápiro, EPA Technical Advisor
LaShawn Smith, EPA Contract Specialist (cover letter only)
Booz Allen EPMT QA/QC Coordinator

FINAL RECOMMENDED APPROACH FOR DEVELOPMENT OF GROUNDWATER TARGET LEVELS ROHM AND HAAS FACILITY READING, OHIO

June 25, 2007
REPA3-3502-206v3

1.0 PURPOSE

EPA Region 5 has tasked Booz Allen Hamilton (Booz Allen) with providing ecological and human health risk assessment support on the Rohm and Haas facility (formerly known as the Morton facility) in Reading, OH. At this facility, contaminated groundwater discharges into the adjacent stretch of Mill Creek. In response to EPA direction, Booz Allen has prepared recommended methods for developing groundwater target levels that will be protective of both ecological and human health exposures in Mill Creek.

In the process of developing this document, Booz Allen consulted with EPA Region 5 and EPA Office of Research and Development during a conference call on May 13, 2005. Recommendations made during this conference call have been incorporated into this document, as appropriate.

It was determined that the phrase "development of target levels" more appropriately defines the purpose of the proposed methodology, as opposed to "development of cleanup goals," which was expressed in earlier versions of this document. Target levels are needed to guide the achievement of overall cleanup goals for groundwater. OEPA provided comments on the Draft Recommended Approach for Development of Groundwater Cleanup Goals at the Rohm and Haas Facility, Reading, Ohio, June 29, 2005, as presented in Attachment 4. These OEPA comments have been incorporated into this document.

The sections that follow briefly summarize the hydrogeology of Mill Creek, present guidance on applicable exposure pathways and selection of chemicals of potential concern (COPCs) for ecological and human health, and discuss risk-based methods for developing groundwater target levels. While these recommendations are intended to meet all EPA requirements, it is noted that Rohm and Haas must also meet Ohio EPA (OEPA) regulatory requirements. OEPA requirements are briefly discussed in Section 5.0; Rohm and Haas should consult with OEPA for further direction or clarification. Also, as mentioned earlier, the OEPA comments that are being incorporated into this document are presented in Attachment 4.

2.0 MILL CREEK HYDROGEOLOGY

As reported in the Revised Facility Investigation Report (FI Report) (Geomatrix 2004), Mill Creek is the only body of surface water in the vicinity of the Rohm and Haas Facility. Mill Creek is a tributary of the Ohio River, and the confluence of Mill Creek and the Ohio River is located approximately 14 miles south of the Rohm and Haas Facility.

The FI Report (pg. 8) indicates that, "Mill Creek currently lies 80 to 100 feet west of the Morton Facility property boundary. Before about 1950, however, aerial photographs indicate that, in the vicinity of the Morton Facility, the creek lay about 300 feet west of its current location. The change is reported to be part of drainage and flow control improvements performed by the U.S. Army Corps of Engineers around 1950." The FI Report (pg. 64 - 65) characterizes Mill Creek as "typically shallow (less than 24 inches), with intermittent rapids and pools. The pools in vicinity of the Morton Facility exhibited depths up to 5 feet during normal flow conditions." The bed of the creek has been characterized as "comprised predominately of rock and concrete, probably reflecting the materials used during the U.S. Army Corps of Engineers rechannelization. Sediment is completely absent through most of the streambed, with small accumulations, typically less that 1 inch downstream on larger rocks. One area of streambed sediment was observed west of the Morton Facility, this is believed to represent the remains of a major bank collapse associated with flooding in July 2001." The general absence of sediment is likely due to the strong scour resulting from increased flow during and after major storm events.

The FI Report (pg. 59) has identified "a single shallow sand bed, termed the Shallow Upper Aquifer (UA) Sand [that] was observed at typical depth of 10 to 20 feet below ground surface (bgs) across most of the Morton Facility," and was observed to be absent only in the northeast corner of the facility. The FI Report further indicates that water-level data "consistently indicated groundwater flow (in the Shallow UA Sand) is generally from the east and northeast of the Morton Facility, across the site toward the west and west-southwest to Mill Creek." The FI Report (pg. 61) has acknowledged that, "the Shallow UA Sand is the hydrogeologic unit most likely to be affected by surface releases at the Morton Facility." Groundwater quality data support this conclusion.

The FI Report (pg. 65) has further acknowledged that, "shallow UA Sand is in hydraulic communication with Mill Creek, and is discharging groundwater through the banks and bed of the creek." However, the lack of hydrogeologic data between the western boundary of the facility and the creek, combined with the variability exhibited by the Shallow US Sand, renders uncertain the extent to which the Shallow UA Sand may discharge through both the bank and streambed of the portion of Mill Creek along the northern segment of the western facility boundary. The Shallow UA Sand thins significantly along this portion of the facility's western boundary, and the Shallow UA Sand may not discharge up through the streambed. However, several seeps have been noted on the bank of the creek along this portion of the property. The FI (pg. 80) indicates that, "sampling of these seeps has identified several constituents also

observed in shallow Morton Facility groundwater, including tin, BTEX, chlorobenzenes, and dichlorobenzenes." Unless hydrogeologic data and/or analysis are presented that clearly indicates otherwise, discharge through both the bank and streambed should be assumed along this portion of the facility boundary.

A French drain has been installed and is operated along the northern portion of the western facility boundary in an effort to control the discharge of groundwater contaminants in the Shallow UA Sand to Mill Creek. Groundwater quality data downgradient of the French drain indicate that the French drain is only partially effective in controlling the discharge of contaminated groundwater into Mill Creek.

3.0 ECOLOGICAL RISK EVALUATION AND TARGET LEVEL DEVELOPMENT

3.1 Exposure Pathways and Assessment Endpoints

Groundwater and associated contaminants flow downgradient and may enter the hyporheic zone beneath the streambed near Mill Creek, where the water may be a mixture of surface water and groundwater. The zone where groundwater and surface water mixing occurs is hereafter referred to as the 'transition zone'. The transition zone is usually located below or near the sediment-water interface; however, its exact depth and extent depends on hydraulic and geological conditions. This transition zone may extend for many meters from the streambed (both vertically and laterally), or it may be relatively small, especially if it is primarily at or near the sediment-water interface. In gaining reaches of Mill Creek, the transition zone may be at or very near the sediment-water interface. In this situation, the benthic zone (i.e., the area inhabited by benthic biota) may consist almost entirely of groundwater, and mixing with surface waters would occur predominantly in the stream channel above the streambed. The streambed sediments will be saturated primarily with undiluted groundwater (as pore water), and the organisms of this zone will be exposed essentially to the physical and chemical conditions of the groundwater. Seepage meter tests could be attempted to determine the rate at which groundwater flows into Mill Creek, which would permit a better understanding of the transition zone in the segment of Mill Creek adjacent to the Rohm and Haas facility.

In contrast, if there were losing reaches of Mill Creek where the stream surface water flowed at a high rate down through the sediments, the pore water environment would consist almost entirely of surface water, and mixing with groundwater would occur predominantly further beneath the bed of the stream channel. The streambed sediments would be saturated primarily with undiluted surface water (as pore water), and the benthic organisms of the streambed would be exposed essentially to the physical and chemical conditions of the surface water.

Between these two extreme situations, there could be stream segments where the pore water of the sediments resembled neither undiluted groundwater nor undiluted surface water, but rather, some intermediate condition. Depending on local topography, water table heights, streamflow, and geological and soil characteristics, segments of streams could have many alternating gaining and losing reaches over relatively short distances, or could alternate between these two conditions over shorter or longer time intervals. Thus, the transition zone could be located at a variety of depths along the length of the stream and could vary through time as well. Given what is currently known about the hydrogeology of Mill Creek, as discussed in Section 2.0, a reasonably conservative assumption is that the benthic zone contains pore water with characteristics of undiluted groundwater. The benthic organisms may therefore be exposed, at a maximum, to contaminants at the concentrations in undiluted groundwater. In addition, the aquatic organisms in the water column of the stream will be exposed to groundwater contaminants as determined by the mixing and dilution of groundwater and surface water, which in most cases will be at lower concentrations than in groundwater. Flows of groundwater to streams provide important microhabitats for a variety of organisms, including: thermal refugia for fish spawning, feeding, and nursery habitats; primary or temporary habitat for many invertebrates at all or some stages of their life cycle; and habitat for bacteria, fungi, protozoans, diatoms, and other organisms that provide for nutrient cycling as well as food items for higher trophic level organisms.

Since the bottom of Mill Creek consists primarily of rock and concrete rubble with very little soft sediments, it should have a predominately hard substrate epibenthic fauna that would live on hard surfaces of the substrate, including beneath the surface layer of the rubble where some part of the transition zone conditions probably extends. These organisms, typically algae, insects, crustaceans, and molluscs, are often present in significant numbers in such substrates, and can provide a significant food source for fish and other higher trophic level organisms. The softer substrate beneath the rubble would also provide habitat to a community of organisms specialized for existence in the hyporheic zone. The presence or absence of organisms within the benthic areas and in the transition zone will depend on a number of existing environmental conditions, notably factors such as toxicity, oxygen concentration, particle size, and food availability (which may or may not be influenced by groundwater characteristics), that determine the actual distribution and abundance of organisms in this zone. In Mill Creek, the benthic zone is likely to encompass surficial sediments, rock and concrete rubble, and perhaps even the sand layer beneath the rock and concrete.

Accordingly, the following assessment endpoints are recommended:

- Maintenance and sustainability of the infaunal and epifaunal community of the benthic zone in Mill Creek
- Maintenance and sustainability of the aquatic life community inhabiting overlying surface water in Mill Creek.

Because fish and invertebrates may be exposed to contaminants in Mill Creek, trophic transfer of contaminants through the aquatic food web to wildlife must also be considered. Based on a review of contaminants detected in groundwater, seeps, surface water and sediment, however, appreciable bioaccumulation is unlikely to occur as a result of contaminants discharging to Mill Creek via groundwater. Refer to Attachment 1 for a detailed discussion of each potentially bioaccumulative contaminant detected at Rohm and Haas. Due to this limited potential for bioaccumulation, a detailed discussion of methodologies for developing groundwater target levels to protect wildlife through the Mill Creek food web pathway is not included in this document. Brief recommendations are provided in Section 3.3.1. Uncertainty regarding bioaccumulation could be reduced by conducting site-specific tissue residue analyses of fish and/or invertebrates, but these additional evaluations do not appear to be warranted, given the low levels of bioaccumulative contaminants detected in surface water and sediments. Comparison of media concentrations to water and sediment screening values is recommended to assess the potential risk of direct toxicity to benthic infauna and epifauna and aquatic life in Mill Creek surface water, as discussed below in Section 3.2.

3.2 Selection of Ecological COPCs

The recommended process for selecting COPCs for further evaluation and target level development is described in the following sections.

3.2.1 Exposure Concentrations

To select COPCs, available data for surface water, sediment, seeps, and groundwater should be considered. Chemicals with maximum detected concentrations in any of the above media that exceed applicable screening values should be retained for further risk evaluation and target level development.

Those monitoring wells screened in the Shallow UA Sand along the western boundary of the facility, immediately upgradient of Mill Creek, should provide the water quality most likely to be representative of that discharging into Mill Creek. These monitoring wells include UAW03-20, UAW05-20, UAW07-20, and MW-EPA-1 along the downgradient edge of the French drain, and UAW-1-30, UAW02-20, UAW02-40, and UAW25-20 along the western boundary of the facility and south of the expected location of the French drain. However, it is recommended that groundwater quality data from all on-site monitoring wells screened in the Shallow UA Sand be used to identify COPCs. Inclusion of wells upgradient of the French drain in the COPC selection process will ensure that target levels are developed for any chemical that could pose future risk threat in case of reduced effectiveness of the French drain or any other selected remedy.

As discussed in Section 2.0, groundwater is currently discharging through the banks into Mill Creek. During their October 2001 field event, Rohm and Haas identified and sampled seeps at two locations along the bank that were discharging to Mill Creek.

Although these data may not be fully representative of groundwater concentrations discharging to Mill Creek, they are considered indicative of groundwater contaminants that are discharging to the creek. Consequently, the seep data should be used in the screening process to determine COPCs that may require groundwater target levels. It is noted that, since the sampled seeps were discharging through the creek bank and not the creek bed, seep concentrations may not be representative of transition zone pore water concentrations. Groundwater discharge at the creek bank is not considered to be part of the transition zone, as described in Section 3.1, because the discharge occurs mostly above level of the surface water (subject to water level fluctuation), and mixing of groundwater and surface water within the sediments is not occurring in this area. Transition zone pore water concentrations have not been directly measured by Rohm and Haas. Seep concentrations may also not be representative of the average concentrations in groundwater discharging through the entire Shallow UA Sand to Mill Creek because these seeps only represent groundwater traveling in the shallowest portion of the Shallow UA Sands. In addition, due to other sampling considerations, samples taken from seeps may not be as representative of groundwater conditions as those taken from monitoring wells.

As part of the Baseline Risk Assessment (BRA) Report, Rohm and Haas will provide documentation to facilitate EPA's evaluation of the presence of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides concentrations in Mill Creek upstream from the Rohm and Haas facility to support their assertion that elevated concentrations of these classes of chemicals cannot be directly attributed to the Rohm and Haas facility. Based on Booz Allen's analysis of spatial trends in PCBs and pesticides concentrations in on-site soil, it does not appear that the Rohm and Haas facility significantly contributed to detected concentrations of these two classes of chemicals in Mill Creek sediment, or that the detected concentrations can be attributed to the Rohm and Haas facility (refer to Attachment 2 for a more detailed discussion of PCBs and pesticides). Note that EPA will evaluate the selection of COPCs as part of upcoming review and approval of the BRA Report for the Rohm and Haas facility.

3.2.2 Screening Values

Ohio EPA outside mixing zone average (OMZA) aquatic life criteria (from Ohio Administrative Code (OAC) Section 3745-1-07, Tables 7-1 and 7-9) and Tier II values for the Ohio River Basin (http://www.epa.state.oh.us/dsw/wqs/criteria.html) should be the primary source of screening values applied to measured concentrations in groundwater, surface water, and seeps. For those chemicals lacking an appropriate OMZA value, EPA Region 5 Ecological Screening Levels (ESLs) (USEPA 2003a) should be used. According to this hierarchy, chemicals with maximum concentrations exceeding the ESL but not the OMZA value should *not* be retained as COPCs.

In accordance with EPA guidance (Prothro 1993), dissolved metals concentrations should be used as exposure point concentrations, in preference to total metals concentrations, because dissolved metals concentrations are thought to better

represent the bioavailable fraction. In cases where the measured total metal concentrations exceed total metal screening values, but measured dissolved metal concentrations do not exceed dissolved metal screening value, the metal should not be retained as a COPC.

For sediment, EPA Region 5 ESLs (USEPA 2003a) should be used in combination with Ohio EPA Sediment Reference Values (SRV) for the Interior Plateau ecoregion (OEPA 2003). Only those chemicals with a maximum concentration that exceeds both the ESL and the SRV should be selected as a COPC. In cases where the maximum concentration exceeds the ESL, but not the SRV, concentrations of the chemical are consistent with regional background levels and benthic organisms are likely to be adapted to local concentrations. Conversely, in cases where the SRV is exceeded but the ESL is not, the chemical may be present at elevated concentrations, but these concentrations are unlikely to be sufficiently high to cause toxicity to benthic organisms.

It is noted that both EPA Region 5 and Ohio EPA use MacDonald et al. (2000) threshold effect concentrations as the preferred source of sediment screening values.

3.3 Methods for Groundwater Target Level Development

3.3.1 Target Ambient Surface Water and Sediment Concentrations

To develop groundwater target levels that will be protective of Mill Creek ecological receptors, target ambient surface water and sediment concentrations must first be developed. These concentrations can then be used to calculate appropriate groundwater target levels, as outlined below in Section 3.3.2.

For surface water, target concentrations could be set as the screening values described in Section 3.2.2 (i.e., OMZA and ESL values). These OMZA and ESL values should be sufficiently protective of aquatic life in Mill Creek, but may be lower than necessary as a result of site-specific factors that affect the bioavailability and toxicity of certain chemicals.

For sediments, additional sampling of sediments and biota below or between hard substrate objects would be needed to delineate the density and abundance of various species in the benthos.

A conservative assumption that would require no additional data collection or evaluation is that the benthic zone pore water concentration is equal to the groundwater concentration. The toxicological targets could then be set as pore water concentrations, rather than as bulk sediment concentrations, since pore water best represents exposure to most benthic taxa. Target ambient concentrations for surface water (i.e., OMZA and ESLs), should be applied to sediment pore waters. Application of surface water quality criteria to pore water is fairly well supported, as recent EPA guidance (e.g., USEPA 2003b) on Equilibrium Partitioning Sediment Benchmarks

indicates that benthic-dwelling aquatic life are similar to water column-dwelling aquatic life with respect to toxicological sensitivity.

If the facility prefers not to rely on the default OMZA and ESL values, then toxicity tests using standard test organisms could be conducted to develop more definitive site-specific target concentrations. The groundwater dilution that would result in non-toxic surface waters could be estimated by conducting toxicity tests using groundwater collected from the site in a series of dilutions with Mill Creek surface water collected from the site. The results of these toxicity tests could then be used to develop protective, site-specific target surface water and sediment pore water concentrations. Should the facility choose to develop site-specific target surface water and sediment concentrations, it is recommended that a work plan be submitted to EPA for review and approval prior to the initiation of any toxicity tests. Selection of test methods, taxa, and endpoints should be considered carefully to ensure that an ambient toxicity-based approach to establishing target concentrations does not inappropriately ignore effects on untested sensitive taxa. For well-studied COPCs, it should be possible to place the expected sensitivity of the site-specific toxicity tests within the broader spectrum of species and endpoint sensitivity.

Once target sediment pore water and surface water values are determined as discussed above, risks to wildlife through the aquatic food web pathway should be calculated using the target concentrations as exposure point concentrations. These calculations are only needed for those COPCs for which wildlife risks were indicated in the June 2005 Screening Ecological Risk Assessment (SERA) or that are highly bioaccumulative (see Attachment 1). Based on a preliminary review of the SERA and site-wide groundwater concentrations, it appears that these risk calculations may be necessary for lead, mercury, and tin. It is expected that target concentrations will be sufficiently low to protect wildlife, but the target concentrations should be adjusted if calculated risks indicate hazard quotients greater than one.

3.3.2 Calculation of Groundwater Target Levels

It is recommended that groundwater target levels be set for all COPCs identified according to the recommendations provided above in Section 3.2. Although additional ecological evaluation could demonstrate that the current flux of groundwater contaminants into Mill Creek is not causing ecological impacts, setting target levels for these COPCs will provide decision criteria to judge whether the French drain or any other selected remedy remains effective in the future.

To develop groundwater target levels that are protective of both surface water and sediment exposures, two separate target levels for each constituent may need to be calculated based on surface water exposure to aquatic organisms and sediment pore water exposure to benthic zone epifauna and infauna. Methods for calculating target levels are described in more detail below.

Target Levels Based on Surface Water Exposure

Once target ambient surface water concentrations have been developed as described in Section 3.3.1 above, the groundwater concentration that will result in this target surface water concentration under seven day, ten year low flow (7Q10) flow conditions can be calculated. It is noted that, if benthic zone pore water is assumed to be equivalent to groundwater (i.e., no dilution), then target levels based on surface water do not need to be calculated. Under these circumstances, the pore water-based groundwater target level will drive the overall ecological groundwater target level because target concentrations are the same for pore water and surface water. However, if additional investigation demonstrates that groundwater does not contribute significantly to benthic zone pore water, then the surface water-based groundwater target levels will need to be calculated as described in Attachment 3. As discussed in this attachment, it is recommended that groundwater target levels be set in terms of mass flux to Mill Creek, rather than as target groundwater concentrations in mass per volume units.

Target Levels Based on Sediment Exposure

As previously discussed, a conservative assumption would be that the sediment pore water concentration is equal to the groundwater concentration. Under this assumption, no additional data collection or evaluation would be required, and groundwater target levels would be set as the target sediment pore water concentration. This is a reasonable assumption where the stream reach is gaining from groundwater or the hydrologic conditions are unknown, and concentrations of COPCs in groundwater have been measured from monitoring wells or other samples located near the stream channel itself. A more detailed discussion of associated assumptions is included below. Note that in contrast to the recommended procedure for developing target levels based on surface water exposure, which should be set in terms of mass flux, target levels based on sediment exposure can be set in terms of target groundwater concentrations.

Discussion of Assumptions Made in Target Level Recommendations

Groundwater target levels that are protective of benthic zone infauna and epifauna can be determined as outlined above, with little or no additional data collection, under the following assumptions:

- The benthic zone infaunal and epifaunal communities in Mill Creek are significant enough to warrant protection, either currently or in the future
- Contaminated groundwater from the Rohm and Haas facility is discharging up through the bed of Mill Creek
- Benthic zone pore water chemical concentrations are equivalent to groundwater (i.e, pore water is not diluted by surface water)

- Contaminants present in groundwater are unlikely to bioaccumulate in Mill Creek biota to a significant degree, and do not warrant further risk evaluation.

With the exception of the final two assumptions, the above assumptions are more likely to produce overprotective target levels than underprotective ones. Consequently, it is our best professional judgment that target levels developed according to the above recommendations will be adequately protective of the infaunal and epifaunal community of the benthic zone in Mill Creek, as well as the aquatic life community in the overlying surface water. Some additional discussion regarding these assumptions is provided below for reference.

Benthic zone pore water should not be considered similar to groundwater under the following circumstances:

- Creek bed is highly disturbed and not likely to support significant hyporheic or benthic biota
- In losing reaches of streams where the pore water would resemble stream surface water rather than groundwater
- The contaminant is found in denser layers of plumes (i.e., dense non-aqueous phase liquids [DNAPLs]) that are below the hyporheic zone
- There is a geological barrier or hydrologic condition that prevents contaminated groundwater from entering the hyporheic zone (such as low or non-permeable soils or rock, channeling away from the stream before interception).

EPA and Rohm and Haas may wish to further consider whether any of the above conditions apply at Mill Creek before setting groundwater target levels as described in this document.

4.0 HUMAN HEALTH RISK EVALUATION AND TARGET LEVEL DEVELOPMENT

4.1 Exposure Pathways

Potential exposure at the site is a function of the current and potential future land uses, both of the site and its surrounding area. The Rohm and Haas facility is an active industrial facility, and is anticipated to remain such for the foreseeable future, as the site is zoned for heavy industrial land use. As described in Section 2.0, there is a shallow upper aquifer and a lower aquifer. The upper aquifer is not used as a potable water supply source. The lower aquifer is widely used as a source of potable water; however, there are no known active supply wells at or in the immediate area of the site. Based on the data presented in the FI Report (Geomatrix 2004), a hydraulic connection between the Upper and Lower Aquifers exists, which may allow contaminants to migrate from the non-potable water supply (i.e., upper aquifer) to the widely used source of potable water (i.e., lower aquifer). The shallow groundwater flow is generally from the east and northeast towards the west and west-southwest and discharges into

Mill Creek. Thus, contaminated groundwater may potentially interact with the surface water and sediment in the creek. While there is no direct human contact with the groundwater in the vicinity, human contact with Mill Creek surface water (including seep water), and sediment is possible. The potential pathways of human exposure for Mill Creek include the following:

- Recreational adult and child exposures to surface water during wading via incidental ingestion, dermal contact, and inhalation
- Recreational adult and child exposures to sediment during wading via incidental ingestion, dermal contact, and inhalation
- Recreational adult and child exposures to contaminated fish tissue via consumption

The following sections will recommend the screening values that should be used to determine COPCs for Rohm and Haas groundwater, and Mill Creek surface water, sediment, and fish tissue.

4.2 Selection of Human Health COPCs

The recommended process for selecting COPCs for further evaluation and target level development is described in the sections that follow.

As indicated earlier, Rohm and Haas will provide documentation for EPA evaluation on the presence of PAHs, PCBs, and pesticides concentrations in Mill Creek upstream from the Rohm and Haas facility to support their assertion that elevated concentrations of these classes of chemicals cannot be directly attributed to the Rohm and Haas facility. Based on Booz Allen's analysis of spatial trends in PCBs and pesticides concentrations in on-site soil, it does not appear that the Rohm and Haas facility significantly contributed to detected concentrations of these two classes of chemicals in Mill Creek sediment, or that the detected concentrations can be attributed to the Rohm and Haas facility (refer to Attachment 2 for a more detailed discussion of PCBs and pesticides). Note that EPA will evaluate the selection of COPCs as part of upcoming review and approval of the BRA Report for the Rohm and Haas facility.

4.2.1 Exposure Concentrations

Those monitoring wells screened in the Shallow UA Sand along the western boundary of the facility, immediately upgradient of Mill Creek, should provide the water quality most likely to be representative of that discharging into Mill Creek. These monitoring wells include UAW03-20, UAW05-20, UAW07-20, and MW-EPA-1 along the downgradient edge of the French drain, and UAW-1-30, UAW02-20, UAW02-40, and UAW25-20 along the western boundary of the facility and south of the expected location of the French drain (as discussed in Section 3.2.1). However, it is recommended that groundwater quality data from all on-site monitoring wells screened in the Shallow UA Sand be used to identify COPCs. Inclusion of wells upgradient of the

French drain in the COPC selection process will ensure that target levels are developed for any chemical that could pose future risk threat in case of reduced effectiveness of the French drain or any other selected remedy. Chemicals with maximum detected concentrations above applicable screening criteria are retained for further risk evaluation and target level development. Refer to Section 3.2.1 for a discussion of seep data.

To select COPCs, groundwater, surface water, seep, and sediment data should be screened. For all media, the maximum detected concentration should be used, and if a contaminant is not detected, the maximum detection limit should be used for evaluation.

4.2.2 Screening Criteria

Groundwater at or in the vicinity of the site is not used as potable water. However, groundwater is discharging into surface water at Mill Creek. Thus, EPA's National Recommended Ambient Water Quality Criteria (NAWQC) for human health consumption of surface water and aquatic organisms (e.g., fish, crayfish) represent conservative screening values for the groundwater discharging into Mill Creek, and are compared with measured concentrations in groundwater and surface water (including seep water) (USEPA 2004). Given the recreational use of Mill Creek and potential for direct contact with surface water, the NAWQC are the most appropriate criteria, as they account for both ingestion of surface water and the bioaccumulation of appropriate contaminants in the tissues of aquatic organisms using established EPA methodology and published bioconcentration factors (BCFs).

Ohio EPA's non-drinking OMZA human health criteria (from OAC Section 3745-1-32 for the Ohio River Basin), are based solely on the ingestion of organisms from which concentrations are derived using laboratory studies (e.g., exposure to mammals such as rats or mice). These criteria are protective of people against adverse exposure to chemicals via the fish ingestion pathway. Based on the results of the evaluation of bioaccumulative contaminants detected at Rohm and Haas (see Attachment 1), contaminated fish tissue are not expected to occur at Mill Creek. Thus, the Ohio non-drinking OMZA human health criteria are not entirely appropriate considering the ingestion of contaminated fish is not expected to be a complete exposure pathway. While Ohio does have drinking OMZA human health criteria, these criteria are also not appropriate as there are no potable water intakes at or in the vicinity of Rohm and Haas facility.

To evaluate contaminant concentrations in sediment, the EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil were used. This is consistent with Ohio EPA, Division of Emergency and Remedial Response Technical Decision Compendium dated April 28, 2004.

4.3 Recommended Methods for Developing Target Levels

4.3.1 Groundwater Target Levels Protective of Fish Consumption

The development of groundwater target levels for the protection of human health from fish consumption is not necessary if the identified COPCs are either not bioaccumulative or only slightly bioaccumulative. In addition, groundwater concentrations of these COPC are less than two orders of magnitude above the NAWQC, which are based upon $1x10^{-6}$ risk. Finally, fish will not be exposed directly to these groundwater concentrations but will be exposed to much lower concentrations in surface water, given the 7Q10 flow conditions and the potential for dilution (Attachment 3).

As indicated earlier, Rohm and Haas will provide documentation for EPA evaluation on the presence of PAHs, PCBs, and pesticides concentrations in Mill Creek upstream from the Rohm and Haas facility to support their assertion that elevated concentrations of these classes of chemicals cannot be directly attributed to the Rohm and Haas facility. Also refer to Attachment 2 for a more detailed discussion of PCBs and pesticides. Note that EPA will evaluate the selection of COPCs as part of upcoming review and approval of the BRA Report for the Rohm and Haas facility.

4.3.2 Target Ambient Surface Water and Sediment Concentrations

To develop groundwater target levels that will be protective of Mill Creek recreators (i.e., children and adults), target surface water (including seep water) and sediment concentrations first need to be developed. These targets can then be used to calculate appropriate groundwater target levels, as outlined below.

For surface water (including seep water), target concentrations could be set as the NAWQC values described in Section 4.2.2. These NAWQC values will be sufficiently protective of human health exposures at Mill Creek, but may be overly conservative due to lower exposure conditions experienced by recreators. Alternatively, site-specific recreator target concentrations could be back-calculated for surface water using the inverse of standard risk equations, a target risk of $1x10^{-6}$, and site-specific exposure factors. Current risk assessment guidance (i.e., EPA's 1997 Exposure Factors Handbook Volumes I-III, 2004 Risk Assessment Guidance for Superfund, Part E: Supplemental Guidance for Dermal Risk Assessment, etc.) and professional judgment should be used to develop the exposure frequency, incidental ingestion rate, skin surface area and other exposure factors relevant to Mill Creek recreational exposures. The regional climate for this part of Ohio as well as the local physical setting should be considered when developing these site-specific recreator target levels.

For sediments, target concentrations could be set as the EPA Region 9 PRG for residential soil exposures. When sediment data for Mill Creek are compared to soil PRGs, only arsenic and PAHs exceed screening levels. As previously discussed,

Rohm and Haas will provide documentation for EPA evaluation on the presence of PAHs, PCBs, and pesticides concentrations in Mill Creek upstream from the Rohm and Haas facility to support their assertion that elevated concentrations of these classes of chemicals cannot be directly attributed to the Rohm and Haas facility. Arsenic concentrations in sediment samples averaged 4.7 mg/kg with a maximum detection of 6.3 mg/kg. These concentrations may represent ubiquitous, regional levels of arsenic. However, Rohm and Haas has not provided information to document this condition. Arsenic has been included in the risk assessment process for the facility.

In addition, there are no persistent, bioaccumulative, and toxic (PBT) constituents present in groundwater. Consequently, it is unlikely that groundwater COPCs are a significant future source of sediment contaminant load. Chlorobenzene and dichlorobenzene only exhibit minor sediment adsorption potential, with log K_{ow}s of 2.18 and 3.4 (Hansch et al. 1995), respectively. The metals in groundwater, while ranging in adsorption potential, are present at concentrations only moderately above the NAWQC; thus, they are unlikely to represent a significant source of sediment contamination. Due to the lack of PBT constituents, the minor adsorption potential for chlorobenzenes and the moderate exceedances of detected metals, the development of groundwater target levels for the protection of sediment exposures to human receptors is not recommended.

4.3.3 Calculation of Groundwater Target Levels

It is recommended that groundwater target levels for protection of surface water human exposures be set for all COPCs identified according to recommendations in Section 4.2 above. The screening evaluation suggests a human health concern from exposures to groundwater COPC concentrations but assumes direct exposure of recreators to groundwater concentrations. This does not represent the actual surface water exposures for recreators in Mill Creek because it does not account for mixing and dilution naturally occurring at and downgradient of the groundwater/ surface water interface. Thus, once target ambient surface water concentrations have been determined, as described in Section 4.3.2 above, the groundwater concentration that will result in this target surface water concentration, under 7Q10 flow conditions, can be calculated. It is recommended that groundwater target levels be set in terms of mass flux to surface water, based on the NAWQC for each COPC, and according to calculation methods outlined in Attachment 3. If the current mass flux of groundwater COPCs exceed these target levels, further risk evaluation should be conducted by back-calculating groundwater target levels using the inverse of standard risk equations along with recreator-specific exposure factors.

5.0 OHIO EPA REQUIREMENTS

While the above text summarizes recommendations that will meet EPA requirements, Rohm and Haas must also meet OEPA requirements in developing groundwater target

levels. EPA has consulted with OEPA regarding the acceptability of the methodologies described in this document. OEPA has responded that, in general, these methodologies will meet State requirements (refer to Attachment 4). However, as discussed in OEPA's letter (Attachment 4), OEPA may require further stream characterization prior to target level development.

For reference, OEPA has indicated that Ohio state law prohibits, with few exceptions, the discharge of pollutants into waters of the state, including groundwater. The discharge of contaminated groundwater to surface water is also prohibited. Limited exceptions are granted to permit-holders or for specified activities. Relevant sections of the Ohio Revised Code are copied below, also for reference purposes.

6111.04 Acts of pollution prohibited; exceptions.
(A) (1) No person shall cause pollution or place or cause to be placed any sewage, sludge, sludge materials, industrial waste, or other wastes in a location where they cause pollution of waters of the state.

6111.01 Definitions.
(A) "Pollution" means the placing of any sewage, sludge, sludge materials, industrial waste, or other wastes in any waters of the state.
(C) "Industrial waste" means any liquid, gaseous, or solid waste substance resulting from any process of industry, manufacture, trade, or business, or from the development, processing, or recovery of any natural resource, together with such sewage as is present.
(D)"Other wastes" means garbage, refuse, decayed wood, sawdust, shavings, bark, and other wood debris, lime, sand, ashes, offal, night soil, oil, tar, coal dust, dredged or filled material, or silt, other substances that are not sewage, sludge materials, or industrial waste, and any other "pollutants" or "toxic pollutants" as defined in the Federal Water Pollution Control Act that are not sewage, sludge, sludge materials, or industrial waste.
(H) "Waters of the state" means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and other bodies or accumulations of water, surface and underground, natural or artificial, regardless of the depth of the strata in which underground water is located, that are situated wholly or partly within, or border upon, this state, or are within its jurisdiction, except those private waters that do not combine or effect a junction with natural surface or underground waters.

6.0 SUMMARY

This document has presented recommended risk-based methods for developing risk-based groundwater target levels that will be protective of both human health and ecological exposures in Mill Creek. Table 1 below presents a brief summary of these recommendations.

For ecological COPCs, concentration-based groundwater target levels must be developed to protect benthic zone infauna and epifauna, as described in Section 3.3.2 above. Because sediment exposures are expected to drive the ecological target levels for groundwater, development of separate target levels intended to protect aquatic organisms from surface water exposures may not be necessary. Nonetheless, methods for developing target levels based on surface water exposures are presented in Section 3.3.2 and Attachment 3. It is recommended that target levels based on surface water exposures be set in terms of mass flux of groundwater COPCs to surface water, rather than in terms of specific groundwater concentrations.

Similarly, groundwater target levels designed to protect human health exposures to Mill Creek surface water should be set in terms of mass flux of groundwater to surface water, as described in Section 4.3.3 and Attachment 3.

While the risk-based methodologies presented herein are intended to meet EPA Corrective Action requirements, Rohm and Haas should ensure that State requirements are also met, as discussed in Section 5.0 and Attachment 4.

Table 1
Summary of Recommended Methods for Establishing Groundwater Target Levels

Rohm and Haas Chemicals LLC., Reading, Ohio						
	Human Health			Ecological		
Media (1)	**Screening values used for selection of COPCs**	**Target value**	**Development of groundwater cleanup levels**	**Screening values for selection of COPCs**	**Target value**	**Development of groundwater cleanup levels**
Surface water and bank seeps (seep data treated as surface water)	National Ambient Water Quality Criteria (NAWQC)	Set as screening levels for surface water or calculate target for recreation scenario using the inverse of risk equation for target risk of 10^{-6} and site-specific exposure factors.	Determine maximum contaminant mass flux in groundwater to surface water that will meet target levels under seven-day ten year low flow (7Q10) conditions.	OEPA's Outside mixing zone average (OMZA) aquatic life criteria and Tier II values for the Ohio River Basin (use Region 5 Ecological Screening Levels [ESL] if these values are not available).	Screening levels for surface water; alternatively, develop site-specific target values (for surface water) based on toxicity tests.	Determine maximum contaminant mass flux in groundwater to surface water that will meet target levels under 7Q10 conditions.
Groundwater	NAWQC			OEPA's OMZA aquatic life criteria and Tier II values for the Ohio River Basin (Region 5 ESL if these values are not available)		
Sediment (Benthic Zone)	Region 9 Preliminary Remediation Goals for Residential Soil	Set as screening levels for sediment (may not consider site-specific target values because the development of target levels based on sediment is not recommended).	The development of target levels based on sediment target values is not recommended due to lack of PBTs, minor adsorption potential for chlorobenzenes, and presence of metal concentrations at levels that moderately exceed screening criteria.	Region 5 ESL in combination with OEPA Sediment Reference Value (SRV)	Apply screening levels for surface water to pore water or, alternatively, develop site-specific target values for surface water based on toxicity tests. Target concentrations are the same for pore water and surface water. Assumptions: Toxicological targets can be set for pore water, which best represents exposure to benthic taxa. Contaminated groundwater discharges to the bed of Mill Creek.	Groundwater target levels protective of benthic biota are equivalent to target values. Assumption: Benthic zone pore water is equivalent to groundwater (i.e., no dilution).

Notes:
(1) Rohm and Haas facility will provide documentation for EPA evaluation on the presence of PAHs, PCBs, and pesticides concentrations in Mill Creek upstream from the Rohm and Haas facility to support their assertion that elevated concentrations of these classes of chemicals cannot be directly attributed to the Rohm and Haas facility. Attachment 2 provides a more detailed discussion of PCBs and pesticides based on Booz Allen's analysis of spatial trends in soil.

7.0 REFERENCES

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ATTACHMENT 1

Chemicals of Potential Bioaccumulative Concern

The sections that follow discuss the potential for chemicals detected in groundwater, surface water, seeps, and/or sediments to bioaccumulate, and as a result, present risk to higher trophic level wildlife receptors. As indicated earlier, Rohm and Haas will provide documentation for EPA evaluation on the presence of PAHs, PCBs, and pesticides concentrations in Mill Creek upstream from the Rohm and Haas facility to support their assertion that elevated concentrations of these classes of chemicals cannot be directly attributed to the Rohm and Haas facility. Also refer to Attachment 2 for a more detailed discussion of PCBs and pesticides. Note that EPA will evaluate the selection of COPCs as part of upcoming review and approval of the BRA Report for the Rohm and Haas facility.

Based on the bioaccumulative potential of the chemicals discussed below, in combination with the concentrations detected, it is not expected that appreciable bioaccumulation of Rohm and Haas contaminants will occur. Although uncertainty could be reduced by conducting site-specific tissue residue analyses of fish and/or invertebrates, these additional evaluations do not appear to be warranted, given the low levels of bioaccumulative contaminants detected in surface water and sediments.

METALS

For many metals, tissue residue-toxicity relationships can be highly variable because organisms might sequester metal in various forms that might be analytically measurable as tissue residue but are actually stored in unavailable forms within the organism as a form of detoxification (Suter et al. 2000). Consequently, bioconcentration factors (BCFs) and bioaccumulation factors (BAFs) from the literature are unreliable substitutes for site-specific values.

ANTIMONY

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no biota-sediment accumulation factor (BSAF) included in EPA 2000. Antimony is not generally considered a problem from bioaccumulation, and since it exceeds the OMZA criteria and Region 5 ESL at only one well upgradient of the French drain, is probably not a concern for bioaccumulative effects in Mill creek.

ARSENIC

Arsenic (As) is accumulated by aquatic organisms primarily through dietary exposure, and not directly from water (EPA 2000). There is also no evidence of magnification along the aquatic food chain. BCFs experimentally determined for arsenic in aquatic

organisms (except for algae) are relatively low, not exceeding 17 (summarized in Eisler 1988). Arsenic may bioconcentrate to a higher degree in lower trophic levels, but diminishes significantly in higher trophic levels such as fish (Chen and Folt 2000). There is no BSAF included in EPA 2000.

Arsenic was detected downgradient of the French drain at UAW03-20 and MW-EPA-1, at 905 µg/L and 483 µg/L, respectively. These are relatively slight exceedances of the OMZA criteria and ESL of 150 and 148 µg/L, respectively (about three- to six-fold). Therefore, for higher trophic level organisms exposed to the contribution of groundwater to surface water, arsenic does not appear to be a concern through bioaccumulation in Mill Creek.

BARIUM

Barium is not typically a significant concern for bioaccumulative effects. There was no bioaccumulation information for freshwater organisms found in the literature. In water, the more toxic soluble barium salts are likely to precipitate out as the less toxic insoluble sulfate or carbonate. Marine animals concentrate barium approximately seven- to 100-fold from seawater (EPA technical fact sheet on Barium (http://www.epa.gov/OGWDW/dwh/t-ioc/barium.html). There is no BSAF listed in Appendix D of the EPA National Sediment Quality Survey.

Barium was detected downgradient of the French drain at UAW03-20 and MW-EPA-1, and at UAW02-20 (not influenced by French drain) at 227 µg/L, 246 µg/L, and 271 µg/L, respectively. These are relatively slight exceedances of the OMZA criteria and ESL of 220 µg/L. Therefore, for higher trophic level organisms exposed to the contribution of groundwater to surface water, barium does not appear to be a concern through bioaccumulation in Mill Creek.

CADMIUM

Most studies reviewed contained data which suggest that cadmium is not a highly mobile element in aquatic food webs, and there appears to be little evidence to support the general occurrence of biomagnification of cadmium within marine or freshwater food webs (EPA 2000). Shephard (2000) lists a BCF of 64, which is relatively low. The evidence for cadmium transfer through various trophic levels suggests that only the lower trophic levels exhibit biomagnification. Experimentally, fish fed cadmium-contaminated cladocerans for four days showed no change in body burdens (Eisler 2000).

The highest concentration of cadmium detected on site was 1.2 µg/L upgradient of the French drain at UAW04-20, which exceeded the R5 ESL of 0.15 µg/L (about nine times), but not the OMZA aquatic life criteria of 5.2 µg/L. Since barium does not biomagnify significantly, it does not appear to be a concern for higher trophic level organisms exposed to the contribution of groundwater to surface water in Mill Creek.

CHROMIUM

Chromium (Cr) appears to have limited mobility under typical conditions in most aquatic habitats because the trivalent form tends to bind to sediments. A log BCF of 2.74 was reported for *Daphnia magna*, and little evidence exists for the bioaccumulation/ biomagnification of chromium in aquatic food webs, although sediments frequently contain elevated concentrations of trivalent chromium (EPA 2000). In virtually all studies in both marine and freshwater environments involving birds and mammals, there was no biomagnification of chromium in the food web, but rather decreasing concentrations with increasing trophic level (Outridge and Scheuhammer 1993). Sensitive species of freshwater aquatic organisms showed reduced growth, inhibited reproduction, and increased bioaccumulation at about 10.0 µg/L and higher of Cr+6, and other adverse effects at 30.0 µg/L and higher of Cr+3.

A concentration of 505 µg/L of chromium was found in groundwater at monitoring well UAW25-20, which should be re-confirmed. A concentration of 37.2 µg/L was recorded downgradient of the French drain at MW-EPA-1, which is within the range of adverse effects noted above. Bioaccumulative effects would therefore be limited to the hyporheic and benthic burrowing biota if exposed to undiluted groundwater, but bioaccumulative effects in surface water organisms should not be significant.

COBALT

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no BSAF included in EPA 2000. Cobalt is not generally considered a problem from bioaccumulation, and since it exceeds the OMZA criteria and Region 5 ESL only one seep (SS-1, at 43.8 µg/L) by less than two times the OMZA aquatic life criteria and Region 5 ESL of 24 µg/L, cobalt is probably not a concern for bioaccumulative effects in Mill Creek.

COPPER

Little evidence exists to support the general occurrence of biomagnification of copper in the aquatic environment; copper is taken up by aquatic organisms primarily through dietary exposure, and is highly variable between species (EPA 2000; Eisler 2000). The bioavailability of copper is also influenced to some extent by total water hardness and the acid-volatile sulfide (AVS) concentration.

Copper was detected in seeps SS-1 and SS-2 at 104 µg/L and 31.9 µg/L, respectively. These concentrations exceed the OMZA criteria and ESL of 21 µg/L and 1.58 µg/L, respectively; however they would be diluted significantly after mixing with surface water. The groundwater concentrations have been much lower, and close to the aquatic life toxicity criteria level, so copper is probably not accumulating significantly even at the lower trophic levels. Therefore, for higher trophic level organisms exposed to the

contribution of groundwater to surface water, copper does not appear to be a concern through bioaccumulation from surface water in Mill Creek.

LEAD

Although methylated lead is rapidly taken out from the water by some fish, there is no evidence of biomagnification in the aquatic environment (EPA 2000; Eisler 2000). Among aquatic biota, lead concentrations were usually highest in algae and benthic organisms, and lowest in upper trophic level predators. In water, lead is most soluble and bioavailable at low pH, low organic content, and with low concentrations of calcium, iron, manganese, zinc, and cadmium, and is capable of forming insoluble metal sulfides and easily complexes with humic acid. Most lead entering surface waters is precipitated in the sediment as carbonates or hydroxides.

Log BCFs of 5.15 (cladoceran) and 3.56 (midge) were reported in the literature (EPA 2000). Lead is accumulated by aquatic organisms equally from water and through dietary exposure; in sediments, a portion of lead can be transformed to trimethyllead and tetraalkyllead compounds through chemical and microbial processes. Bioaccumulation of organolead compounds is rapid and high; these compounds concentrate in the fatty tissues of aquatic organisms.

Lead was not detected in surface water, and was not detected in sediments at concentrations above Ohio reference values, so currently, lead is likely not a concern for bioaccumulative effects in Mill Creek.

MERCURY

Mercury is accumulated by all trophic levels, with biomagnification occurring up the food web (EPA 2000). Fish bioconcentrate methylmercury directly from water by uptake across the gills , and piscivores readily accumulate mercury from dietary sources. Methylmercury accumulation from either source may be substantial, but the relative contribution of each pathway may vary with fish species. Invertebrates generally have a lower percentage of methylmercury in their tissues than fish. The percentage of methylmercury increases with age in both fish and invertebrates. While sediment is usually the primary source of methylmercury in most aquatic systems, and the food web is the main pathway for accumulation, methylmercury can be accumulated directly from the water by uptake across the gills.

High trophic level species tend to accumulate the most methylmercury, with concentrations highest in fish-eating predators. Methylmercury concentrations in higher trophic species often do not correlate with concentrations in environmental media. Correlations have been made between sediment and lower trophic species that typically have a high percentage of inorganic mercury, and between mercury concentrations in higher trophic species and their prey items. Because of the complex environmental chemistry of mercury, the best measure of bioavailability of mercury in any system can

be obtained through analysis of mercury concentrations in the biota at the specific site.

NICKEL

Nickel in the aquatic environment can partition to dissolved and particulate organic carbon, and although fish can accumulate nickel from food and water (Eisler 2000), there is little evidence to support the general occurrence of biomagnification of nickel in the aquatic environment (EPA 2000, Eisler 2000).

Concentrations of nickel were 128 µg/L at UAW25-20 and 214 µg/L at seep SS-1. After dilution with surface water, nickel is probably not a concern for bioaccumulative effects in Mill Creek.

THALLIUM

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no BSAF included in EPA 2000. Thallium is not normally of concern for bioaccumulative effects, and is probably not of concern at this site.

TIN

The chemical, physical, and biochemical properties of inorganic tin compounds differ dramatically from those of representative organotin compounds. There is general agreement that inorganic tins are not highly toxic due to their poor absorption and rapid turnover rate in tissues (Eisler 2000). Although inorganic tin can be biomethylated by microorganisms in the aquatic environment and subsequently mobilized in the ecosystem, the process is slow and usually does not proceed beyond the monomethyltin stage. Methyltins are ubiquitous in the environment and have been measured in seawater, freshwater, rain, wastewaters, sediments, fish, invertebrates, birds, and humans. The monoorganotin compounds generally have a low toxicity. Among aquatic organisms, tributyltin compounds were especially potent. Bioconcentration of inorganic and organic tin compounds from the medium is considerable, but degradation is sufficiently rapid to preclude food chain biomagnification.

Relatively high concentrations of tin were found in several groundwater samples and seeps at the site. If these are inorganic or naturally produced mono-organotin forms of tin, there is probably little risk of adverse effects through bioaccumulation. If it is suspected that the form of tin is a manufactured form of organotin, then chemical analyses to confirm the species of tin present would be required for further assessment.

VANADIUM

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no BSAF included in EPA 2000. Vanadium is not normally of

concern for bioaccumulative effects, and is probably not of concern at this site.

ZINC

BCFs for zinc accumulation varied widely between and within species of aquatic organisms (Eisler 2000). Zinc is not a highly mobile element in aquatic food webs, and there appears to be little evidence to support the general occurrence of biomagnification of zinc within freshwater food webs (EPA 2000). Tissue residue-toxicity relationships can also be variable because organisms sequester metals in different forms that are measurable as tissue residue but can actually be stored in unavailable forms within the organism as a form of detoxification. Bioavailability of zinc in sediments is controlled by the AVS concentration.

Although zinc was detected in seeps SS-1 and SS-2 at 411 µg/L and 219 µg/L, respectively, dilution in surface water should reduce concentrations below screening levels (120 µg/L at hardness of 100 mg/L), and since it does not bioaccumulate or biomagnify significantly, it should not pose a risk to aquatic biota at these levels.

ORGANICS

CHLOROBENZENES and DICHLOROBENZENES

The bioaccumulation of chlorobenzenes by aquatic organisms is determined by their relative water and lipid solubility (thus reflecting the octanol/water partition coefficients) and the number of chlorine substitutions (summarized in IPCS 1991). Uptake from water increases with increasing chlorination. BCFs ranging from 270 for 1,2-dichlorobenzene to 20,000 for pentachlorobenzene (PeCB) were reported for laboratory studies on rainbow trout (*Oncorhynchus mykiss*). BCFs for a variety of fish species ranged from 7,000 to 24,000 (lipid weight) for 1,2,4-trichlorobenzene, with a positive correlation between bioaccumulation and lipid content. BCFs (lipid weight) ranged from 4,000 to 22,000 for 1,2,3-trichlorobenzene and 1,2,4-trichlorobenzene in rainbow trout, with newly hatched fish accumulating two to four times the amount found in eyed eggs or young fish (alevins). The rate of elimination of chlorobenzenes decreases with increasing chlorination, and elimination half-lives for dichlorobenzenes to PeCB in laboratory-exposed fish ranged from 0.05 to 1.6 days.

Tissue burdens of 1,070, 138, 1,440, and 47 mg/kg wet weight were the lowest concentrations for significant mortality value for chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene, respectively, in the ERED database (for rainbow trout). From the higher concentrations detected on site, such as the 1,300 µg/L 1,2-dichlorobenzene detected at MW-EPA-1, these would be reached at log BCFs of 2 to 3, which is near or just above the approximate range of BCFs for some dichlorobenzenes. However, since elimination for monochlorobenzenes and dichlorobenzenes is relatively rapid, and dilution from groundwater concentrations

would reduce ambient water concentrations below that of groundwater, there is probably little or no bioaccumulative risk.

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ATTACHMENT 2

Discussion of Contribution to PCBs and Pesticides Impacts in Mill Creek from Historic Activities at the Rohm and Haas Site

Booz Allen Hamilton (Booz Allen) conducted a review of several documents related to the Rohm and Haas facility in Reading, Ohio, to assess the contribution from historic activities at the Rohm and Haas facility property to polychlorinated biphenyls (PCBs) and pesticides concentrations reported for Mill Creek sediment, and to evaluate the significance of off-site sources and/or background contamination. The Current Conditions Report, Morton International, Inc. Facility, Reading, Ohio, prepared by Geomatrix Consultants, Inc., dated September 2000, indicates that the Rohm and Haas Facility was constructed in 1949 and commenced chemical manufacture operations in 1950. Prior to 1949, the northern portion of the property was used as a winery or distillery, and reportedly as a smokehouse and fireworks manufacturer. The southern portion of the property was a dairy farm and milk bottling facility. To conduct the above assessment and evaluation, Booz Allen also reviewed several historic documents[1,2] that contained historic information on impacts identified at surrounding properties (i.e., the Pristine, Inc., and Cincinnati Drum, Inc., sites). These sites have been identified in the September 2004 Revised Facility Investigation Report as possible sources of off-site contamination, but are <u>not</u> considered the only potential off-site sources. Other off-site sources likely exist in the vicinity of the Rohm and Haas facility, and it is also likely that documentation exists in support of other potential off-site sources that were not reviewed by Booz Allen[3]. However, for the purpose of this analysis, the identified historic documents were reviewed as examples of information pertaining to off-site sources in the vicinity of the Rohm and Haas facility, in order to assess the significance of background concentrations. Results of this analysis are presented below, by contaminant class.

<u>PCBs</u>

Aroclor 1248 was detected at two sample locations, the furthest upstream sample (CS-6A, 0.06 mg/kg) located near the northwest property boundary and downgradient (west)

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[1] Hydrogeologic Report of the Pristine-Cincinnati Drum-Carstab Site in Reading, Ohio. Prepared by Ecology and Environment, Inc. Dated November 1982.

[2] Final Remedial Investigation (RI) Report, Pristine, Inc. Site, Reading, Ohio. Prepared by Camp Dresser & McKee, Inc. Dated July 18, 1986.

[3] As an example, the "Addendum to the RI Report for the Pristine, Inc. Site", dated December 29, 1987, was identified as a document potentially containing information on off-site sources in the area.

of the former surface impoundments (SWMU 1), and the furthest downstream sample (CS-1A, 0.07 mg/kg) located approximately 900 feet downstream of the southwestern property boundary. Aroclor 1254 was detected in one sample location (CS-3A, 0.1 mg/kg) located immediately west of the southwestern corner of the site. Aroclor 1248 was also detected at sample location CS-5A (0.023 J mg/kg), located downgradient (west) of the French Drain; however, this detected concentration is below Region 5 ESLs.

A review of available soil data indicates that PCBs are detected at relatively low concentrations throughout the entire site. PCBs were detected in all quadrants of the site ranging from 0.011 mg/kg to 0.98 mg/kg. Over 70 on-site soil sampling locations (not including differentiated sample depths) have been sampled, but only 17 sample locations reported PCB detections. Approximately 23% of the on-site soil samples contained minimal concentrations of PCBs. Minimal concentrations (i.e., concentrations up to 0.24 mg/kg [Aroclor 1260, Sample B09]) of PCBs were also reported in three of ten (i.e., 30%) background samples. In addition, based upon a review of the data, there is not a clear source of PCB contamination at the Rohm and Haas facility. All concentrations reported are minimal and sporadically detected throughout the site. Thus, the physical distribution and levels of PCBs detected at the site appear to indicate that the Rohm and Haas site did not significantly contribute to detected concentrations of PCBs in Mill Creek sediment, and that the detected concentrations cannot be attributed to historic activities associated with the Rohm and Hass facility.

Recent groundwater samples (2004) did not report PCB contamination. However, in November 2001, PCBs were detected at four sample locations throughout the site at concentrations ranging from 0.45 µg/L to 0.92 J µg/L. In addition, PCBs have not been reported in surface water.

The two historic reports (e.g., Hydrogeologic Report and RI Report cited in Footnotes 1 and 2) were reviewed to determine if a clear off-site source of PCBs existed. The RI Report indicates that PCB-contaminated solvents and PCB-contaminated soybean oil were stored at the Pristine site. The report also indicates that from June 1980 to November 1983, much of the waste at the site, including PCB-contaminated soil, was removed in accordance with consent decree between Pristine, Inc., and Ohio EPA. The reports do not provide substantial information on off-site PCB analysis; however, Aroclor 1248 was reported in the southwestern portion of the site at concentrations as high as 55 mg/kg. The report indicates that this detection corresponded with a PCB storage tank. The report did not provide PCB results for sediment or surface water. No other relevant information was obtained from these reports.

Based upon a review of available information, a source of PCB contamination at the Rohm and Haas facility was not identified. Sources of PCB contamination were historically present at the Pristine site; however, limited data are available. Thus it is impossible to correlate the off-site PCB contamination to PCB impacts on the Rohm

and Haas facility or in the adjacent Mill Creek. Due to the physical distribution of contamination reported at the Rohm and Haas facility, and the lack of an identified historical source at the site, it appears that PCBs detected in Mill Creek bed sediment may be mainly, if not exclusively, related to off-site sources and/or elevated background concentrations.

Pesticides

Pesticides contributions from former farming activities at the facility and the relevancy of off-site sources and background contamination warrant additional evaluation. Three pesticides (dieldrin, beta-BHC, and 4,4'-DDE) were reported in Mill Creek bed sediment, while only two (4,4'-DDE and beta-BHC) were reported in creek bank sediment above Region 5 ESLs. Creek bed sediment samples were collected in March 2004, while the most recent creek bank sediments were collected in October 2001. As with PCBs, pesticides were detected in the most upstream creek bed sample (CS-6A, dieldrin = 0.024 mg/kg) and the most downstream sample (CS-1A, dieldrin = 0.002 J mg/kg). Creek bank pesticide detections were reported along the central site boundary (SS-4, beta-BHC = 0.094 PG mg/kg) and the southwestern site boundary (SS-10, 4,4'-DDE = 0.0046 PG mg/kg; SS-12, 4,4'-DDE = 0.023 PG mg/kg).

A review of on-site soil sample results indicates that beta-BHC, dieldrin, and 4,4'-DDE were also detected throughout the site at relatively low levels. Beta-BHC was reported at concentrations ranging from 0.0017 mg/kg to 0.25 mg/kg; dieldrin was reported at concentrations ranging from 0.00015 mg/kg to 0.064 mg/kg; and 4,4'-DDE was reported at concentrations ranging from 0.0002 mg/kg to 0.2 mg/kg. Out of the over 70 on-site soil samples collected (not including differentiated sample depths), only 16 sample locations reported one or more of these three pesticides. Thus, approximately 22% of the on-site soil samples contained one or more of these three pesticides that were also reported in sediments in Mill Creek. 4,4'-DDE and dieldrin were also reported in four of ten background samples (i.e., 40% of background samples collected), with maximum concentrations of 0.019 mg/kg and 0.055 mg/kg, respectively. Based upon a review of the data, pesticides were minimally reported in the northeast, southeast and southwest quadrants of the site. Pesticides were more routinely reported in the northwest quadrant of the site in the area of the former surface impoundments (SWMU 1) (i.e., nine sample locations). However, the concentrations detected are consistent with those detected elsewhere on site and in background locations. Thus, the physical distribution and levels of pesticides detected at the site appear to indicate that the Rohm and Haas site did not significantly contribute to detected concentrations of pesticides in Mill Creek sediment, and that the detected concentrations cannot be attributed to historic activities associated with the Rohm and Hass facility.

Recent groundwater samples (2004) did not report pesticide contamination. However, the pesticides detected in sediment have been reported at low concentrations in on-site groundwater samples during previous sampling events conducted between 2001 and 2003. Pesticides have not been reported in surface water.

The two reports related to the Pristine and Cincinnati Drum sites were again reviewed to determine if a clear off-site source of pesticides existed. During operation, the Pristine facility managed a liquid waste disposal unit where solvents and other organic compounds—including pesticides—were incinerated. The RI Report indicates that DDT and other pesticides were stored at the Pristine site, and that from June 1980 to November 1983, much of the waste at the site, including DDT and other pesticides, was removed in accordance with a consent decree between Pristine, Inc., and Ohio EPA. The reports provide pesticide analysis for soil areas, borings, and groundwater and sediment sampling conducted in 1985. Pesticides, including dieldrin and 4,4'-DDE and its parent product DDT, were detected in soil areas and soil borings throughout the Pristine site. Based upon sample results, concentrations of DDT were reported at much higher concentrations in soil (up to 18 mg/kg in soil borings and 10 mg/kg in soil area samples[4]) than DDE (up to 0.37 mg/kg in soil borings, and 3 mg/kg in soil area samples) or DDD. Similar results were observed in sediment samples, with DDT reported up to 20.7 mg/kg, and DDE reported up to 2.8 mg/kg. DDT and DDE were also detected in surface water (up to 1.82 µg/L and 0.86 µg/L, respectively) and storm water (up to 1.45 µg/L and 0.06 J[5] µg/L, respectively) samples. Dieldrin was also reported in soil borings (up to 0.149 mg/kg), soil area samples (up to 1.5 mg/kg), and sediment samples (up to 0.075 J mg/kg). Beta-BHC (up to 0.4 µg/L) and DDD (0.14 µg/L) were detected in upper aquifer groundwater samples in the northeastern and southeastern section of the Pristine site. Based upon a review of the data, pesticides were routinely reported in media samples collected at the Pristine site, and at much higher levels than were reported for background samples collected as part of the Pristine investigation (e.g., dieldrin was reported up to 0.46 mg/kg and DDT was reported up to 0.019 mg/kg in background soil samples). In fact, the RI Report indicates that pesticides, along with volatile organic compounds, are the <u>predominant</u> contaminant at the facility.

The RI Report indicates that runoff from the site drains to Mill Creek via surface ditches running along the northern and southern sides (adjacent to the Rohm and Haas property) of the Cincinnati Drum property. Surface water and sediment sample results collected in these drainage ditches reported elevated levels of pesticides, including beta-BHC, DDE and its parent DDT, and dieldrin. The report also indicates that during extremely wet periods, runoff from the Pristine site could pond and extend into off-site areas at the adjacent Cincinnati Drum property. Thus, runoff could have possibly impacted off-site soil at other adjacent industrial properties as well. Thus, it appears that historic releases of DDT and other pesticide materials/wastes impacted

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[4] The Pristine site was divided into ten on-site soil areas. Two off-site soil area was also identified. Soil area samples consisted of soil collected from five different locations within the designated soil area that were composited into one sample for analysis.

[5] Contract laboratory program qualifier that indicates an estimated value (not added to total fraction).

surrounding media at the Pristine site, as well as off-site sediment, surface water, and possibly soil.

Based upon a review of available information, a source of pesticide contamination at the Rohm and Haas facility was not identified. Sources of pesticide contamination were historically present at the Pristine site, and available data appear to support Pristine as a potential off-site source of pesticide contamination. However, as mentioned above, pesticides have also been reported in background sampling conducted as part of the Rohm and Haas and Pristine investigations; pesticides also appear to be present at low levels in soil in areas surrounding the Rohm and Haas facility. Thus, due to the physical distribution of contamination reported at the Rohm and Haas facility, the lack of significant contribution from historical farming activities at the site, and the historic sample results indicating a potential source of pesticide contamination at the off-site, adjacent Pristine site, it appears that the pesticides detected in Mill Creek sediment above Region 5 ESLs may be mainly, if not exclusively, related to off-site sources (e.g., Pristine, Cincinnati Drum, and others) and/or elevated background concentrations.

ATTACHMENT 3

Methods for Calculating Groundwater Contaminant Mass Flux to Surface Water

With only minor modification, the basic methodology utilized during the CA750 Environmental Indicator (EI) evaluation (Question 6) to determine contaminant loadings and the surface water concentration resulting from the discharge of contaminants from the Rohm and Haas facility into Mill Creek remains appropriate for determining the ambient surface water concentration in Mill Creek. In its September 15, 2004 letter regarding the CA750 EI analysis, Rohm and Haas's consultant, Geomatrix, identified no fundamental problems with the basic methodology, although Geomatrix indicated some concern with the conservative nature of the analysis.

As indicated in EPA's *Supplemental Guidance for Environment Indicator CA750, Migration of Contaminated Groundwater Under Control: Groundwater-Surface Water Interactions*, the first step in estimating the contaminant concentrations in the receiving surface water is to determine contaminant mass fluxes to the surface water body. This can be accomplished by first estimating the groundwater volumetric flux to the surface water body using Darcy's Law:

$$Q_{gw} = K \times i \times A \qquad \text{(Eq. 1)}$$

where

Q_{gw} = groundwater volumetric flux (l^3/t),
K = hydraulic conductivity of subsurface materials upgradient of discharge (l/t),
I = hydraulic gradient upgradient of the discharge (l/l), and
A = discharge area (cross section of the contaminant plume area at the point of discharge) (l^2).

All units are expressed in terms of length (l), time (t), and mass (m).

The contaminant mass flux due to groundwater discharge into the surface water body is then determined by multiplying the groundwater volumetric flux by the contaminant concentration in groundwater using the following equation:

$$M_{gw} = C_{gw} \times Q_{gw} \qquad \text{(Eq. 2)}$$

where

M_{gw} = contaminant mass flux in groundwater (m/t), and
C_{gw} = contaminant concentration in groundwater immediately upgradient of point of discharge (m/l^3).

The resulting contaminant concentration in surface water may be computed by averaging the contaminant mass flux over the combined surface water flow upstream of the point of discharge and groundwater volumetric flux of the discharge using the following equation:

$$C_{sw} = (M_{gw})/(Q_{gw} + Q_{sw}) = (C_{gw} \times Q_{gw})/(Q_{gw} + Q_{sw}) \qquad \text{(Eq. 3)}$$

where

C_{sw} = resulting contaminant concentration in surface water (m/l), and
Q_{sw}= volumetric surface water flow rate (l/t).

It is important to note that Equation 3 differs from that used during the CA750 analysis because it does not include the dilution factor of 10 used in that analysis.

Equation 3 can be reexpressed to determine the maximum allowable contaminant mass flux in groundwater to a surface water body that will meet a specified ambient surface water criteria based on a known volumetric surface water flow rate:

$$M_{gwmax} = C_{swcrit} \times (Q_{gw} + Q_{sw}) \qquad \text{(Eq. 4)}$$

where

M_{gwmax} = maximum allowable contaminant mass flux in groundwater, and
C_{swcrit} = ambient surface water criteria.

If the volumetric groundwater flux (Q_{gw}) is known, Eq. 4 can be reexpressed to determine the maximum allowable contaminant concentration in groundwater that will meet a specified ambient surface water flow rate based on a known volumetric surface water flow rate:

$$C_{gwmax} = (C_{swcrit}/Q_{gw}) \times (Q_{gw} + Q_{sw}) \qquad \text{(Eq. 5)}$$

where

C_{gwmax} = maximum allowable contaminant concentration in groundwater based on a specified ambient surface water criteria and known groundwater and surface water volumetric fluxes.

The application of Equation 5 is problematic along the northern portion of the western boundary of the Rohm and Haas facility because the French drain system operated along this section of the property boundary not only controls some portion of the groundwater flux to Mill Creek but also appears to influence the concentration of contaminants migrating past the French drain (see discussion of groundwater concentrations below). Thus, the groundwater flux and concentration of groundwater

contaminants downgradient of the French drain are not independent, but the exact relationship between the two is unclear. As a result, the application of Equation 4, in which a maximum allowable contaminant mass flux in groundwater is established, will likely be more appropriate than the establishment of maximum contaminant concentrations in groundwater along the portion of the boundary influenced by the French drain using Equation 5. Such an approach would require that the French drain or other hydraulic control system be designed and operated in a manner that allows only a specified contaminant mass flux in groundwater to discharge to Mill Creek. In the area along the western facility border, south of the influence of the French drain system, it may be possible to establish a maximum allowable contaminant concentration in groundwater using Equation 5. However, if a remedial measure that requires partial hydraulic control is required along this portion of the boundary, the application of Equation 5 along the southern portion of the boundary may become problematic as well.

Use of these equations requires the estimation of values for each of the component parameters. All of these parameters have previously been estimated for use in the CA750 analysis previously completed. In their letter of September 15, 2004, Geomatrix indicated that the parameters used were frequently unduly conservative, although Geomatrix acknowledged that such conservative assumptions were appropriate for the CA750.

When computing the contaminant mass flux, the CA750 used a value of 0.019 for the hydraulic gradient. Geomatrix did not comment on this parameter, and the basis for this parameter was not provided in the CA750. For determining groundwater target levels, the most appropriate way to determine the hydraulic gradient for computation of contaminant mass flux appears to be to use the difference between the water level in Mill Creek adjacent to the site and the water levels of those monitoring wells immediately downgradient of the French drain. Use of these wells will help to eliminate the impact on groundwater flow resulting from the operation of the French drain.

When computing the contaminant mass flux, the CA750 also used a value of 106 feet per day (ft/day) for the hydraulic conductivity. This value was based on aquifer testing performed on the Rohm and Haas facility in 2001. Geomatrix indicated that this was not an appropriate value, as it was based on recent pump testing of the French drain that resulted in a yield of only 10 gallons per minute (gal/min) rather than the 60 gal/min predicted using the previous hydraulic conductivity measurement of 106 feet per minute (ft/min). Based on the 10 gal/min yield of the French drain pump test, Rohm and Haas's consultants indicated that a value of approximately 20 ft/day was more appropriate. It is important to note that Rohm and Haas did not perform any formal quantitative analysis of the data resulting from the French drain pump test upon which to base the 20 ft/day hydraulic conductivity estimate. More significantly, the pump testing of the French drain did not clearly establish that the 10 gal/min yield of the test was sufficient to capture all of the shallow groundwater passing across the drain to Mill Creek. The low yield of the pump test may be attributable to a number of factors beside

the low hydraulic conductivity of the Shallow Upper Aquifer (UA) Sand, including the hydraulic inefficiencies of the French drain system. Consequently, the French drain pump test does not appear to provide an adequate basis for estimating the hydraulic conductivity value to be used in calculating contaminant mass flux to Mill Creek. The most appropriate approach to estimating this parameter may be to use slug test data from those wells located immediately downgradient of the French drain. Hydraulic conductivity data from these wells should provide the most direct measurement of the hydraulic characteristics of the Shallow UA Sand in the area between the French drain and Mill Creek.

When calculating the area through which the contaminated groundwater discharged to Mill Creek, the CA750 used an aquifer thickness of 20 feet. Rohm and Haas's consultants have indicated that the saturated thickness of the Shallow UA Sand ranges only between 0.5 and six feet. Based on the water levels depicted on the Groundwater Gradient Map shown in Figure 5-1 and the vertical distribution of the Shallow UA Sand depicted on Cross-Section E-E' shown on Figure 5-7 of the September 2004 Revised Facility Investigation Report, the range of saturated aquifer reported by Geomatrix appears to be reasonable. However, to verify the actual saturated thickness of the Shallow UA Sand in the area downgradient of the French drain, Rohm and Haas should provide a detailed comparison of the vertical distribution of the Shallow UA Sand and water level in each monitoring well downgradient of the French drain.

When calculating the resultant contaminant concentration in Mill Creek, the CA750 used the annual mean stream flow value reported from the United States Geological Survey (USGS) gauging station at Mill Creek. However for the chronic effects consider in this analysis, the appropriate flow estimate is the seven day, ten year low flow (7Q10) value. According to the U.S. Geological Survey (USGS), the USGS gage on Mill Creek probably has sufficient period of record to calculate the 7Q10.

When establishing contaminant concentrations in groundwater, the CA750 included the maximum values observed along the western edge of the site, including several locations upgradient of the French drain system. Geomatrix has indicated that groundwater quality data from only those wells located downgradient of the French drain system should be used in determining the contaminant concentrations of groundwater discharge to Mill Creek. The concentrations for some contaminants on the upgradient and downgradient sides of the French drain do appear to be significantly different. The factors that lead to these differences are unclear since similar concentrations on both sides of the French drain would normally be expected. One factor may be groundwater mixing due to incomplete hydraulic capture.

Geomatrix has further indicated that the wells used to establish the quality of groundwater discharging to the Mill Creek should include only UAW07-20, MW-EPA-1, UAW05-20, UAW03-20, UAW02-20, UAW25-20, and UAW01-30. Since some portion of the upgradient groundwater flow is being captured by the French drain system, the use of only those wells located downgradient of the French drain to establish the quality

of groundwater discharging to Mill Creek appears appropriate. Those specific wells suggested by Geomatrix similarly appear appropriate. However, consideration should be given to including UAW02-40 in the list of monitoring wells used to determine the quality of groundwater discharging to Mill Creek. The Deep UA Sand as depicted on Cross-Section D-D' shown on Figure 5-6 of the September 2004 Revised Facility Investigation Report indicates that the Shallow UA Sand extends to approximately 530 feet above mean sea level (msl) at Mill Creek, and UAW02-40 is screened in the Deep UA Sand which extends upward to approximately 525 feet msl at UAW02-40. Since stratigraphic control is weak in the area between the western boundary of the Rohm and Haas facility and Mill Creek, groundwater monitored by UAW02-40 may discharge to Mill Creek. Rohm and Haas may wish to provide further data and/or analysis to resolve this issue.

Should Rohm & Haas cease to operate or abandon the French drain, it may be useful to expand the monitoring network to include those Shallow UA Sand monitoring wells located immediately upgradient and adjacent to the French drain, to determine compliance with target levels. However, since the intention of such a monitoring program is to characterize the quality of groundwater actually discharging to Mill Creek, the inclusion of monitoring wells further upgradient, throughout the site would not appear necessary.

It is strongly recommended that when performing the analysis of contaminant mass flux to Mill Creek, Rohm and Haas should divide the western boundary into a series of segments centered on each monitoring well used to evaluate groundwater quality. This approach would best account for the variability observed in contaminant concentrations, Shallow UA Sand thickness, and groundwater gradients between the western boundary of the facility and Mill Creek.

ATTACHMENT 4

Memorandum from Ohio EPA

OhioEPA

Interoffice Memorandum

Date: July 14, 2005
Subject: Comments Regarding the Recommended Approach for Development of Groundwater Cleanup Goals at the Rohm and Haas Facility, Reading, Ohio, June 29, 2005
To: Harold O'Connell, Division of Hazardous Waste Management, Southwest District Office
From: Mylynda Shaskus and John Estenik, Division of Surface Water, Central Office

As per Diana Zimmerman's (DSW-SWDO) request on July 8th, we have reviewed the document "Recommended Approach for Development of Groundwater Cleanup Goals, Rohm and Haas Facility, Reading, Ohio, June 29th, 2005", and offer our comments below.

Because this document is not a stand-alone document, we assumed that the chemicals of potential concern (COPCs) selected were correct based on available data and according to the screening procedure specified in the document. What we would like to see in order to make this determination for ourselves is a table that contains a summary of surface water and sediment concentrations of all detected chemicals, including ranges of detection, detection frequency, quartile concentrations and detection limits.

Ecological Cleanup Goal Development

In general, we agree with the approach suggested in developing groundwater, surface water, and sediment cleanup goals. We agree that using the OMZA and ESL values will be a protective approach for groundwater, surface water, and sediment pore water. We also agree that site-specific toxicity tests, developed in conjunction with EPA, could be used to develop cleanup goals if OMZA and ESL values are not chosen.

However, there appears to be continued uncertainty as stated in the document regarding sediment depositional areas, transitional water zones, and macroinvertebrate taxa in Mill Creek. Before a mass flux calculation could be performed to develop surface water cleanup goals, a significant amount of further stream characterization would need to be undertaken.

Human Health Cleanup Goal Development

We agree with the approach to screening for COPCs using national ambient water quality standards (NAWQCs) for surface water and Region 9 preliminary remediation goals (PRGs) for soil for sediment goals.

We agree with the assessment that cleanup criteria for fish ingestion are not necessary. However, as stated earlier in the document, we would like to see the data summaries for the COPCs, in particular those for the dichlorobenzenes, chlorobenzene, benzene, and bis(2-ethylhexyl)phthalate, to ensure that this conclusion is correct.

We agree with the use of the NAWQC values as cleanup goals in surface water. We also agree that site-specific values for surface water goals could be developed instead of using the NAWQC values, provided that the exposure parameters are developed in conjunction with input from EPA.

For sediment cleanup goals, we agree that using the Region 9 PRGs for residential soil would be protective of human receptors.

In regard to groundwater cleanup goals, we want to reiterate that if mass flux calculations are to be used, site-specific inputs need to be justified through further characterization of the stream.

Summary of Review

To summarize, we feel that Booz Allen's proposal to develop cleanup goals for the Rohm and Haas Facility would result in concentrations protective of ecological and human receptors.

However, because the document is not stand-alone, and relies on data and information presented in other documents, we could not compare actual site data and information to that presented in this document. Therefore, we would like to see summaries of the available surface water, sediment, and groundwater data before finalizing our conclusions.

In addition, the document expresses uncertainty regarding the amount of groundwater that is contributing to surface water in the vicinity of the facility, the macroinvertebrate taxa found in Mill Creek in the vicinity of the facility, and the stream morphology in the vicinity of the facility, in particular the quantity and nature of stream sediments. If options for cleanup goals other than the most conservative options are chosen (i.e., site-specific evaluations or toxicity tests are to be conducted in lieu of using OMZA, ESL, NAWQC, and Region 9 PRG values, or if mass flux equations are used), more site-specific information regarding the contribution of groundwater to surface water, the present or potentially present macroinvertebrate community, and the amount and type of sediment found in the vicinity of the facility will need to be developed further.

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April 28, 2006
B-09075-0143-3503
REPA3-3503-116

Mr. Bernie Orenstein
Regional Project Officer
U.S. EPA Region 5 (DM-7J)
77 West Jackson Blvd.
Chicago, IL 60604

Subject: EPA Contract No. 68-W-02-018, Work Assignment R05803-3, Task 2, TDM No. 2. Electronic Data Deliverable (EDD) Merge for the Rohm & Haas Site (Formerly Morton International, Inc.), Reading, Ohio.

Dear Mr. Orenstein:

In response to Work Assignment R05803-3, Task 2, Technical Direction Memorandum (TDM) 2, of EPA Contract No. 68-W-02-018, Booz Allen Hamilton (Booz Allen) has merged the EDD submitted by Rohm & Haas (formerly Morton International, Inc.). Access to and locations of the merged EDD is outlined in the enclosed document.

Please call me at (312) 578-4590 or Brendan Finnegan at (312) 578-4581, if you have any questions or would like to discuss these materials further.

Sincerely,

Marta Woloszyn

Marta Woloszyn
Work Assignment Manager

BOOZ ALLEN HAMILTON

Enclosures

cc: Tom Manning, EPA Work Assignment Manager
Allen Wojtas, EPA Alternative Work Assignment Manager
Mirtha Caprio, EPA Technical Advisor
LaShawn Smith, EPA Contracting Officer
Booz Allen EPMT QA/QC Coordinator

ELECTRONIC DATA DELIVERABLE (EDD) ACCESS AND LOCATIONS
ROHM & HAAS
READING, OHIO

April 28, 2006
REPA3-3503-116

Booz Allen Hamilton received an EDD and subsequent resubmittals from Rohm & Haas (formerly Morton International, Inc.). After working with the data provider, the United States Geological Survey (USGS), and EPA to correct errors in the data, this data was incorporated into the Groundwater Evaluation and Optimization System (GEOS).

All of this data is located on the R5gissrv1 server, which is accessible through the GEOS group located on the 5th floor of the Metcalf Building at 77 West Jackson Boulevard, Chicago, Illinois. Booz Allen merged the chemistry and geology data to the following locations:

\\R5gissrv1\edman\EquisPrj\morton_intl\EDD\chem
\\R5gissrv1\edman\EquisPrj\morton_intl\EDD\geo

This data can now be accessed via the Environmental Quality Information Systems (EQuIS).

The EDD files that were merged are located at:

\\R5gissrv1\edman\EquisPrj\morton_intl\EDD\Resubmittal 20050620\BAH\merged

The lithology (LTH) file was not merged due to a need for USGS to provide further information. When this data is available, it can be added to the LTH file which is located at:

\\R5gissrv1\edman\EquisPrj\morton_intl\EDD\Resubmittal 20050620\BAH\LTH

The LTH file will then need to be checked using the Electronic Data Processor (EDP), and loaded and merged into the database using EQuIS Geology. When this occurs, it will be located with the other geology data at:

\\R5gissrv1\edman\EquisPrj\morton_intl\EDD\geo

The EDD information located within EQuIS is now available for use by GEOS to create maps and analyses showing groundwater contamination and other chemistry and geology trends at the site.

Booz | Allen | Hamilton

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July 28, 2005
B-09075-0143-2502
REPA3-2502-206v2

Mr. Bernie Orenstein
Regional Project Officer
U.S. EPA Region 5 (DM-7J)
77 West Jackson Boulevard
Chicago, IL 60604

Subject: EPA Contract No. 68-W-02-018, Work Assignment R05802-2, Task 02, TDM No. 17. Final Recommended Approach for Development of Groundwater Cleanup Goals, Rohm and Haas, Reading, Ohio.

Dear Mr. Orenstein:

In response to Work Assignment R05802-2, Task 02, under EPA Contract No. 68-W-02-018, please find attached our Final Recommended Approach for Development of Groundwater Cleanup Goals for the Rohm and Haas facility in Reading, Ohio.

This deliverable incorporates comments made by several reviewers from agencies including EPA Region 5, EPA Office of Research and Development, Ohio EPA, and the U.S. Geological Survey.

If you have any questions regarding this deliverable, please contact me at (312) 578-4579.

Sincerely,

Kari Thompson

BOOZ ALLEN HAMILTON (for)

Daniel L. Briller, P.E.
Work Assignment Manager

Enclosures

cc: Allen Wojtas, EPA Work Assignment Manager
Mirtha Capiro, EPA Technical Advisor
Thomas Valentino, EPA Contracting Officer (cover letter only)
LaShawn Smith, EPA Contract Specialist (cover letter only)
Booz Allen EPMT QA/QC Coordinator

FINAL RECOMMENDED APPROACH FOR DEVELOPMENT OF GROUNDWATER CLEANUP GOALS ROHM AND HAAS FACILITY READING, OHIO

July 28, 2005
REPA3-2502-206v2

1.0 PURPOSE

EPA Region 5 has tasked Booz Allen Hamilton (Booz Allen) with providing ecological and human health risk assessment support on the Rohm and Haas facility (formerly known as the Morton facility) in Reading, OH. At this facility, contaminated groundwater discharges into the adjacent stretch of Mill Creek. In response to EPA direction, Booz Allen has prepared recommended methods for developing groundwater cleanup goals that will be protective of both ecological and human health exposures in Mill Creek.

In the process of developing this document, Booz Allen consulted with EPA Region 5 and EPA Office of Research and Development during a conference call on May 13, 2005. Recommendations made during this conference call have been incorporated into this document, as appropriate.

The sections that follow briefly summarize the hydrogeology of Mill Creek, present guidance on applicable exposure pathways and selection of chemicals of potential concern (COPCs) for ecological and human health, and discuss risk-based methods for developing groundwater cleanup goals. While these recommendations are intended to meet all EPA requirements, it is noted that Rohm and Haas must also meet Ohio EPA (OEPA) regulatory requirements. OEPA requirements are briefly discussed in Section 5.0; Rohm and Haas should consult with OEPA for further direction or clarification.

2.0 MILL CREEK HYDROGEOLOGY

As reported in the Revised Facility Investigation Report (FI Report) (Geomatrix 2004), Mill Creek is the only body of surface water in the vicinity of the Rohm and Haas Facility. Mill Creek is a tributary of the Ohio River, and the confluence of Mill Creek and the Ohio River is located approximately 14 miles south of the Rohm and Haas Facility.

The FI Report (pg. 8) indicates that, "Mill Creek currently lies 80 to 100 feet west of the Morton Facility property boundary. Before about 1950, however, aerial photographs indicate that, in the vicinity of the Morton Facility, the creek lay about 300 feet west of its current location. The change is reported to be part of drainage and flow control improvements performed by the U.S. Army Corps of Engineers around 1950."

The FI Report (pg. 64 - 65) characterizes Mill Creek as "typically shallow (less than 24 inches), with intermittent rapids and pools. The pools in vicinity of the Morton Facility exhibited depths up to 5 feet during normal flow conditions." The bed of the creek has been characterized as "comprised predominately of rock and concrete, probably reflecting the materials used during the U.S. Army Corps of Engineers rechannelization. Sediment is completely absent through most of the streambed, with small accumulations, typically less that 1 inch downstream on larger rocks. One area of streambed sediment was observed west of the Morton Facility, this is believed to represent the remains of a major bank collapse associated with flooding in July 2001." The general absence of sediment is likely due to the strong scour resulting from increased flow during and after major storm events.

The FI Report (pg. 59) has identified "a single shallow sand bed, termed the Shallow Upper Aquifer (UA) Sand [that] was observed at typical depth of 10 to 20 feet below ground surface (bgs) across most of the Morton Facility," and was observed to be absent only in the northeast corner of the facility. The FI Report further indicates that water-level data "consistently indicated groundwater flow (in the Shallow UA Sand) is generally from the east and northeast of the Morton Facility, across the site toward the west and west-southwest to Mill Creek." The FI Report (pg. 61) has acknowledged that, "the Shallow UA Sand is the hydrogeologic unit most likely to be affected by surface releases at the Morton Facility." Groundwater quality data support this conclusion.

The FI Report (pg. 65) has further acknowledged that, "shallow UA Sand is in hydraulic communication with Mill Creek, and is discharging groundwater through the banks and bed of the creek." However, the lack of hydrogeologic data between the western boundary of the facility and the creek, combined with the variability exhibited by the Shallow US Sand, renders uncertain the extent to which the Shallow UA Sand may discharge through both the bank and streambed of the portion of Mill Creek along the northern segment of the western facility boundary. The Shallow UA Sand thins significantly along this portion of the facility's western boundary, and the Shallow UA Sand may not discharge up through the streambed. However, several seeps have been noted on the bank of the creek along this portion of the property. The FI (pg. 80) indicates that, "sampling of these seeps has identified several constituents also observed in shallow Morton Facility groundwater, including tin, BTEX, chlorobenzenes, and dichlorobenzenes." Unless hydrogeologic data and/or analysis is presented that clearly indicates otherwise, discharge through both the bank and streambed should be assumed along this portion of the facility boundary.

A French drain has been installed and is operated along the northern portion of the western facility boundary in an effort to control the discharge of groundwater contaminants in the Shallow UA Sand to Mill Creek. Groundwater quality data downgradient of the French drain indicate that the French drain is only partially effective in controlling the discharge of contaminated groundwater into Mill Creek.

3.0 ECOLOGICAL RISK EVALUATION AND CLEANUP GOAL DEVELOPMENT

3.1 Exposure Pathways and Assessment Endpoints

Groundwater and associated contaminants flow downgradient and may enter the hyporheic zone beneath the streambed near Mill Creek, where the water may be a mixture of surface water and groundwater. The zone where groundwater and surface water mixing occurs is hereafter referred to as the 'transition zone'. The transition zone is usually located below or near the sediment-water interface; however, its exact depth and extent depends on hydraulic and geological conditions. This transition zone may extend for many meters from the streambed (both vertically and laterally), or it may be relatively small, especially if it is primarily at or near the sediment-water interface. In gaining reaches of Mill Creek, the transition zone may be at or very near the sediment-water interface. In this situation, the benthic zone (i.e., the area inhabited by benthic biota) may consist almost entirely of groundwater, and mixing with surface waters would occur predominantly in the stream channel above the streambed. The streambed sediments will be saturated primarily with undiluted groundwater (as pore water), and the organisms of this zone will be exposed essentially to the physical and chemical conditions of the groundwater. Seepage meter tests could be attempted to determine the rate at which groundwater flows into Mill Creek, which would permit a better understanding of the transition zone in the segment of Mill Creek adjacent to the Rohm and Haas site.

In contrast, if there were losing reaches of Mill Creek where the stream surface water flowed at a high rate down through the sediments, the pore water environment would consist almost entirely of surface water, and mixing with groundwater would occur predominantly further beneath the bed of the stream channel. The streambed sediments would be saturated primarily with undiluted surface water (as pore water), and the benthic organisms of the streambed would be exposed essentially to the physical and chemical conditions of the surface water.

Between these two extreme situations, there could be stream segments where the pore water of the sediments resembled neither undiluted groundwater nor undiluted surface water, but rather, some intermediate condition. Depending on local topography, water table heights, streamflow, and geological and soil characteristics, segments of streams could have many alternating gaining and losing reaches over relatively short distances, or could alternate between these two conditions over shorter or longer time intervals. Thus, the transition zone could be located at a variety of depths along the length of the stream and could vary through time as well. Given what is currently known about the hydrogeology of Mill Creek, as discussed in Section 2.0, a reasonably conservative assumption is that the benthic zone contains pore water with characteristics of undiluted groundwater. The benthic organisms may therefore be exposed, at a maximum, to contaminants at the concentrations in undiluted groundwater. In addition, the aquatic organisms in the water column of the stream will be exposed to groundwater contaminants as determined by the mixing and dilution of groundwater and surface water, which in most cases will be at lower concentrations than in groundwater.

Flows of groundwater to streams provide important microhabitats for a variety of organisms, including: thermal refugia for fish spawning, feeding, and nursery habitats; primary or temporary habitat for many invertebrates at all or some stages of their life cycle; and habitat for bacteria, fungi, protozoans, diatoms, and other organisms that provide for nutrient cycling as well as food items for higher trophic level organisms.

Since the bottom of Mill Creek consists primarily of rock and concrete rubble with very little soft sediments, it should have a predominately hard substrate epibenthic fauna that would live on hard surfaces of the substrate, including beneath the surface layer of the rubble where some part of the transition zone conditions probably extends. These organisms, typically algae, insects, crustaceans, and molluscs, are often present in significant numbers in such substrates, and can provide a significant food source for fish and other higher trophic level organisms. The softer substrate beneath the rubble would also provide habitat to a community of organisms specialized for existence in the hyporheic zone. The presence or absence of organisms within the benthic areas and in the transition zone will depend on a number of existing environmental conditions, notably factors such as toxicity, oxygen concentration, particle size, and food availability (which may or may not be influenced by groundwater characteristics), that determine the actual distribution and abundance of organisms in this zone. In Mill Creek, the benthic zone is likely to encompass surficial sediments, rock and concrete rubble, and perhaps even the sand layer beneath the rock and concrete.

Accordingly, the following assessment endpoints are recommended:

- Maintenance and sustainability of the infaunal and epifaunal community of the benthic zone in Mill Creek
- Maintenance and sustainability of the aquatic life community inhabiting overlying surface water in Mill Creek.

Because fish and invertebrates may be exposed to contaminants in Mill Creek, trophic transfer of contaminants through the aquatic food web to wildlife must also be considered. Based on a review of contaminants detected in groundwater, seeps, surface water and sediment, however, appreciable bioaccumulation is unlikely to occur as a result of contaminants discharging to Mill Creek via groundwater. Refer to Attachment 1 for a detailed discussion of each potentially bioaccumulative contaminant detected at Rohm and Haas. Due to this limited potential for bioaccumulation, a detailed discussion of methodologies for developing groundwater cleanup goals to protect wildlife through the Mill Creek food web pathway is not included in this document. Brief recommendations are provided in Section 3.3.1. Uncertainty regarding bioaccumulation could be reduced by conducting site-specific tissue residue analyses of fish and/or invertebrates, but these additional evaluations do not appear to be warranted, given the low levels of bioaccumulative contaminants detected in surface water and sediments.

Comparison of media concentrations to water and sediment screening values is recommended to assess the potential risk of direct toxicity to benthic infauna and epifauna and aquatic life in Mill Creek surface water, as discussed below in Section 3.2.

3.2 Selection of Ecological COPCs

The recommended process for selecting COPCs for further evaluation and cleanup goal development is described in the following sections.

3.2.1 Exposure Concentrations

To select COPCs, available data for surface water, sediment, seeps, and groundwater should be considered. Chemicals with maximum detected concentrations in any of the above media that exceed applicable screening values should be retained for further risk evaluation and cleanup goal development.

Those monitoring wells screened in the Shallow UA Sand along the western boundary of the facility, immediately upgradient of Mill Creek, should provide the water quality most likely to be representative of that discharging into Mill Creek. These monitoring wells include UAW03-20, UAW05-20, UAW07-20, and MW-EPA-1 along the downgradient edge of the French drain, and UAW-1-30, UAW02-20, UAW02-40, and UAW25-20 along the western boundary of the facility and south of the expected location of the French drain. However, it is recommended that groundwater quality data from all on-site monitoring wells screened in the Shallow UA Sand be used to identify COPCs. Inclusion of wells upgradient of the French drain in the COPC selection process will ensure that cleanup goals are developed for any chemical that could pose future risk threat in case of reduced effectiveness of the French drain or any other selected remedy.

As discussed in Section 2.0, groundwater is currently discharging through the banks into Mill Creek. During their October 2001 field event, Rohm and Haas identified and sampled seeps at two locations along the bank that were discharging to Mill Creek. Although these data may not be fully representative of groundwater concentrations discharging to Mill Creek, they are considered indicative of groundwater contaminants that are discharging to the creek. Consequently, the seep data should be used in the screening process to determine COPCs that may require groundwater cleanup goals. It is noted that, since the sampled seeps were discharging through the creek bank and not the creek bed, seep concentrations may not be representative of transition zone pore water concentrations. Groundwater discharge at the creek bank is not considered to be part of the transition zone, as described in Section 3.1, because the discharge occurs mostly above level of the surface water (subject to water level fluctuation), and mixing of groundwater and surface water within the sediments is not occurring in this area. Transition zone pore water concentrations have not been directly measured by Rohm and Haas. Seep concentrations may also not be representative of the average concentrations in groundwater discharging through the entire Shallow UA Sand to Mill Creek because these seeps only represent groundwater traveling in the shallowest portion of the Shallow UA Sands. In addition,

due to other sampling considerations, samples taken from seeps may not be as representative of groundwater conditions as those taken from monitoring wells.

It is noted that, based on Ohio EPA's recommendation that polycyclic aromatic hydrocarbons (PAHs) are ubiquitous in Mill Creek and elevated concentrations cannot be directly attributed to the Rohm and Haas facility, we do not recommend further evaluation of PAHs in Mill Creek. Similarly, based on Booz Allen's analysis of spatial trends in polychlorinated biphenyl (PCB) and pesticide concentrations, these two classes of chemicals cannot be attributed to the Rohm and Haas facility. Consequently, PAHs, PCBs, and pesticides should not be selected as COPCs, despite screening value exceedances. Refer to Attachment 2 for a more detailed discussion of PCBs and pesticides.

3.2.2 Screening Values

Ohio EPA outside mixing zone average (OMZA) aquatic life criteria (from Ohio Administrative Code (OAC) Section 3745-1-07, Tables 7-1 and 7-9) and Tier II values for the Ohio River Basin (http://www.epa.state.oh.us/dsw/wqs/criteria.html) should be the primary source of screening values applied to measured concentrations in groundwater, surface water, and seeps. For those chemicals lacking an appropriate OMZA value, EPA Region 5 Ecological Screening Levels (ESLs) (USEPA 2003a) should be used. According to this hierarchy, chemicals with maximum concentrations exceeding the ESL but not the OMZA value should *not* be retained as COPCs.

In accordance with EPA guidance (Prothro 1993), dissolved metals concentrations should be used as exposure point concentrations, in preference to total metals concentrations, because dissolved metals concentrations are thought to better represent the bioavailable fraction. In cases where the measured total metal concentrations exceed total metal screening values, but measured dissolved metal concentrations do not exceed dissolved metal screening value, the metal should not be retained as a COPC.

For sediment, EPA Region 5 ESLs (USEPA 2003a) should be used in combination with Ohio EPA Sediment Reference Values (SRV) for the Interior Plateau ecoregion (OEPA 2003). Only those chemicals with a maximum concentration that exceeds both the ESL and the SRV should be selected as a COPC. In cases where the maximum concentration exceeds the ESL, but not the SRV, concentrations of the chemical are consistent with regional background levels and benthic organisms are likely to be adapted to local concentrations. Conversely, in cases where the SRV is exceeded but the ESL is not, the chemical may be present at elevated concentrations, but these concentrations are unlikely to be sufficiently high to cause toxicity to benthic organisms.

It is noted that both EPA Region 5 and Ohio EPA use MacDonald et al. (2000) threshold effect concentrations as the preferred source of sediment screening values.

3.3 Methods for Groundwater Cleanup Goal Development

3.3.1 Target Ambient Surface Water and Sediment Concentrations

To develop groundwater cleanup goals that will be protective of Mill Creek ecological receptors, target ambient surface water and sediment concentrations must first be developed. These targets can then be used to calculate appropriate groundwater cleanup goals, as outlined below in Section 3.3.2.

For surface water, target concentrations could be set as the screening values described in Section 3.2.2 (i.e., OMZA and ESL values). These OMZA and ESL values should be sufficiently protective of aquatic life in Mill Creek, but may be lower than necessary as a result of site-specific factors that affect the bioavailability and toxicity of certain chemicals.

For sediments, additional sampling of sediments and biota below or between hard substrate objects would be needed to delineate the density and abundance of various species in the benthos.

A conservative assumption, would require no additional data collection or evaluation, would be that the benthic zone pore water concentration is equal to the groundwater concentration. The toxicological targets could then be set as pore water concentrations, rather than as bulk sediment concentrations, since pore water best represents exposure to most benthic taxa. Target ambient concentrations for surface water (i.e., OMZA and ESLs), should be applied to sediment pore waters. Application of surface water quality criteria to pore water is fairly well supported, as recent EPA guidance (e.g., USEPA 2003b) on Equilibrium Partitioning Sediment Benchmarks indicates that benthic-dwelling aquatic life are similar to water column-dwelling aquatic life with respect to toxicological sensitivity.

If the facility prefers not to rely on the default OMZA and ESL values, then toxicity tests using standard test organisms could be conducted to develop more definitive site-specific target concentrations. The groundwater dilution that would result in non-toxic surface waters could be estimated by conducting toxicity tests using groundwater collected from the site in a series of dilutions with Mill Creek surface water collected from the site. The results of these toxicity tests could then be used to develop protective, site-specific target surface water and sediment pore water concentrations. Should the facility choose to develop site-specific target surface water and sediment concentrations, it is recommended that a work plan be submitted to EPA for review and approval prior to the initiation of any toxicity tests. Selection of test methods, taxa, and endpoints should be considered carefully to ensure that an ambient toxicity-based approach to establishing target concentrations does not inappropriately ignore effects on untested sensitive taxa. For well-studied COPCs, it should be possible to place the expected sensitivity of the site-specific toxicity tests within the broader spectrum of species and endpoint sensitivity.

Once target sediment pore water and surface water values are determined as discussed above, risks to wildlife through the aquatic food web pathway should be calculated using the target concentrations as exposure point concentrations. These calculations are only needed for those COPCs for which wildlife risks were indicated in the June 2005 Screening Ecological Risk Assessment (SERA) or that are highly bioaccumulative (see Attachment 1). Based on a preliminary review of the SERA and site-wide groundwater concentrations, it appears that these risk calculations may be necessary for lead, mercury, and tin. It is expected that target concentrations will be sufficiently low to protect wildlife, but the target concentrations should be adjusted if calculated risks indicate hazard quotients greater than one.

3.3.2 Calculation of Groundwater Cleanup Goals

It is recommended that groundwater cleanup goals be set for all COPCs identified according to the recommendations provided above in Section 3.2. Although additional ecological evaluation could demonstrate that the current flux of groundwater contaminants into Mill Creek is not causing ecological impacts, setting cleanup goals for these COPCs will provide decision criteria to judge whether the French drain or any other selected remedy remains effective in the future.

To develop groundwater cleanup goals that are protective of both surface water and sediment exposures, two separate cleanup goals for each constituent may need to be calculated based on surface water exposure to aquatic organisms and sediment pore water exposure to benthic zone epifauna and infauna. Methods for calculating cleanup goals are described in more detail below.

Cleanup Goals Based on Surface Water Exposure

Once target ambient surface water concentrations have been developed as described in Section 3.3.1 above, the groundwater concentration that will result in this target surface water concentration under seven day, ten year low flow (7Q10) flow conditions can be calculated. It is noted that, if benthic zone pore water is assumed to be equivalent to groundwater (i.e., no dilution), then cleanup goals based on surface water do not need to be calculated. Under these circumstances, the pore water-based groundwater cleanup goal will drive the overall ecological groundwater cleanup goal because target concentrations are the same for pore water and surface water. However, if additional investigation demonstrates that groundwater does not contribute significantly to benthic zone pore water, then the surface water-based groundwater cleanup goals will need to be calculated as described in Attachment 3. As discussed in this attachment, it is recommended that groundwater cleanup goals be set in terms of mass flux to Mill Creek, rather than as target groundwater concentrations.

Cleanup Goals Based on Sediment Exposure

As previously discussed, a conservative assumption would be that the sediment pore water concentration is equal to the groundwater concentration. Under this assumption, no additional

data collection or evaluation would be required, and groundwater cleanup goals would be set as the target sediment pore water concentration. This is a reasonable assumption where the stream reach is gaining from groundwater or the hydrologic conditions are unknown, and concentrations of COPCs in groundwater have been measured from monitoring wells or other samples located near the stream channel itself. A more detailed discussion of associated assumptions is included below. Note that in contrast to the recommended procedure for developing cleanup goals based on surface water exposure, which should be set in terms of mass flux, cleanup goals based on sediment exposure can be set in terms of target groundwater concentrations.

Discussion of Assumptions Made in Cleanup Goal Recommendations

Groundwater cleanup goals that are protective of benthic zone infauna and epifauna can be determined as outlined above, with little or no additional data collection, under the following assumptions:

- The benthic zone infaunal and epifaunal communities in Mill Creek are significant enough to warrant protection, either currently or in the future
- Contaminated groundwater from the Rohm and Haas facility is discharging up through the bed of Mill Creek
- Benthic zone pore water chemical concentrations are equivalent to groundwater (i.e, pore water is not diluted by surface water)
- Contaminants present in groundwater are unlikely to bioaccumulate in Mill Creek biota to a significant degree, and do not warrant further risk evaluation

With the exception of the final two assumptions, the above assumptions are more likely to produce overprotective cleanup goals than underprotective ones. Consequently, it is our best professional judgement that cleanup goals developed according to the above recommendations will be adequately protective of the infaunal and epifaunal community of the benthic zone in Mill Creek, as well as the aquatic life community in the overlying surface water. Some additional discussion regarding these assumptions is provided below for reference.

Benthic zone pore water should not be considered similar to groundwater under the following circumstances:

- Creek bed is highly disturbed and not likely to support significant hyporheic or benthic biota
- In losing reaches of streams where the pore water would resemble stream surface water rather than groundwater
- The contaminant is found in denser layers of plumes (i.e., dense non-aqueous phase liquids [DNAPLs]) that are below the hyporheic zone
- There is a geological barrier or hydrologic condition that prevents contaminated groundwater from entering the hyporheic zone (such as low or non-permeable soils or rock, channeling away from the stream before interception)

EPA and Rohm and Haas may wish to further consider whether any of the above conditions apply at Mill Creek before setting groundwater cleanup goals as described in this document.

4.0 HUMAN HEALTH RISK EVALUATION AND CLEANUP GOAL DEVELOPMENT

4.1 Exposure Pathways

Potential exposure at the site is a function of the current and potential future land uses, both of the site and its surrounding area. The Rohm and Haas facility is an active industrial facility, and is anticipated to remain such for the foreseeable future, as the site is zoned for heavy industrial land use. As described in Section 2.0, there is a shallow upper aquifer and a lower aquifer. The upper aquifer is not used as a potable water supply source. The lower aquifer is widely used as a source of potable water; however, there are no known active supply wells at or in the immediate area of the site. The shallow groundwater flow is generally from the east and northeast towards the west and west-southwest and discharges into Mill Creek. Thus, contaminated groundwater may potentially interact with the surface water and sediment in the creek. While there is no direct human contact with the groundwater in the vicinity, human contact with Mill Creek surface water (including seep water), and sediment is possible. The potential pathways of human exposure for Mill Creek include the following:

- Recreational adult and child exposures to surface water during wading via incidental ingestion, dermal contact, and inhalation
- Recreational adult and child exposures to sediment during wading via incidental ingestion, dermal contact, and inhalation
- Recreational adult and child exposures to contaminated fish tissue via consumption

The following sections will recommend the screening values that should be used to determine COPCs for Rohm and Haas groundwater, and Mill Creek surface water, sediment, and fish tissue.

4.2 Selection of Human Health COPCs

The recommended process for selecting COPCs for further evaluation and cleanup goal development is described in the sections that follow.

It should be noted that PAHs, PCBs, and pesticides were not selected as COPCs despite screening value exceedances since these compounds can not be attributed to the Rohm and Haas facility, as previously discussed in Section 3.2.1 (see Attachment 2).

4.2.1 Exposure Concentrations

Those monitoring wells screened in the Shallow UA Sand along the western boundary of the facility, immediately upgradient of Mill Creek, should provide the water quality most likely to be representative of that discharging into Mill Creek. These monitoring wells include UAW03-20, UAW05-20, UAW07-20, and MW-EPA-1 along the downgradient edge of the French drain, and UAW-1-30, UAW02-20, UAW02-40, and UAW25-20 along the western boundary of the facility and south of the expected location of the French drain (as discussed in Section 3.2.1). However, it is recommended that groundwater quality data from all on-site monitoring wells screened in the Shallow UA Sand be used to identify COPCs. Inclusion of wells upgradient of the French drain in the COPC selection process will ensure that cleanup goals are developed for any chemical that could pose future risk threat in case of reduced effectiveness of the French drain or any other selected remedy. Chemicals with maximum detected concentrations above applicable screening criteria are retained for further risk evaluation and cleanup goal development. Refer to Section 3.2.1 for a discussion of seep data.

To select COPCs, groundwater, surface water, seep, and sediment data should be screened. For all media, the maximum detected concentration should be used, and if a contaminant is not detected, the maximum detection limit should be used for evaluation.

4.2.2 Screening Criteria

Groundwater at or in the vicinity of the site is not used as potable water. However, groundwater is discharging into surface water at Mill Creek. Thus, EPA's National Recommended Ambient Water Quality Criteria (NAWQC) for human health consumption of surface water and aquatic organisms (e.g., fish, crayfish) represent conservative screening values for the groundwater discharging into Mill Creek, and are compared with measured concentrations in groundwater and surface water (including seep water) (USEPA 2004). Given the recreational use of Mill Creek and potential for direct contact with surface water, the NAWQC are the most appropriate criteria, as they account for both ingestion of surface water and the bioaccumulation of appropriate contaminants in the tissues of aquatic organisms using established EPA methodology and published bioconcentration factors (BCFs).

Ohio EPA's non-drinking OMZA human health criteria (from OAC Section 3745-1-32 for the Ohio River Basin), are based solely on the ingestion of organisms from which concentrations are derived using laboratory studies (e.g., exposure to mammals such as rats or mice). These criteria are protective of people against adverse exposure to chemicals via the fish ingestion pathway. Based on the results of the evaluation of bioaccumulative contaminants detected at Rohm and Haas (see Attachment 1), contaminated fish tissue are not expected to occur at Mill Creek. Thus, the Ohio non-drinking OMZA human health criteria are not entirely appropriate considering the ingestion of contaminated fish is not expected to be a complete exposure pathway. While Ohio does have drinking OMZA human health criteria, these criteria are also not appropriate as there are no potable water intakes at or in the vicinity of Rohm and Haas site.

To evaluate contaminant concentrations in sediment, the EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil were used. This is consistent with Ohio EPA, Division of Emergency and Remedial Response Technical Decision Compendium dated April 28, 2004.

4.3 Recommended Methods for Developing Cleanup Goals

4.3.1 Target Cleanup Criteria for Fish Ingestion

The development of groundwater cleanup criteria for the protection of human health from fish consumption is not necessary because the identified COPCs are either not bioaccumulative or only slightly bioaccumulative. In addition, groundwater concentrations of these COPC are less than two orders of magnitude above the NAWQC, which are based upon $1x10^{-6}$ risk. Finally, fish will not be exposed directly to these groundwater concentrations but will be exposed to much lower concentrations in surface water, given the 7Q10 flow conditions and the potential for dilution (Attachment 3).

4.3.2 Target Ambient Surface Water and Sediment Concentrations

To develop groundwater cleanup goals that will be protective of Mill Creek recreators (i.e., children and adults), target surface water (including seep water) and sediment concentrations first need to be developed. These targets can then be used to calculate appropriate groundwater cleanup goals, as outlined below.

For surface water (including seep water), target concentrations could be set as the NAWQC values described in Section 4.2.2. These NAWQC values will be sufficiently protective of human health exposures at Mill Creek, but may be overly conservative due to lower exposure conditions experienced by recreators. Alternatively, site-specific recreator target concentrations could be back-calculated for surface water using the inverse of standard risk equations, a target risk of $1x10^{-6}$, and site-specific exposure factors. Current risk assessment guidance (i.e., EPA's 1997 Exposure Factors Handbook Volumes I-III, 2004 Risk Assessment Guidance for Superfund, Part E: Supplemental Guidance for Dermal Risk Assessment, etc.) and professional judgement should be used to develop the exposure frequency, incidental ingestion rate, skin surface area and other exposure factors relevant to Mill Creek recreational exposures. The regional climate for this part of Ohio as well as the local physical setting should be considered when developing these site-specific recreator target levels.

For sediments, target concentrations could be set as the EPA Region 9 PRG for residential soil exposures. When sediment data for Mill Creek are compared to soil PRGs, only arsenic and PAHs exceed screening levels. As previously discussed, PAHs cannot be attributed to the Rohm and Haas facility and should not be considered COPCs. Arsenic concentrations in sediment samples averaged 4.7 mg/kg with a maximum detection of 6.3 mg/kg. These concentrations likely represent ubiquitous, regional levels of arsenic.

In addition, there are no persistent, bioaccumulative, and toxic (PBT) constituents present in groundwater. Consequently, it is unlikely that groundwater COPCs are a significant future source of sediment contaminant load. Chlorobenzene and dichlorobenzene only exhibit minor sediment adsorption potential, with log K_{ow}s of 2.18 and 3.4 (Hansch et al. 1995), respectively. The metals in groundwater, while ranging in adsorption potential, are present at concentrations only moderately above the NAWQC; thus, they are unlikely to represent a significant source of sediment contamination. Due to the lack of PBT constituents, the minor adsorption potential for chlorobenzenes and the moderate exceedances of detected metals, the development of groundwater cleanup goals for the protection of sediment exposures to human receptors is not recommended.

4.3.3 Calculation of Groundwater Cleanup Goals

It is recommended that groundwater cleanup goals for protection of surface water human exposures be set for all COPCs identified according to recommendations in Section 4.2 above. The screening evaluation suggests a human health concern from exposures to groundwater COPC concentrations but assumes direct exposure of recreators to groundwater concentrations. This does not represent the actual surface water exposures for recreators in Mill Creek because it does not account for mixing and dilution naturally occurring at and downgradient of the groundwater/ surface water interface. Thus, once target ambient surface water concentrations have been determined, as described in Section 4.3.2 above, the groundwater concentration that will result in this target surface water concentration, under 7Q10 flow conditions, can be calculated. It is recommended that groundwater cleanup goals be set in terms of mass flux to surface water, based on the NAWQC for each COPC, and according to calculation methods outlined in Attachment 3. If the current mass flux of groundwater COPCs exceed these cleanup goals, further risk evaluation should be conducted by back-calculating groundwater cleanup goals using the inverse of standard risk equations along with recreator-specific exposure factors.

5.0 OHIO EPA REQUIREMENTS

While the above text summarizes recommendations that will meet EPA requirements, Rohm and Haas must also meet OEPA requirements in developing groundwater cleanup goals. EPA has consulted with OEPA regarding the acceptability of the methodologies described in this document. OEPA has responded that, in general, these methodologies will meet State requirements (refer to Attachment 4). However, as discussed in OEPA's letter (Attachment 4), OEPA may require further stream characterization prior to cleanup goal development.

For reference, OEPA has indicated that Ohio state law prohibits, with few exceptions, the discharge of pollutants into waters of the state, including groundwater. The discharge of contaminated groundwater to surface water is also prohibited. Limited exceptions are granted to permit-holders or for specified activities. Relevant sections of the Ohio Revised Code are copied below, also for reference purposes.

6111.04 Acts of pollution prohibited; exceptions.
(A) (1) No person shall cause pollution or place or cause to be placed any sewage, sludge, sludge materials, industrial waste, or other wastes in a location where they cause pollution of waters of the state.

6111.01 Definitions.
(A) "Pollution" means the placing of any sewage, sludge, sludge materials, industrial waste, or other wastes in any waters of the state.
(C) "Industrial waste" means any liquid, gaseous, or solid waste substance resulting from any process of industry, manufacture, trade, or business, or from the development, processing, or recovery of any natural resource, together with such sewage as is present.
(D)"Other wastes" means garbage, refuse, decayed wood, sawdust, shavings, bark, and other wood debris, lime, sand, ashes, offal, night soil, oil, tar, coal dust, dredged or filled material, or silt, other substances that are not sewage, sludge materials, or industrial waste, and any other "pollutants" or "toxic pollutants" as defined in the Federal Water Pollution Control Act that are not sewage, sludge, sludge materials, or industrial waste.
(H) "Waters of the state" means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and other bodies or accumulations of water, surface and underground, natural or artificial, regardless of the depth of the strata in which underground water is located, that are situated wholly or partly within, or border upon, this state, or are within its jurisdiction, except those private waters that do not combine or effect a junction with natural surface or underground waters.

6.0 SUMMARY

This document has presented recommended risk-based methods for developing risk-based groundwater cleanup goals that will be protective of both human health and ecological exposures in Mill Creek. Table 1 below presents a brief summary of these recommendations.

For ecological COPCs, concentration-based groundwater cleanup goals must be developed to protect benthic zone infauna and epifauna, as described in Section 3.3.2 above. Because sediment exposures are expected to drive the ecological cleanup goals for groundwater, development of separate cleanup goals intended to protect aquatic organisms from surface water exposures may not be necessary. Nonetheless, methods for developing cleanup goals based on surface water exposures are presented in Section 3.3.2 and Attachment 3. It is recommended that cleanup goals based on surface water exposures be set in terms of mass flux of groundwater COPCs to surface water, rather than in terms of specific groundwater concentrations.

Similarly, groundwater cleanup goals designed to protect human health exposures to Mill Creek surface water should be set in terms of mass flux of groundwater to surface water, as described in Section 4.3.3 and Attachment 3.

While the risk-based methodologies presented herein are intended to meet EPA Corrective Action requirements, Rohm and Haas should ensure that State requirements are also met, as discussed in Section 5.0 and Attachment 4.

Table 1
Summary of Recommended Methods for Establishing Groundwater Cleanup Goals

Rohm and Haas Chemicals LLC., Reading, Ohio						
	Human Health			Ecological		
Media	**Screening values used for selection of COPCs**	**Target value**	**Development of groundwater cleanup levels**	**Screening values for selection of COPCs**	**Target value**	**Development of groundwater cleanup levels**
Surface water and bank seeps (seep data treated as surface water)	National Ambient Water Quality Criteria (NAWQC)	Set as screening levels for surface water or calculate target for recreation scenario using the inverse of risk equation for target risk of 10^{-6} and site-specific exposure factors.	Determine maximum contaminant mass flux in groundwater to surface water that will meet target levels under seven-day ten year low flow (7Q10) conditions.	OEPA's Outside mixing zone average (OMZA) aquatic life criteria and Tier II values for the Ohio River Basin (use Region 5 Ecological Screening Levels [ESL] if these values are not available).	Screening levels for surface water; alternatively, develop site-specific target values (for surface water) based on toxicity tests.	Determine maximum contaminant mass flux in groundwater to surface water that will meet target levels under 7Q10 conditions.
Groundwater	NAWQC			OEPA's OMZA aquatic life criteria and Tier II values for the Ohio River Basin (Region 5 ESL if these values are not available)		
Sediment (Benthic Zone)	Region 9 Preliminary Remediation Goals for Residential Soil	Set as screening levels for sediment (may not consider site-specific target values because the development of cleanup goals based on sediment is not recommended).	The development of clean up goals based on sediment target values is not recommended due to lack of PBTs, minor adsorption potential for chlorobenzenes, and presence of metal concentrations at levels that moderately exceed screening criteria.	Region 5 ESL in combination with OEPA Sediment Reference Value (SRV)	Apply screening levels for surface water to pore water or, alternatively, develop site-specific target values for surface water based on toxicity tests. Target concentrations are the same for pore water and surface water. Assumptions: Toxicological targets can be set for pore water, which best represents exposure to benthic taxa. Contaminated groundwater discharges to the bed of Mill Creek.	Groundwater cleanup goals protective of benthic biota are equivalent to target values. Assumption: Benthic zone pore water is equivalent to groundwater (i.e., no dilution).

7.0 REFERENCES

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ATTACHMENT 1

Chemicals of Potential Bioaccumulative Concern

The sections that follow discuss the potential for chemicals detected in groundwater, surface water, seeps, and/or sediments to bioaccumulate, and as a result, present risk to higher trophic level wildlife receptors. Based on the bioaccumulative potential of the chemicals discussed below, in combination with the concentrations detected, it is not expected that appreciable bioaccumulation of Rohm and Haas contaminants will occur. Although uncertainty could be reduced by conducting site-specific tissue residue analyses of fish and/or invertebrates, these additional evaluations do not appear to be warranted, given the low levels of bioaccumulative contaminants detected in surface water and sediments.

METALS

For many metals, tissue residue-toxicity relationships can be highly variable because organisms might sequester metal in various forms that might be analytically measurable as tissue residue but are actually stored in unavailable forms within the organism as a form of detoxification (Suter et al. 2000). Consequently, bioconcentration factors (BCFs) and bioaccumulation factors (BAFs) from the literature are unreliable substitutes for site-specific values.

ANTIMONY

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no biota-sediment accumulation factor (BSAF) included in EPA (2000). Antimony is not generally considered a problem from bioaccumulation, and since it exceeds the OMZA criteria and Region 5 ESL at only one well upgradient of the French drain, is probably not a concern for bioaccumulative effects in Mill creek.

ARSENIC

Arsenic (As) is accumulated by aquatic organisms primarily through dietary exposure, and not directly from water (EPA 2000). There is also no evidence of magnification along the aquatic food chain. BCFs experimentally determined for arsenic in aquatic organisms (except for algae) are relatively low, not exceeding 17 (summarized in Eisler 1988). Arsenic may bioconcentrate to a higher degree in lower trophic levels, but diminishes significantly in higher trophic levels such as fish (Chen and Folt 2000). There is no BSAF included in EPA (2000).

Arsenic was detected downgradient of the French drain at UAW03-20 and MW-EPA-1, at 905 μg/L and 483 μg/L, respectively. These are relatively slight exceedances of the OMZA criteria and ESL of 150 and 148 μg/L, respectively (about three- to six-fold). Therefore, for higher trophic level organisms exposed to the contribution of groundwater to surface water, arsenic does not appear to be a concern through bioaccumulation in Mill Creek.

BARIUM

Barium is not typically a significant concern for bioaccumulative effects. There was no bioaccumulation information for freshwater organisms found in the literature. In water, the more toxic soluble barium salts are likely to precipitate out as the less toxic insoluble sulfate or carbonate. Marine animals concentrate barium approximately seven- to 100-fold from seawater (EPA technical fact sheet on Barium (http://www.epa.gov/OGWDW/dwh/t-ioc/barium.html). There is no BSAF listed in Appendix D of the EPA National Sediment Quality Survey.

Barium was detected downgradient of the French drain at UAW03-20 and MW-EPA-1, and at UAW02-20 (not influenced by French drain) at 227 μg/L, 246 μg/L, and 271 μg/L, respectively. These are relatively slight exceedances of the OMZA criteria and ESL of 220 μg/L. Therefore, for higher trophic level organisms exposed to the contribution of groundwater to surface water, barium does not appear to be a concern through bioaccumulation in Mill Creek.

CADMIUM

Most studies reviewed contained data which suggest that cadmium is not a highly mobile element in aquatic food webs, and there appears to be little evidence to support the general occurrence of biomagnification of cadmium within marine or freshwater food webs (EPA 2000). Shephard (2000) lists a BCF of 64, which is relatively low. The evidence for cadmium transfer through various trophic levels suggests that only the lower trophic levels exhibit biomagnification. Experimentally, fish fed cadmium-contaminated cladocerans for four days showed no change in body burdens (Eisler 2000).

The highest concentration of cadmium detected on site was 1.2 μg/L upgradient of the French drain at UAW04-20, which exceeded the R5 ESL of 0.15 μg/L (about nine times), but not the OMZA aquatic life criteria of 5.2 μg/L. Since barium does not biomagnify significantly, it does not appear to be a concern for higher trophic level organisms exposed to the contribution of groundwater to surface water in Mill Creek.

CHROMIUM

Chromium (Cr) appears to have limited mobility under typical conditions in most aquatic habitats because the trivalent form tends to bind to sediments. A log BCF of 2.74 was reported for *Daphnia magna*, and little evidence exists for the bioaccumulation/ biomagnification of chromium in aquatic food webs, although sediments frequently contain elevated concentrations of trivalent chromium (EPA 2000). In virtually all studies in both marine and freshwater environments involving birds and mammals, there was no biomagnification of chromium in the food web, but rather decreasing concentrations with increasing trophic level (Outridge and Scheuhammer 1993). Sensitive species of freshwater aquatic organisms showed reduced growth, inhibited reproduction, and increased bioaccumulation at about 10.0 μg/L and higher of Cr+6, and other adverse effects at 30.0 μg/L and higher of Cr+3.

A concentration of 505 μg/L of chromium was found in groundwater at monitoring well UAW25-20, which should be re-confirmed. A concentration of 37.2 μg/L was recorded downgradient of the French drain at MW-EPA-1, which is within the range of adverse effects noted above. Bioaccumulative effects would therefore be limited to the hyporheic and benthic burrowing biota if exposed to undiluted groundwater, but bioaccumulative effects in surface water organisms should not be significant.

COBALT

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no BSAF included in EPA (2000). Cobalt is not generally considered a problem from bioaccumulation, and since it exceeds the OMZA criteria and Region 5 ESL only one seep (SS-1, at 43.8 μg/L) by less than two times the OMZA aquatic life criteria and Region 5 ESL of 24 μg/L, cobalt is probably not a concern for bioaccumulative effects in Mill Creek.

COPPER

Little evidence exists to support the general occurrence of biomagnification of copper in the aquatic environment; copper is taken up by aquatic organisms primarily through dietary exposure, and is highly variable between species (EPA 2000; Eisler 2000). The bioavailability of copper is also influenced to some extent by total water hardness and the acid-volatile sulfide (AVS) concentration.

Copper was detected in seeps SS-1 and SS-2 at 104 μg/L and 31.9 μg/L, respectively. These concentrations exceed the OMZA criteria and ESL of 21 μg/L and 1.58 μg/L, respectively; however they would be diluted significantly after mixing with surface water. The groundwater concentrations have been much lower, and close to the aquatic life toxicity criteria level, so copper is probably not accumulating significantly even at the lower trophic levels. Therefore, for higher trophic level organisms exposed to the contribution of groundwater to surface water, copper does not appear to be a concern through bioaccumulation from surface water in Mill Creek.

LEAD

Although methylated lead is rapidly taken out from the water by some fish, there is no evidence of biomagnification in the aquatic environment (EPA 2000; Eisler 2000). Among aquatic biota, lead concentrations were usually highest in algae and benthic organisms, and lowest in upper trophic level predators. In water, lead is most soluble and bioavailable at low pH, low organic content, and with low concentrations of calcium, iron, manganese, zinc, and cadmium, and is capable of forming insoluble metal sulfides and easily complexes with humic acid. Most lead entering surface waters is precipitated in the sediment as carbonates or hydroxides.

Log BCFs of 5.15 (cladoceran) and 3.56 (midge) were reported in the literature (EPA 2000). Lead is accumulated by aquatic organisms equally from water and through dietary exposure; in

sediments, a portion of lead can be transformed to trimethyllead and tetraalkyllead compounds through chemical and microbial processes. Bioaccumulation of organolead compounds is rapid and high; these compounds concentrate in the fatty tissues of aquatic organisms.

Lead was not detected in surface water, and was not detected in sediments at concentrations above Ohio reference values, so currently, lead is likely not a concern for bioaccumulative effects in Mill Creek.

MERCURY

Mercury is accumulated by all trophic levels, with biomagnification occurring up the food web (EPA 2000). Fish bioconcentrate methylmercury directly from water by uptake across the gills , and piscivores readily accumulate mercury from dietary sources. Methylmercury accumulation from either source may be substantial, but the relative contribution of each pathway may vary with fish species. Invertebrates generally have a lower percentage of methylmercury in their tissues than fish. The percentage of methylmercury increases with age in both fish and invertebrates. While sediment is usually the primary source of methylmercury in most aquatic systems, and the food web is the main pathway for accumulation, methylmercury can be accumulated directly from the water by uptake across the gills.

High trophic level species tend to accumulate the most methylmercury, with concentrations highest in fish-eating predators. Methylmercury concentrations in higher trophic species often do not correlate with concentrations in environmental media. Correlations have been made between sediment and lower trophic species that typically have a high percentage of inorganic mercury, and between mercury concentrations in higher trophic species and their prey items. Because of the complex environmental chemistry of mercury, the best measure of bioavailability of mercury in any system can be obtained through analysis of mercury concentrations in the biota at the specific site.

NICKEL

Nickel in the aquatic environment can partition to dissolved and particulate organic carbon, and although fish can accumulate nickel from food and water (Eisler 2002), there is little evidence to support the general occurrence of biomagnification of nickel in the aquatic environment (EPA 2000, Eisler 2000).

Concentrations of nickel were 128 μg/L at UAW25-20 and 214 μg/L at seep SS-1. After dilution with surface water, nickel is probably not a concern for bioaccumulative effects in Mill Creek.

THALLIUM

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no BSAF included in EPA (2000). Thallium is not normally of concern for bioaccumulative effects, and is probably not of concern at this site.

TIN

The chemical, physical, and biochemical properties of inorganic tin compounds differ dramatically from those of representative organotin compounds. There is general agreement that inorganic tins are not highly toxic due to their poor absorption and rapid turnover rate in tissues (Eisler 2000). Although inorganic tin can be biomethylated by microorganisms in the aquatic environment and subsequently mobilized in the ecosystem, the process is slow and usually does not proceed beyond the monomethyltin stage. Methyltins are ubiquitous in the environment and have been measured in seawater, freshwater, rain, wastewaters, sediments, fish, invertebrates, birds, and humans. The monoorganotin compounds generally have a low toxicity. Among aquatic organisms, tributyltin compounds were especially potent. Bioconcentration of inorganic and organic tin compounds from the medium is considerable, but degradation is sufficiently rapid to preclude food chain biomagnification.

Relatively high concentrations of tin were found in several groundwater samples and seeps at the site. If these are inorganic or naturally produced mono-organotin forms of tin, there is probably little risk of adverse effects through bioaccumulation. If it is suspected that the form of tin is a manufactured form of organotin, then chemical analyses to confirm the species of tin present would be required for further assessment.

VANADIUM

There was no bioaccumulation information for freshwater organisms found in the literature, and there is no BSAF included in EPA (2000). Vanadium is not normally of concern for bioaccumulative effects, and is probably not of concern at this site.

ZINC

BCFs for zinc accumulation varied widely between and within species of aquatic organisms (Eisler 2000). Zinc is not a highly mobile element in aquatic food webs, and there appears to be little evidence to support the general occurrence of biomagnification of zinc within freshwater food webs (EPA 2000). Tissue residue-toxicity relationships can also be variable because organisms sequester metals in different forms that are measurable as tissue residue but can actually be stored in unavailable forms within the organism as a form of detoxification. Bioavailability of zinc in sediments is controlled by the AVS concentration.

Although zinc was detected in seeps SS-1 and SS-2 at 411 μg/L and 219 μg/L, respectively, dilution in surface water should reduce concentrations below screening levels (120 μg/L at hardness of 100 mg/L), and since it does not bioaccumulate or biomagnify significantly, it should not pose a risk to aquatic biota at these levels.

ORGANICS

CHLOROBENZENES and DICHLOROBENZENES

The bioaccumulation of chlorobenzenes by aquatic organisms is determined by their relative water and lipid solubility (thus reflecting the octanol/water partition coefficients) and the number of chlorine substitutions (summarized in IPCS 1991). Uptake from water increases with increasing chlorination. BCFs ranging from 270 for 1,2-dichlorobenzene to 20,000 for pentachlorobenzene (PeCB) were reported for laboratory studies on rainbow trout (*Oncorhynchus mykiss*). BCFs for a variety of fish species ranged from 7,000 to 24,000 (lipid weight) for 1,2,4-trichlorobenzene, with a positive correlation between bioaccumulation and lipid content. BCFs (lipid weight) ranged from 4,000 to 22,000 for 1,2,3-trichlorobenzene and 1,2,4-trichlorobenzene in rainbow trout, with newly hatched fish accumulating two to four times the amount found in eyed eggs or young fish (alevins). The rate of elimination of chlorobenzenes decreases with increasing chlorination, and elimination half-lives for dichlorobenzenes to PeCB in laboratory-exposed fish ranged from 0.05 to 1.6 days.

Tissue burdens of 1,070, 138, 1,440, and 47 mg/kg wet weight were the lowest concentrations for significant mortality value for chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene, respectively, in the ERED database (for rainbow trout). From the higher concentrations detected on site, such as the 1,300 µg/L 1,2-dichlorobenzene detected at MW-EPA-1, these would be reached at log BCFs of 2 to 3, which is near or just above the approximate range of BCFs for some dichlorobenzenes. However, since elimination for monochlorobenzenes and dichlorobenzenes is relatively rapid, and dilution from groundwater concentrations would reduce ambient water concentrations below that of groundwater, there is probably little or no bioaccumulative risk.

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ATTACHMENT 2

Discussion of Whether Historic Activities at the Rohm and Haas Site Have Contributed to PCB and Pesticide Impacts in Mill Creek

Booz Allen Hamilton (Booz Allen) has conducted a review of several documents related to the Rohm and Haas facility in Reading, Ohio, to determine if polychlorinated biphenyls (PCBs) and pesticides reported in sediment in Mill Creek can be attributed to historic activities at the Rohm and Haas facility, or are more likely related to off-site sources and/or background contamination. The September 2004 Revised Facility Investigation Report (FI Report) indicates that PCBs and several pesticides (dieldrin, beta-BHC, and 4,4'-DDE) are present in Mill Creek sediment at levels above relevant ecological screening criteria (i.e., Region 5 Ecological Screening Levels [ESLs]). In the FI Report, Rohm and Haas argues that the PCB and pesticide contamination is not site related, but rather is due to migration of contaminants from off-site sources. Booz Allen has reviewed several historic documents[1,2,3] to determine the validity of Rohm and Haas' claim. It should be noted that these documents were reviewed because they contained historic information on impacts identified at surrounding properties (i.e., the Pristine, Inc., and Cincinnati Drum, Inc., sites). These sites have been identified as possible sources of off-site contamination, but are <u>not</u> considered the only potential off-site sources. Other off-site sources likely exist in the vicinity of the Rohm and Haas site, and it is also likely that documentation exists in support of other potential off-site sources that were not reviewed by Booz Allen[4]. However, for the purpose of this analysis, the identified historic documents were reviewed as examples of information pertaining to off-site sources in the vicinity of the Rohm and Haas site, in order to assess the validity of Rohm and Haas' claim. Results of this analysis are presented below, by contaminant class.

<u>PCBs</u>

Aroclor 1248 was detected at two sample locations, the furthest upstream sample (CS-6A, 0.06 mg/kg) located near the northwest property boundary and downgradient (west) of the former

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[1] Hydrogeologic Report of the Pristine-Cincinnati Drum-Carstab Site in Reading, Ohio. Prepared by Ecology and Environment, Inc. Dated November 1982.

[2] Final Remedial Investigation (RI) Report, Pristine, Inc. Site, Reading, Ohio. Prepared by Camp Dresser & McKee, Inc. Dated July 18, 1986.

[3] Note that Booz Allen also reviewed sections of the Current Conditions Report, Morton International, Inc. Facility, Reading, Ohio, prepared by Geomatrix Consultants, Inc., dated September 2000, provided by EPA Region 5. This report does not provide substantial relevant information for this analysis. Thus, the information in this report has not been included in this summary.

[4] As an example, the "Addendum to the RI Report for the Pristine, Inc. Site", dated December 29, 1987, was identified as a document potentially containing information on off-site sources in the area.

surface impoundments (SWMU 1), and the furthest downstream sample (CS-1A, 0.07 mg/kg) located approximately 900 feet downstream of the southwestern property boundary. Aroclor 1254 was detected in one sample location (CS-3A, 0.1 mg/kg) located immediately west of the southwestern corner of the site. Aroclor 1248 was also detected at sample location CS-5A (0.023 J mg/kg), located downgradient (west) of the French Drain; however, this detected concentration is below Region 5 ESLs.

A review of available soil data indicates that PCBs are detected at relatively low concentrations throughout the entire site. PCBs were detected in all quadrants of the site ranging from 0.011 mg/kg to 0.98 mg/kg. Over 70 on-site soil sampling locations (not including differentiated sample depths) have been sampled, but only 17 sample locations reported PCB detections. The attached Table 1, PCB Detections in Soil and Sediment During Recent Sampling Events Associated with the Rohm and Haas Facility, should be referenced for detected concentrations and sample locations. Approximately 23% of the on-site soil samples contained minimal concentrations of PCBs. Minimal concentrations (i.e., concentrations up to 0.24 mg/kg [Aroclor 1260, Sample B09]) of PCBs were also reported in three of ten (i.e., 30%) background samples. In addition, based upon a review of the data, there is not a clear source of PCB contamination at the Rohm and Haas facility. All concentrations reported are minimal and sporadically detected throughout the site. Thus, the physical distribution and levels of PCBs reported would appear to indicate that PCBs are not related to historic activities at the site.

Recent groundwater samples (2004) did not report PCB contamination. However, in November 2001, PCBs were detected at four sample locations throughout the site at concentrations ranging from 0.45 µg/L to 0.92 J µg/L. PCBs have also not been reported in surface water.

The two historic reports (e.g., Hydrogeologic Report and RI Report cited in Footnotes 1 and 2) were reviewed to determine if a clear off-site source of PCBs existed. The RI Report indicates that PCB-contaminated solvents and PCB-contaminated soybean oil were stored at the Pristine site. The report also indicates that from June 1980 to November 1983, much of the waste at the site, including PCB-contaminated soil, was removed in accordance with consent decree between Pristine, Inc., and Ohio EPA. The reports do not provide substantial information on off-site PCB analysis; however, Aroclor 1248 was reported in the southwestern portion of the site at concentrations as high as 55 mg/kg. The report indicates that this detection corresponded with a PCB storage tank. The report did not provide PCB results for sediment or surface water. No other relevant information was obtained from these reports.

Based upon a review of available information, a source of PCB contamination at the Rohm and Haas site was not identified. Sources of PCB contamination were historically present at the Pristine site; however, limited data are available. Thus it is impossible to correlate the off-site PCB contamination to PCB impacts on the Rohm and Haas site or in the adjacent Mill Creek. Due to the physical distribution of contamination reported at the Rohm and Haas site, and the lack of an identified historical source at the site, it appears that PCBs detected in Mill Creek bed sediment may be related to off-site sources and/or elevated background concentrations.

Pesticides

Three pesticides (dieldrin, beta-BHC, and 4,4'-DDE) were reported in Mill Creek bed sediment, while only two (4,4'-DDE and beta-BHC) were reported in creek bank sediment above Region 5 ESLs. Creek bed sediment samples were collected in March 2004, while the most recent creek bank sediments were collected in October 2001. As with PCBs, pesticides were detected in the most upstream creek bed sample (CS-6A, dieldrin = 0.024 mg/kg) and the most downstream sample (CS-1A, dieldrin = 0.002 J mg/kg). Creek bank pesticide detections were reported along the central site boundary (SS-4, beta-BHC = 0.094 PG mg/kg) and the southwestern site boundary (SS-10, 4,4'-DDE = 0.0046 PG mg/kg; SS-12, 4,4'-DDE = 0.023 PG mg/kg).

A review of on-site soil sample results indicates that beta-BHC, dieldrin, and 4,4'-DDE were also detected throughout the site at relatively low levels. Beta-BHC was reported at concentrations ranging from 0.0017 mg/kg to 0.25 mg/kg; dieldrin was reported at concentrations ranging from 0.00015 mg/kg to 0.064 mg/kg; and 4,4'-DDE was reported at concentrations ranging from 0.0002 mg/kg to 0.2 mg/kg. Out of the over 70 on-site soil samples collected (not including differentiated sample depths), only 16 sample locations reported one or more of these three pesticides. Thus, approximately 22% of the on-site soil samples contained one or more of these three pesticides that were also reported in sediments in Mill Creek. 4,4'-DDE and dieldrin were also reported in four of ten background samples (i.e., 40% of background samples collected), with maximum concentrations of 0.019 mg/kg and 0.055 mg/kg, respectively. Based upon a review of the data, pesticides were minimally reported in the northeast, southeast and southwest quadrants of the site. Pesticides were more routinely reported in the northwest quadrant of the site in the area of the former surface impoundments (SWMU 1) (i.e., nine sample locations). However, the concentrations detected are consistent with those detected elsewhere on site and in background locations. Thus, the physical distribution and levels of pesticides reported would appear to indicate that pesticides are not related to historic activities at the site.

Recent groundwater samples (2004) did not report pesticide contamination. However, the pesticides detected in sediment have been reported at low concentrations in on-site groundwater samples during previous sampling events conducted between 2001 and 2003. Pesticides have not been reported in surface water.

The two reports related to the Pristine and Cincinnati Drum sites were again reviewed to determine if a clear off-site source of pesticides existed. During operation, the Pristine facility managed a liquid waste disposal unit where solvents and other organic compounds—including pesticides—were incinerated. The RI Report indicates that DDT and other pesticides were stored at the Pristine site, and that from June 1980 to November 1983, much of the waste at the site, including DDT and other pesticides, was removed in accordance with a consent decree between Pristine, Inc., and Ohio EPA. The reports provide pesticide analysis for soil areas, borings, and groundwater and sediment sampling conducted in 1985. Pesticides, including dieldrin and 4,4'-DDE and its parent product DDT, were detected in soil areas and soil borings throughout the Pristine site. Based upon sample results, concentrations of DDT were reported at much higher

concentrations in soil (up to 18 mg/kg in soil borings and 10 mg/kg in soil area samples[5]) than DDE (up to 0.37 mg/kg in soil borings, and 3 mg/kg in soil area samples) or DDD. Similar results were observed in sediment samples, with DDT reported up to 20.7 mg/kg, and DDE reported up to 2.8 mg/kg. DDT and DDE were also detected in surface water (up to 1.82 μg/L and 0.86 μg/L, respectively) and storm water (up to 1.45 μg/L and 0.06 J[6] μg/L, respectively) samples. Dieldrin was also reported in soil borings (up to 0.149 mg/kg), soil area samples (up to 1.5 mg/kg), and sediment samples (up to 0.075 J mg/kg). Beta-BHC (up to 0.4 μg/L) and DDD (0.14 μg/L) were detected in upper aquifer groundwater samples in the northeastern and southeastern section of the Pristine site. Based upon a review of the data, pesticides were routinely reported in media samples collected at the Pristine site, and at much higher levels than were reported for background samples collected as part of the Pristine investigation (e.g., dieldrin was reported up to 0.46 mg/kg and DDT was reported up to 0.019 mg/kg in background soil samples). In fact, the RI Report indicates that pesticides, along with volatile organic compounds, are the predominant contaminant at the facility.

The RI Report indicates that runoff from the site drains to Mill Creek via surface ditches running along the northern and southern sides (adjacent to the Rohm and Haas property) of the Cincinnati Drum property. Surface water and sediment sample results collected in these drainage ditches reported elevated levels of pesticides, including beta-BHC, DDE and its parent DDT, and dieldrin. The report also indicates that during extremely wet periods, runoff from the Pristine site could pond and extend into off-site areas at the adjacent Cincinnati Drum property. Thus, runoff could have possibly impacted off-site soil at other adjacent industrial properties as well. Thus, it appears that historic releases of DDT and other pesticide materials/wastes impacted surrounding media at the Pristine site, as well as off-site sediment, surface water, and possibly soil.

Based upon a review of available information, a source of pesticide contamination at the Rohm and Haas site was not identified. Sources of pesticide contamination were historically present at the Pristine site, and available data appear to support Pristine as a potential off-site source of pesticide contamination. However, as mentioned above, pesticides have also been reported in background sampling conducted as part of the Rohm and Haas and Pristine investigations; pesticides also appear to be present at low levels in soil in areas surrounding the Rohm and Haas site. Thus, due to the physical distribution of contamination reported at the Rohm and Haas site, the lack of an identified historical source at the site, and the historic sample results indicating a potential source of pesticide contamination at the off-site, adjacent Pristine site, it appears that the pesticides detected in Mill Creek sediment above Region 5 ESLs may be related to off-site sources (e.g., Pristine, Cincinnati Drum, and others) and/or elevated background concentrations.

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[5] The Pristine site was divided into ten on-site soil areas. Two off-site soil area was also identified. Soil area samples consisted of soil collected from five different locations within the designated soil area that were composited into one sample for analysis.

[6] Contract laboratory program qualifier that indicates an estimated value (not added to total fraction).

ATTACHMENT 3

Methods for Calculating Groundwater Contaminant Mass Flux to Surface Water

With only minor modification, the basic methodology utilized during the CA750 Environmental Indicator (EI) evaluation (Question 6) to determine contaminant loadings and the surface water concentration resulting from the discharge of contaminants from the Rohm and Haas site into Mill Creek remains appropriate for determining the ambient surface water concentration in Mill Creek. In its September 15, 2004 letter regarding the CA750 EI analysis, Rohm and Haas's consultant, Geomatrix, identified no fundamental problems with the basic methodology, although Geomatrix indicated some concern with the conservative nature of the analysis.

As indicated in EPA's *Supplemental Guidance for Environment Indicator CA750, Migration of Contaminated Groundwater Under Control: Groundwater-Surface Water Interactions*, the first step in estimating the contaminant concentrations in the receiving surface water is to determine contaminant mass fluxes to the surface water body. This can be accomplished by first estimating the groundwater volumetric flux to the surface water body using Darcy's Law:

$$Q_{gw} = K \times i \times A \qquad \text{(Eq. 1)}$$

where

Q_{gw} = groundwater volumetric flux (l^3/t),
K = hydraulic conductivity of subsurface materials upgradient of discharge (l/t),
I = hydraulic gradient upgradient of the discharge (l/l), and
A = discharge area (cross section of the contaminant plume area at the point of discharge) (l^2).

All units are expressed in terms of length (l), time (t), and mass (m).

The contaminant mass flux due to groundwater discharge into the surface water body is then determined by multiplying the groundwater volumetric flux by the contaminant concentration in groundwater using the following equation:

$$M_{gw} = C_{gw} \times Q_{gw} \qquad \text{(Eq. 2)}$$

where

M_{gw} = contaminant mass flux in groundwater (m/t), and
C_{gw} = contaminant concentration in groundwater immediately upgradient of point of discharge (m/l^3).

The resulting contaminant concentration in surface water may be computed by averaging the

contaminant mass flux over the combined surface water flow upstream of the point of discharge and groundwater volumetric flux of the discharge using the following equation:

$$C_{sw} = (M_{gw})/(Q_{gw} + Q_{sw}) = (C_{gw} \times Q_{gw})/(Q_{gw} + Q_{sw}) \qquad \text{(Eq. 3)}$$

where

C_{sw} = resulting contaminant concentration in surface water (m/l), and
Q_{sw} = volumetric surface water flow rate (l/t).

It is important to note that Equation 3 differs from that used during the CA750 analysis because it does not include the dilution factor of 10 used in that analysis.

Equation 3 can be reexpressed to determine the maximum allowable contaminant mass flux in groundwater to a surface water body that will meet a specified ambient surface water criteria based on a known volumetric surface water flow rate:

$$M_{gwmax} = C_{swcrit} \times (Q_{gw} + Q_{sw}) \qquad \text{(Eq. 4)}$$

where

M_{gwmax} = maximum allowable contaminant mass flux in groundwater, and
C_{swcrit} = ambient surface water criteria.

If the volumetric groundwater flux (Q_{gw}) is known, Eq. 4 can be reexpressed to determine the maximum allowable contaminant concentration in groundwater that will meet a specified ambient surface water flow rate based on a known volumetric surface water flow rate:

$$C_{gwmax} = (C_{swcrit}/Q_{gw}) \times (Q_{gw} + Q_{sw}) \qquad \text{(Eq. 5)}$$

where

C_{gwmax} = maximum allowable contaminant concentration in groundwater based on a specified ambient surface water criteria and known groundwater and surface water volumetric fluxes.

The application of Equation 5 is problematic along the northern portion of the western boundary of the Rohm and Haas facility because the French drain system operated along this section of the property boundary not only controls some portion of the groundwater flux to Mill Creek but also appears to influence the concentration of contaminants migrating past the French drain (see discussion of groundwater concentrations below). Thus, the groundwater flux and concentration of groundwater contaminants downgradient of the French drain are not independent, but the exact relationship between the two is unclear. As a result, the application of Equation 4, in which a maximum allowable contaminant mass flux in groundwater is established, will likely be

more appropriate than the establishment of maximum contaminant concentrations in groundwater along the portion of the boundary influenced by the French drain using Equation 5. Such an approach would require that the French drain or other hydraulic control system be designed and operated in a manner that allows only a specified contaminant mass flux in groundwater to discharge to Mill Creek. In the area along the western facility border, south of the influence of the French drain system, it may be possible to establish a maximum allowable contaminant concentration in groundwater using Equation 5. However, if a remedial measure that requires partial hydraulic control is required along this portion of the boundary, the application of Equation 5 along the southern portion of the boundary may become problematic as well.

Use of these equations requires the estimation of values for each of the component parameters. All of these parameters have previously been estimated for use in the CA750 analysis previously completed. In their letter of September 15, 2004, Geomatrix indicated that the parameters used were frequently unduly conservative, although Geomatrix acknowledged that such conservative assumptions were appropriate for the CA750.

When computing the contaminant mass flux, the CA750 used a value of 0.019 for the hydraulic gradient. Geomatrix did not comment on this parameter, and the basis for this parameter was not provided in the CA750. For determining groundwater cleanup goals, the most appropriate way to determine the hydraulic gradient for computation of contaminant mass flux appears to be to use the difference between the water level in Mill Creek adjacent to the site and the water levels of those monitoring wells immediately downgradient of the French drain. Use of these wells will help to eliminate the impact on groundwater flow resulting from the operation of the French drain.

When computing the contaminant mass flux, the CA750 also used a value of 106 feet per day (ft/day) for the hydraulic conductivity. This value was based on aquifer testing performed on the Rohm and Haas site in 2001. Geomatrix indicated that this was not an appropriate value, as it was based on recent pump testing of the French drain that resulted in a yield of only 10 gallons per minute (gal/min) rather than the 60 gal/min predicted using the previous hydraulic conductivity measurement of 106 feet per minute (ft/min). Based on the 10 gal/min yield of the French drain pump test, Rohm and Haas's consultants indicated that a value of approximately 20 ft/day was more appropriate. It is important to note that Rohm and Haas did not perform any formal quantitative analysis of the data resulting from the French drain pump test upon which to base the 20 ft/day hydraulic conductivity estimate. More significantly, the pump testing of the French drain did not clearly establish that the 10 gal/min yield of the test was sufficient to capture all of the shallow groundwater passing across the drain to Mill Creek. The low yield of the pump test may be attributable to a number of factors beside the low hydraulic conductivity of the Shallow Upper Aquifer (UA) Sand, including the hydraulic inefficiencies of the French drain system. Consequently, the French drain pump test does not appear to provide an adequate basis for estimating the hydraulic conductivity value to be used in calculating contaminant mass flux to Mill Creek. The most appropriate approach to estimating this parameter may be to use slug test data from those wells located immediately downgradient of the French drain. Hydraulic conductivity data from these wells should provide the most direct measurement of the hydraulic

facility and Mill Creek, groundwater monitored by UAW02-40 may discharge to Mill Creek. Rohm and Haas may wish to provide further data and/or analysis to resolve this issue.

Should Rohm & Haas cease to operate or abandon the French drain, it may be useful to expand the monitoring network to include those Shallow UA Sand monitoring wells located immediately upgradient and adjacent to the French drain, to determine compliance with cleanup goals. However, since the intention of such a monitoring program is to characterize the quality of groundwater actually discharging to Mill Creek, the inclusion of monitoring wells further upgradient, throughout the site would not appear necessary.

It is strongly recommended that when performing the analysis of contaminant mass flux to Mill Creek, Rohm and Haas should divide the western boundary into a series of segments centered on each monitoring well used to evaluate groundwater quality. This approach would best account for the variability observed in contaminant concentrations, Shallow UA Sand thickness, and groundwater gradients between the western boundary of the facility and Mill Creek.

characteristics of the Shallow UA Sand in the area between the French drain and Mill Creek.

When calculating the area through which the contaminated groundwater discharged to Mill Creek, the CA750 used an aquifer thickness of 20 feet. Rohm and Haas's consultants have indicated that the saturated thickness of the Shallow UA Sand ranges only between 0.5 and six feet. Based on the water levels depicted on the Groundwater Gradient Map shown in Figure 5-1 and the vertical distribution of the Shallow UA Sand depicted on Cross-Section E-E' shown on Figure 5-7 of the September 2004 Revised Facility Investigation Report, the range of saturated aquifer reported by Geomatrix appears to be reasonable. However, to verify the actual saturated thickness of the Shallow UA Sand in the area downgradient of the French drain, Rohm and Haas should provide a detailed comparison of the vertical distribution of the Shallow UA Sand and water level in each monitoring well downgradient of the French drain.

When calculating the resultant contaminant concentration in Mill Creek, the CA750 used the annual mean stream flow value reported from the United States Geological Survey (USGS) gauging station at Mill Creek. However for the chronic effects consider in this analysis, the appropriate flow estimate is the seven day, ten year low flow (7Q10) value. According to the U.S. Geological Survey (USGS), the USGS gage on Mill Creek probably has sufficient period of record to calculate the 7Q10.

When establishing contaminant concentrations in groundwater, the CA750 included the maximum values observed along the western edge of the site, including several locations upgradient of the French drain system. Geomatrix has indicated that groundwater quality data from only those wells located downgradient of the French drain system should be used in determining the contaminant concentrations of groundwater discharge to Mill Creek. The concentrations for some contaminants on the upgradient and downgradient sides of the French drain do appear to be significantly different. The factors that lead to these differences are unclear since similar concentrations on both sides of the French drain would normally be expected. One factor may be groundwater mixing due to incomplete hydraulic capture.

Geomatrix has further indicated that the wells used to establish the quality of groundwater discharging to the Mill Creek should include only UAW07-20, MW-EPA-1, UAW05-20, UAW03-20, UAW02-20, UAW25-20, and UAW01-30. Since some portion of the upgradient groundwater flow is being captured by the French drain system, the use of only those wells located downgradient of the French drain to establish the quality of groundwater discharging to Mill Creek appears appropriate. Those specific wells suggested by Geomatrix similarly appear appropriate. However, consideration should be given to including UAW02-40 in the list of monitoring wells used to determine the quality of groundwater discharging to Mill Creek. The Deep UA Sand as depicted on Cross-Section D-D' shown on Figure 5-6 of the September 2004 Revised Facility Investigation Report indicates that the Shallow UA Sand extends to approximately 530 feet above mean sea level (msl) at Mill Creek, and UAW02-40 is screened in the Deep UA Sand which extends upward to approximately 525 feet msl at UAW02-40. Since stratigraphic control is weak in the area between the western boundary of the Rohm and Haas

ATTACHMENT 4

Memorandum from Ohio EPA

OhioEPA

Interoffice Memorandum

Date: July 14, 2005
Subject: Comments Regarding the Recommended Approach for Development of Groundwater Cleanup Goals at the Rohm and Haas Facility, Reading, Ohio, June 29, 2005
To: Harold O'Connell, Division of Hazardous Waste Management, Southwest District Office
From: Mylynda Shaskus and John Estenik, Division of Surface Water, Central Office

As per Diana Zimmerman's (DSW-SWDO) request on July 8th, we have reviewed the document "Recommended Approach for Development of Groundwater Cleanup Goals, Rohm and Haas Facility, Reading, Ohio, June 29th, 2005", and offer our comments below.

Because this document is not a stand-alone document, we assumed that the chemicals of potential concern (COPCs) selected were correct based on available data and according to the screening procedure specified in the document. What we would like to see in order to make this determination for ourselves is a table that contains a summary of surface water and sediment concentrations of all detected chemicals, including ranges of detection, detection frequency, quartile concentrations and detection limits.

Ecological Cleanup Goal Development

In general, we agree with the approach suggested in developing groundwater, surface water, and sediment cleanup goals. We agree that using the OMZA and ESL values will be a protective approach for groundwater, surface water, and sediment pore water. We also agree that site-specific toxicity tests, developed in conjunction with EPA, could be used to develop cleanup goals if OMZA and ESL values are not chosen.

However, there appears to be continued uncertainty as stated in the document regarding sediment depositional areas, transitional water zones, and macroinvertebrate taxa in Mill Creek. Before a mass flux calculation could be performed to develop surface water cleanup goals, a significant amount of further stream characterization would need to be undertaken.

Human Health Cleanup Goal Development

We agree with the approach to screening for COPCs using national ambient water quality standards (NAWQCs) for surface water and Region 9 preliminary remediation goals (PRGs) for soil for sediment goals.

We agree with the assessment that cleanup criteria for fish ingestion are not necessary. However, as stated earlier in the document, we would like to see the data summaries for the COPCs, in particular those for the dichlorobenzenes, chlorobenzene, benzene, and bis(2-ethylhexyl)phthalate, to ensure that this conclusion is correct.

We agree with the use of the NAWQC values as cleanup goals in surface water. We also agree that site-specific values for surface water goals could be developed instead of using the NAWQC values, provided that the exposure parameters are developed in conjunction with input from EPA.

For sediment cleanup goals, we agree that using the Region 9 PRGs for residential soil would be protective of human receptors.

In regard to groundwater cleanup goals, we want to reiterate that if mass flux calculations are to be used, site-specific inputs need to be justified through further characterization of the stream.

Summary of Review

To summarize, we feel that Booz Allen's proposal to develop cleanup goals for the Rohm and Haas Facility would result in concentrations protective of ecological and human receptors.

However, because the document is not stand-alone, and relies on data and information presented in other documents, we could not compare actual site data and information to that presented in this document. Therefore, we would like to see summaries of the available surface water, sediment, and groundwater data before finalizing our conclusions.

In addition, the document expresses uncertainty regarding the amount of groundwater that is contributing to surface water in the vicinity of the facility, the macroinvertebrate taxa found in Mill Creek in the vicinity of the facility, and the stream morphology in the vicinity of the facility, in particular the quantity and nature of stream sediments. If options for cleanup goals other than the most conservative options are chosen (i.e., site-specific evaluations or toxicity tests are to be conducted in lieu of using OMZA, ESL, NAWQC, and Region 9 PRG values, or if mass flux equations are used), more site-specific information regarding the contribution of groundwater to surface water, the present or potentially present macroinvertebrate community, and the amount and type of sediment found in the vicinity of the facility will need to be developed further.

FIELD OVERSIGHT AND SPLIT SAMPLING TRIP REPORT

MORTON INTERNATIONAL, INC.
READING, OHIO
EPA ID No. OHD000724138

Submitted to:

Mr. Brian Freeman
Work Assignment Manager
U.S. Environmental Protection Agency
Region 5 DE-9J
77 W. Jackson
Chicago, Illinois 60604

Submitted by:

TechLaw, Inc.
105 W. Madison Street, Suite 900
Chicago, Illinois 60602

U.S. EPA Work Assignment No.	R05705
Contract No.	68-W-99-017
U.S. EPA WAM	Brian Freeman
Telephone No.	312/353-2720
TechLaw WAM	Terry Uecker
Telephone No.	312/345-8974

April 5, 2002

M Capiro

105 WEST MADISON, SUITE 900 CHICAGO, IL 60602

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RZ2.R05705.01.ID.200

April 5, 2002

Mr. Brian Freeman
Work Assignment Manager
U.S. EPA Region 5, DE-8J
77 W. Jackson Boulevard
Chicago, IL 60604

Reference: U.S. EPA Contract No. 68-W-99-017; EPA Work Assignment No. R05705; Multi-Site Sampling and Analysis Support; Morton, International, Inc., Reading, Ohio; EPA ID No. OHD000724138; Field Oversight and Split Sampling Trip Report; Task 03 Deliverable

Dear Mr. Freeman:

Enclosed please find TechLaw's Field Oversight and Split Sampling Trip Report for the field activities conducted at the above referenced facility on October 10-12, 2001 and November 8-11, 2001. For your convenience, this deliverable was also E-mailed directly to you and the U.S. EPA Technical Advisor (TA) for this work assignment, Ms. Mirtha Capiro, in WordPerfect for Windows format.

The work described in this Trip Report was conducted jointly under Work Assignments R05703, Field Oversight, and R05705, Multi-Site Sampling and Analysis Support under the Technical Direction Memorandums (TDM) dated March 13, 2001 and March 14, 2001, respectively.

If you have any questions, or wish to further discuss this review, please feel free to contact me at (312) 345-8938.

Sincerely,

John Koehnen

John Koehnen
Regional Manager

cc: F. Norling, U.S. EPA Region 5 Project Officer, (w/out attachment)
M. Capiro, U.S. EPA Region 5
T. Manning, U.S. EPA Region 5, (w/out attachment)
T. Uecker
W. Jordan/Central Files
Chicago Central Files

FIELD OVERSIGHT AND SPLIT SAMPLING TRIP REPORT

MORTON INTERNATIONAL, INC.
READING, OHIO
EPA ID No. OHD000724138

Introduction

Mr. Michael Welly of TechLaw, Inc. (TechLaw) performed field oversight and split sampling of sediment/seep and groundwater sampling activities conducted on October 10-12, 2001 at the Morton International, Inc. (Morton) facility. The sediment/seep and groundwater sampling activities were performed under the direction of Geomatrix Consultants, Inc. (Geomatrix), the contractor for Rohm and Haas Co. (Rohm and Haas), the present owner of the Morton facility. Additionally, Mr. Todd Quillen of TechLaw performed field oversight and split sampling of soil and groundwater sampling activities conducted on November 8-11, 2001. Procedures for the sampling activities are provided in the Facility Investigation Work Plan (Work Plan) approved by U.S. EPA during the Spring of 2001.

This report summarizes observations made during TechLaw's oversight and split sampling activities on October 10-12, 2001 and November 8-11, 2001. A photographic log is provided in Appendix A which documents the activities that were observed in the field. A copy of the field logbook maintained during the oversight and split sampling visits is provided in Appendix B.

TechLaw Oversight Observations - Monitoring Well Sampling and Sediment/Seep Sampling

On October 10, 2001, Mr. Welly arrived at the Morton facility at approximately 1200. Upon arrival, Mr. Welly checked in at the security gate and met Mr. Tim Jennings, the Geomatrix field team leader and Mr. Eric Mansel, a Geomatrix team member, at their field trailer. Geomatrix discussed with Mr. Welly planned activities for the upcoming days.

After the introduction meeting in the field trailer, Geomatrix prepared to sample monitoring well LAW-01-80, located at the southwestern portion of the facility along the west fence. A down-hole, variable speed Grundfos pump and dedicated plastic tubing were used for sampling. In addition, an in-line flow through cell was used to measure field parameters (i.e., turbidity, pH, temperature, specific conductance, and dissolved oxygen). According to Geomatrix, LAW-01-80 was sampled during the previous round of groundwater sampling but was being resampled due to problems with the data. The depth to the bottom of the monitoring well from the top of casing (TOC) was approximately 83 feet below ground surface (bgs). The intake of the Grundfos pump was placed at the center of the 15 foot screen. In accordance with the Work Plan, groundwater samples were collected for the Contract Laboratory Program Target Analyte List (CLP-TAL) analyses.

After sampling at monitoring well LAW-01-80 was complete, Geomatrix prepared to sample monitoring well UAW-05-20, located in the northwestern portion of the facility, along the west fence. According to Geomatrix, due to problems with the well recharging, the well was purged dry earlier in the day and left to recharge. Therefore, no field parameters were collected in UAW-05-20. Monitoring well UAW-05-20 was sampled with disposable bailers due to insufficient well yield, in accordance with the Work Plan. UAW-05-20 was approximately 20 feet bgs in depth and was sampled for CLP-TAL.

On October 11, 2001, Mr. Welly observed and collected split samples associated with the sediment/seep sampling activities in Mill Creek, the creek that runs along the western boundary of the facility. Seep/sediment sample locations were spaced approximately 100 linear feet apart from each other, running adjacent to the Morton facility. The first sediment/seep location (SS-1) was located along Mill Creek adjacent to the northern property line of the Morton facility. The subsequent locations (i.e., SS-2, SS-3, SS-4, etc.) were layed out proceeding south from location SS-1. According to Geomatrix, only two potentially active seeps were present along Mill Creek (SS-1 and SS-5), adjacent to the Morton facility. Since the seeps were wet, but no free-flowing water was present, Geomatrix decided to install a well point at each seep. The well point consisted of a two foot stainless steel screen placed vertically in the ground at the approximate depth of the seep to facilitate the collection of seep samples. The well points were installed at the two sampling locations, SS-1 and SS-5. According to Geomatrix, the screens at the seeps contained little water and were bailed dry on the previous day at approximately 1700.

The seep at location SS-1 was located at the northernmost seep/sediment location adjacent to Morton's northern property border. The well point installed to facilitate the collection of seep samples at location SS-1 was located approximately 3-5 feet from the edge of the bank and approximately 3-4 feet above the water level at Mill Creek. A disposable bailer was used to collect the seep sample from location SS-1. Due to the lack of water volume present at SS-1, TechLaw only collected split samples (TechLaw sample ID - "Seep-1") for volatile organic compounds (VOCs) (i.e., two 40-ml vials). During the collection of seep samples, the well point dried up and Geomatrix decided to sample the next seep location (SS-5) and return to collect the remaining samples at SS-1.

The seep at location SS-5 was located approximately 400 feet south of the location SS-1. The well point installed to facilitate the collection of seep samples at location SS-5 was located approximately 3-5 feet from the edge of the bank and approximately 1 foot above the water level at Mill Creek. A disposable bailer was used to collect the seep sample from SS-5. Due to the potential lack of water volume present at SS-5, TechLaw only collected split samples (TechLaw sample ID - "Seep-5") for VOCs (i.e., two 40-ml vials). Geomatrix was able to collect sufficient volume for all their required analyses at seep location SS-5.

After collecting the seep sample at SS-5, Geomatrix returned to seep location SS-1 and collected the remaining samples from this seep. TechLaw did not collect QA/QC samples during seep sampling due to insufficient water volume.

Sediment sampling began approximately 4 hours after the completion of seep sampling because Geomatrix were awaiting the delivery of the Encore® samplers from the laboratory. Sediment samples were collected along the bank of Mill Creek. An Encore® sampling device and a dedicated stainless steel trowel were used to collect each sediment sample directly from the creek bank in accordance with EPA SW846 Method 5035. A total of 12 sediment samples (SS-1 through SS-12) were collected from Mill Creek, and were located approximately 100 feet from each other. TechLaw collected a total of three split samples of sediment from locations SS-1 (TechLaw sample ID - "Sed-1"), SS-2 (TechLaw sample ID - "Sed-2"), and SS-3 (TechLaw sample ID - "Sed-3") and oversaw the collection of the remaining sediment samples, SS-4 through SS-12. TechLaw collected a duplicate sample from sample location SS-1 and identified this sample as Sed-1-1. Also, additional sample volume was collected from sample Sed-2 and designated as a matrix spike/matrix spike duplicate (MS/MSD) sample.

On October 12, 2001, Mr. Welly observed the sampling of monitoring well LAW-12-60, located at the northern portion of the facility. A down-hole, variable speed Grundfos pump and dedicated plastic tubing were used for sampling. In addition, an in-line flow through cell was used to measure field parameters (i.e., turbidity, pH, temperature, specific conductance, and dissolved oxygen). The total depth of the monitoring well was approximately 60 feet bgs from the TOC. The intake of the Grundfos pump was placed at the center of the 15 foot screen. Groundwater samples were collected for CLP-TAL. Mr. Welly departed the site following the completion of groundwater sampling of LAW-12-60.

TechLaw Oversight Observations - Soil Sampling and Groundwater Sampling

On November 8, 2001, Mr. Quillen at arrived at the Morton facility at approximately 1340. Upon arrival, Mr. Quillen checked in at the security gate and waited for a Geomatrix representative to escort him to the trenching areas. At 1425, Ms. Becky Turner of Rohm and Haas escorted Mr. Quillen to the Geomatrix trailer. Mr. Quillen met with Mr. Charles Young and Ms. Julie So of Geomatrix, who were labeling bottleware for the groundwater sampling. After meeting with Mr. Young and Ms. So, Mr. Quillen drove to Trench T-2, located at Potential Waste Burial Area E, to meet Mr. Eric Mansell of Geomatrix.

Upon arrival, Mr. Mansell and the backhoe operator, Mr. Scott Marling of Equipt, Inc., were wearing Tyvek suits, respirators, and safety helmets during the trenching operations in accordance with the Geomatrix Health and Safety Plan and the Trenching Contingency Plan. Mr. Mansell discussed health and safety issues for the trenching with Mr. Quillen. During trenching activities, Mr. Quillen stayed upwind of the trenching until Mr. Mansell determined that there were no organic vapors present at levels of concern from the trench. Mr. Mansell monitored the trench and the buckets of soil excavated from the trench with an organic vapor analyzer (OVA).

The first trench excavated by Geomatrix, which was excavated prior to TechLaw's arrival at the site, was through geophysical anomaly I located at Potential Waste Burial Area F, in the west

portion of the site (See Figure 1 in Appendix E). According to Mr. Mansell, Trench T-1 was excavated through the middle of the geophysical anomaly that was observed in that area. The remains of two drums were found at depths of 4-5 feet deep, several feet away from each other. The drums were deteriorated and there were no liquids observed in the drums but some cemented material was encountered under the northern drum at a depth of approximately six feet. A sample of the cemented material was collected by Geomatrix (Geomatrix sample T-1-6). Geomatrix collected sample T-1-4 from some moist material under the southern drum, from a depth of approximately four feet. Material interpreted to be native (non-fill) soil was encountered at a depth of approximately 7-8 feet in the trench.

In accordance with the sampling plan for the trenching, Geomatrix collected at least two samples from each trench, generally one shallow sample and one deep sample. Upon Mr. Quillen's arrival at the site, Geomatrix collected the second sample, the deep sample from a depth of nine feet, from Trench T-2. Mr. Quillen collected a split sample of T-2-9 at a sample time of 1445. Samples for VOC analysis were collected first using the Encore® sampling device in accordance with EPA SW846 Method 5035. Following the collection of the VOC samples, a portion of the soil in the backhoe bucket was homogenized and the remainder of the primary and split samples were collected for the remainder of Appendix IX-TAL analysis in accordance with the Work Plan. No drums or other materials that are typically associated with waste disposal were observed in Trench T-2. The material sampled from a depth of nine feet was darker in color than the overlying material and slightly moist. Mr. Mansell's field interpretation of the moisture at this depth was that it may have been associated with the capillary fringe at the top of the water table.

Mr. Marling backfilled Trench T-2 with the stockpiled soil that had been placed on plastic adjacent to the trench. Once the trench was filled and compacted with the backhoe, Mr. Marling went to the decontamination area and decontaminated the backhoe. While Mr. Marling decontaminated the equipment, Mr. Mansell used a tape measure to determine the location of Trench T-3, located by two geophysical anomalies identified northwest of the Former Swale Area.

Trenching at T-3 was started at approximately 1530. Mr. Ron Lancy of Rohm and Haas, arrived at the site at 1545. During trenching at T-3, some coarse, rusted wire was found at the location of one of the anomalies, but otherwise there appeared to be little debris. The soil in this trench appeared to be primarily a sandy, gravelly fill. Also, the sidewalls of the trench caved in several times. TechLaw collected a split sample from 0-3 feet in the north end of the trench (Sample T-3-3) at a sample time of 1610. The split sample was analyzed for Appendix IX inorganics, VOC, semivolatile organic compounds (SVOC), polychlorinated biphenyls (PCB), pesticides, and dioxin/furans. The trench was backfilled starting at 1630.

While Trench T-3 was backfilled and the equipment decontaminated for the day, Mr. Quillen observed Mr. Young and Ms. So conduct groundwater sampling at monitoring well UAW-01-30. Mr. Quillen left the site at 1735.

On November 9, 2001, Mr. Quillen arrived on site at 0715. Geomatrix was preparing bottleware and the sampling plan for the day. Many of the observations and activities that took place while Geomatrix was preparing for field work are described in the field logbook pages presented in Appendix B of this trip report.

Groundwater sampling for the day started at monitoring well UAW-09-60. The first trench of the day was located in the grass near the southwest portion of the parking lot near geophysical anomaly D. Metal debris, ash, broken china and glass, corroded wire (possibly fencing wire), and other materials that were apparently related to farm debris were found in this trench. It appears that the material responsible for anomaly D was related to disposal by farming operations.

Groundwater sampling at UAW-09-60 was complicated by pump control box malfunction and tubing problems. Groundwater sampling at UAW-14-10 was initiated at 1500. Mr. Quillen collected a split sample and a duplicate split sample from UAW-14-10 at 1530. The duplicate was identified as Sample GW3. The split sample was analyzed for Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans. Sample results from monitoring well UAW-14-10 suggest that there were not high levels of contamination in the groundwater in this area. This sample was selected for split sampling by Mr. Quillen based on a sample schedule that had been provided to Mr. Quillen by Mr. Young. According to the schedule, samples from wells determined to have low or non-detectable levels of contaminants would be collected before wells that were suspected of having significant levels of contaminants (i.e., progressing from "clean" to "hot" wells). The wells with potentially more contamination would be sampled after Mr. Quillen's site visit was over. Based on this, monitoring well UAW-14-10 seemed to be a reasonable well for the collection of split samples.

At 1620, Geomatrix started Trench T-1a near Potential Waste Burial Area F, north of geophysical anomaly I. Ms. Anne Haikola of Geomatrix, arrived on site at 1630. A concrete block found at a depth of 2.5 feet in Trench T-1a may have been responsible for the geophysical anomaly in this area. After Trench T-1a was filled in, Mr. Mansell went to SWMU 2 and collected soil sample DP-29 using a hand-auger. Mr. Quillen left the site for the day at 1620 to prepare and ship samples to the EnChem laboratory in Madison, Wisconsin.

On November 10, 2001, Mr. Quillen arrived on site at 0710. The main activity planned for the day was trenching in the parking lot to characterize the Former Swale Area. Prior to the start of the field activities, Mr. Lancy and Ms. Haikola asked Mr. Quillen if there were any particular monitoring wells from which he would like to collect a split sample. Mr Quillen mentioned that monitoring well UAW-11-10 was a possibility. Ms. Haikola talked to Mr. Young and made arrangements for this well to be sampled while Mr. Quillen was at the site.

Trenching in the Former Swale Area started at approximately 0900 at Trench T-5. The soil in the northwestern portion of Trench T-5 was clayey and had sufficient cohesion for the sidewalls to avoid collapsing. As the trench was continued to the southeast, the soil changed to become

more sandy and the sidewalls of the excavation collapsed frequently. Geomatrix decided to backfill the open portions of the trench, to avoid further collapses, and to generally keep only a limited length of trench open during excavation. The groundwater sampling crew was at monitoring well UAW-11-10 at 1325. Mr. Quillen prepared to collect split samples. During the Phase 1 sampling activities, in the Spring of 2001, groundwater purged from monitoring well UAW-11-10 was reported to be tinged with a purple color. The Phase 1 sampling result from this well indicated elevated acetone concentrations (approximately 32,000 ug/l). Mr. Quillen and Mr. Young noticed that the purge water from this well still appeared to have a purple tint initially but the tint became less visible as purging progressed. Mr. Quillen collected a split sample from UAW-10-10 at 1420. The split sample was analyzed for Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans. An additional volume of split sample was collected from UAW-11-10 for a groundwater matrix spike/matrix spike duplicate (MS/MSD) quality control sample.

Thirty-five feet of Trench T-5 had been backfilled. Generally, the portion that was backfilled was a clayey, light brown soil transitioning southeastward into a darker brown more sandy, gravelly soil. Mr. Quillen collected a split sample of the sandy, gravelly soil at 1515 from a depth of nine feet (sample ID T-5-9). A duplicate sample was collected from this location (sample ID T-8-1). Samples were analyzed for Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, herbicides and dioxin/furans Mr. Quillen left the site for the day at 1640 to prepare and ship samples to the EnChem laboratory in Madison, Wisconsin.

On November 11, 2001, Mr. Quillen arrived on site at 0720. The site appeared to have been secured with caution tape and particle board placed over the open portions of the trenches. By 0900 several of the logistical issues for the day had been worked out and the excavation of Trench 5 was continued. By 0930, the backhoe had started encountering significant debris including the remains of a 55-gallon drum, bottles, glass, wire, wood, cardboard, brick, concrete, and what may have been a leather string or shoelace. A white material that was thought to be diatomaceous earth was first encountered in small amounts but as the trenching continued toward the southeast this material became a significant component of the material that was excavated, at one point reaching a thickness of six to eight feet in the trench.

Geomatrix used hydrochloric acid (HCl) to test the white material for the presence of calcium carbonate. There was some reaction (fizzing) but upon close inspection the reaction appeared to be concentrated in cracks or layers within the material. It did not appear as if the material itself reacted vigorously with the HCl. Based on these apparent relative reactions, the material may have been a diatomaceous earth with some calcium carbonate present as a cement. Some of the calcium carbonate may have been remobilized following disposal into the swale and deposited into fractures within the material. Some material with a flaky crystal habit was observed in a void space by Mr. Quillen. Impacted material that was excavated from the trench was disposed in the roll-off box. To minimize the volume of material that would require disposal, Geomatrix and Mr. Lancy discussed trenching approaches that would circumvent obviously impacted material. The middle portion of Trench T-5 was skipped over and the southeastern portion of

Trench T-5 was excavated to determine what materials were present in that area. A concrete layer under the asphalt in the vicinity of Trench T-6 was difficult to penetrate. There was some speculation that the concrete may have been placed as a cap over a "drum burial pit" but it is not clear why this idea was mentioned. Another reason for the concrete layer may have been to reinforce the asphalt in this area where groundwater pressure may have previously been responsible for settling/collapsing portions of the parking lot. Mr. Quillen left the site at 1400.

Work Plan Deviations

One minor deviation from the Work Plan was noted during sediment sampling. According to the Work Plan, sediment samples would be collected using a hand-driven tube sampler equipped with steel liner. However, during oversight and split sampling, sediment samples were collected with a dedicated stainless steel trowel. The use of a trowel rather than a tube sampler did not appear to adversely affect sample integrity.

One item of note is the approved Geomatrix Work Plan did not specify the technique that would be used by Geomatrix to homogenize the non-VOC samples prior to containerization. The soil samples that were collected by Geomatrix during the trenching activities were collected from the bucket of the backhoe. Geomatrix homogenized the samples in a localized, discreet area within the backhoe bucket to achieve homogenization. Soil from the homogenized area was placed into the Geomatrix sample containers and, if applicable, into the TechLaw split sample containers. This technique may not have been ideal relative to homogenization in a stainless steel bowl, yet the sampling personnel were careful and the samples appeared to be reasonably homogeneous.

Another item of note is the original trenching plan had proposed two parallel and one intersecting trenches in the Former Swale Area. Based on several factors such as collapsing sidewalls, encountering impacted materials, and the presence of a concrete layer that was difficult to penetrate, the progress of the trenching was slower than originally anticipated. No decision had been made before Mr. Quillen left the site on November 11, 2001, about how to proceed with the characterization of the Former Swale Area, but Geomatrix and Mr. Lancy were discussing using borings rather than trenching to collect additional lithologic and chemical data. It seems, based on information submitted in the Geomatrix Fourth Quarterly Report for the Morton site, that several direct-push borings were installed in the Former Swale Area in lieu of some trenching.

Analytical Results

TechLaw conducted a data validation of ten percent of the samples collected during the split sampling event. Generally, no issues were identified during the data validation that significantly affected data quality. The data validation reports (DVRs) are presented in Appendix C. The DVRs contain observations made during the validation and data summary tables with qualifiers.

All split samples collected by TechLaw were shipped to the EnChem laboratory in Madison, Wisconsin. The sample results are shown on the Laboratory Form 1s presented in Appendix D.

Although laboratory data qualifiers are applied to Laboratory Form 1s, data validation qualifiers have not been applied.

APPENDIX A

PHOTOGRAPH LOG

Photograph No.: R1P1
Date:10/10/01

Time: 1349
Direction: North

Description: View of groundwater sampling activities at LAW-01-80.

Photograph No.: R1P2
Date: 10/11/01

Time: 0754
Direction: North

Description: View of seep at Station 1 (SS-1) on east side of Mill Creek. (Photograph did not develop)

Photograph No.: R1P3
Date: 10/11/01

Time: 0756
Direction: East

Description: View of well point used for seep sampling at Station 1 (SS-1). (Photograph did not develop)

Photograph No.: R1P4
Date: 10/11/01

Time: 0805
Direction: East

Description: View of the collection of seep sample at Station 1 (SS-1). (Photograph did not develop)

Photograph No.: R1P5
Date: 10/11/01

Time: 0827
Direction: Southwest

Description: View of seep sample collection at Station 5 (SS-5). (Photograph did not develop)

Photograph No.: R1P6
Date: 10/11/01

Time: 0845
Direction: South

Description: View of Mill Creek.

Photograph No.: R1P7
Date: 10/11/01

Time: 1322
Direction: East

Description: View of the collection of the sediment sample at Station 1 (SS-1).

Photograph No.: R1P8
Date: 10/11/01

Time: 1358
Direction: East

Description: View of the collection of the sediment sample at Station 2 (SS-2).

Photograph No.: R1P9
Date: 10/11/01

Time: 1419
Direction: Northeast

Description: View of the collection of the sediment sample at Station 3 (SS-3).

Photograph No.: R1P10
Date: 10/11/01

Time: 1430
Direction: East

Description: View of the collection of the sediment sample at Station 4 (SS-4).

Photograph No.: R1P11
Date: 10/11/01

Time: 1448
Direction: Northeast

Description: View of the collection of the sediment sample at Station 5 (SS-5).

Photograph No.: R1P12
Date: 10/11/01

Time: 1501
Direction: East

Description: View of the collection of the sediment sample at Station 6 (SS-6).

Photograph No.: R1P13
Date: 10/11/01

Time: 1510
Direction: East

Description: View of the collection of the sediment sample at Station 7 (SS-7).

Photograph No.: R1P14
Date: 10/11/01

Time: 1524
Direction: East

Description: View of the collection of the sediment sample at Station 8 (SS-8).

Photograph No.: R1P15
Date: 10/11/01

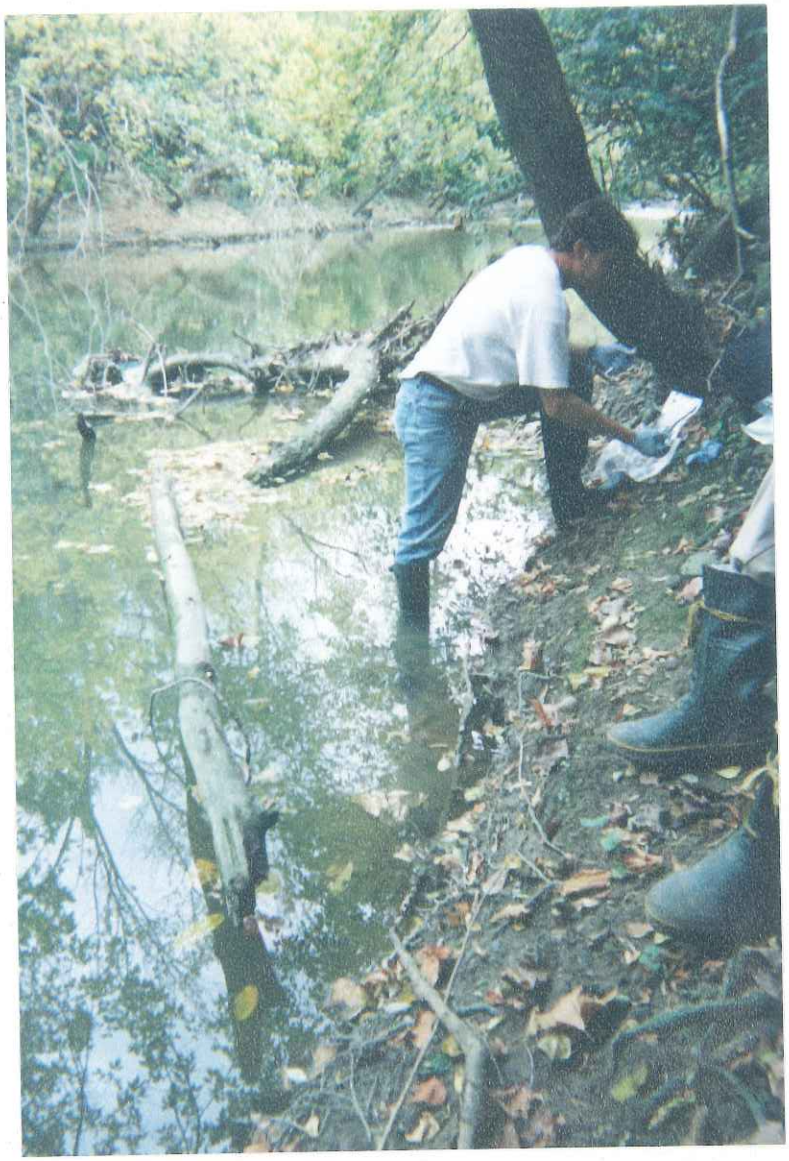
Time: 1540
Direction: East

Description: View of the collection of the sediment sample at Station 9 (SS-9).

Photograph No.: R1P16
Date: 10/11/01

Time: 1550
Direction: Southeast

Description: View of the collection of the sediment sample at Station 10 (SS-10).



Photograph No.: R1P17
Date: 10/11/01

Time: 1610
Direction: South

Description: View of the collection of the sediment sample at Station 11 (SS-11).

Photograph No.: R1P18
Date: 10/11/01

Time: 1620
Direction: Northeast

Description: View of the collection of the sediment sample at Station 12 (SS-12).

Photograph No.: R2P1
Date:11/8/01

Time: 1447
Direction: East

Description: Sample collection activities at Trench T-2, sample depth nine feet.

Photograph No.: R2P2
Date: 11/8/01

Time: 1448
Direction: Down

Description: View into Trench T-2, total depth nine feet.

Photograph No.: R2P3
Date: 11/8/01

Time: 1512
Direction: Down

Description: View of drum recovered from Trench T-1 in roll-off box for disposal.

Photograph No.: R2P4
Date: 11/8/01

Time: 1533
Direction: Northwest

Description: View of Trench T-3. The wire that may be observed near the top of the stockpile may have been responsible for the anomaly that was being investigated.

Photograph No.: R2P5
Date: 11/8/01

Time: 1535
Direction: Northwest

Description: View of Trench T-3. More wire is present on the sidewall of the excavation (difficult to see in photo due to lighting).

Photograph No.: R2P6
Date: 11/8/01

Time: 1600
Direction: Northeast

Description: East sidewall of Trench T-3. Dark layer visible in photo (depth approximately one foot bgs) may be an organic layer, bituminous, or even asphalt pavement.

Photograph No.: R2P7
Date: 11/8/01

Time: 1615
Direction: East

Description: Conduit protruding from side wall of Trench T-3 in the vicinity of the northern geophysical anomaly in this area.

Photograph No.: R2P8
Date: 11/9/01

Time: 1045
Direction: Southwest

Description: Excavation at anomaly D. The portion of a round metal object that may be seen in the stockpile may be an old tractor wheel. Ash, broken china, and glass also excavated from this trench.

Photograph No.: R2P9
Date: 11/9/01

Time: 1540
Direction: South

Description: Groundwater sampling activities at monitoring well UAW-14-10. Front gate of the plant is visible in the background along the fence (near light pole).

Photograph No.: R2P10
Date: 11/9/01

Time: 1620
Direction: Southeast

Description: View of the second trench near Trench T-1. This trench was conducted to investigate another geophysical anomaly near the two drums that were previously recovered.

Photograph No.: R2P11
Date: 11/9/01

Time: 1650
Direction: South

Description: Groundwater sampling activities at monitoring well UAW-17-20.

Photograph No.: R2P12
Date: 11/9/01

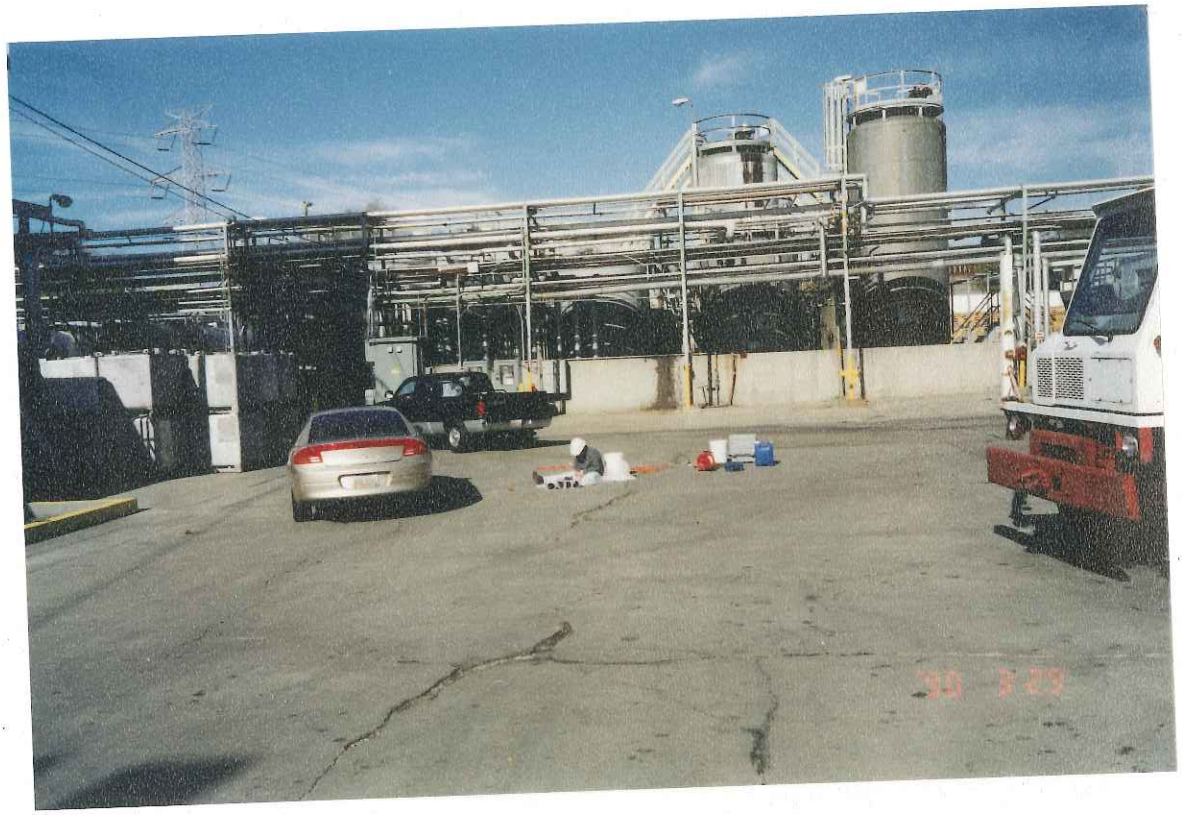
Time: 1720
Direction: South

Description: Hand augering to collect the soil sample from the east side of SWMU2, near the railroad tracks.

Photograph No.: R2P13
Date: 11/10/01

Time: 0950
Direction: Northeast

Description: View of Trench T-5 in the Former Swale Area.



Photograph No.: R2P14
Date: 11/10/01

Time: 1330
Direction: Northwest

Description: Groundwater sampling at monitoring well UAW-11-10, preparing to purge well.

Photograph No.: R2P15
Date: 11/10/01

Time: 1535
Direction: North

Description: View of Trench T-5. Note the change in color of stockpiled soil.

Photograph No.: R2P16
Date: 11/10/01

Time: 1537
Direction: Southeast/Down

Description: View of soil color change in Trench T-5. The darker, sandier soil appears to cave in more than the clayey soil.

Photograph No.: R2P17
Date: 11/11/01

Time: 0925
Direction: Northwest

Description: View of the drum removed from Trench T-5.

Photograph No.: R2P18
Date: 11/11/01

Time: 0940
Direction: West

Description: View of Trench T-5. The lighter colored material being dumped out of the backhoe bucket is different that the sandy material found in the trench.

Photograph No.: R2P19
Date: 11/11/01

Time: 0955
Direction: South

Description: Mass of black oily material excavated from a depth of 7.5 feet in Trench T-5. This was below the white layer in this portion of the trench.

Photograph No.: R2P20
Date: 11/11/01

Time: 1005
Direction: South/Southeast

Description: View into Trench T-5 near the south end of the trench.

Photograph No.: R2P21
Date: 11/11/01

Time: 1100
Direction: West

Description: Workers sawing concrete and working with stockpiled soil. The roll-off may be seen in the background.

Photograph No.: R2P22
Date: 11/11/01

Time: 1105
Direction: West

Description: Loader dumping impacted soil into the roll-off.

Photograph No.: R2P23
Date: 11/11/01

Time: 1145
Direction: Southeast

Description: View of the east wall in the southern portion of the Trench T-5.

Photograph No.: R2P24
Date: 11/11/01

Time: 1205
Direction: East

Description: View of (apparently) diatomaceous earth on the east wall of Trench T-5. There are apparently blocks (with layering) mixed in a matrix of the material.

APPENDIX B

FIELD LOGBOOK

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name M. Welly
TechLaw, Inc.
Address 20 N. Wacker Dr. Ste. 1260
Chicago, IL 60606
Phone (312)345-8955

Project Morton, Int.

Yellow Polyethylene Protective Slipcovers (Item #31) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

CONTENTS

PAGE	REFERENCE	DATE

10/10/01
Morton Int. Reading, OH

Warm ~ 70°F partly cloudy

1215 Arrive at the facility

Check in at Security Gate and meet Tim Jenning & Eric Mansel at Geomatrix fieldtrailer.

Discuss sediment sampling w/ Eric Mansell. Eric said 1st thing tomorrow morning they would be collecting sed. samples.

1325 Geomatrix prep for sampling monitoring well UAW-01-80 Located along West fence @ SW portion of facility

A Grundfos variable speed pump is used w/ poly (dedicated) tubing.

Well depth from TOC ~ 83' ~~bgs~~ MW
79.5' bgs.

This well is being re-sampled from previous sampling round.

~~Well screened~~ MW
Pump intake @ center of screen
15' screen.

Field parameters measured for stabilization

Turbidity, pH, temp, ~~conductivity~~ MW sp. Conductance, DO.

P1
Dir North
time 1349
View of GW sampling activities at UAW-01-80

2-40mL and VOCs CLP
1 Liter amber collected PCBs

Geomatrix break to conduct misel Activities

I go to car + prep labels for Sediment Sampling.

1533 Go to monitoring well UAW-05-20 for sampling.

UAW-05-20 was purged dry earlier in the day and left to recharge due to low yield. No field parameters will be collected b/c of low yield. Samples collected w/ disposable plastic (poly) Bailers + Twine.

UAW-05-02 located near west fence at the northern portion of facility

This well is being re-sampled from previous round.

~~VOCs, metals, PCBs, cyanide~~ MW

1602 Complete sampling of UAW-05-02

1630 Depart Site

10/11/01

0715 Arrive Onsite

Weather: light rain ~60°F
0740
Go for seep Sampling

P2
Time 754
Dir E
View of Seep (SS1 Station) on East side Hill Creek

A 2" S.S. Screen Inserted in Ground ~3-5' from bank Steep bank and ~3'-4' above water level
P3
Time 0754
View of Well point used for seep sampling at SS1

Sample #
101101209

0800 Geomatrix collect Seep Sample

Seeps bailed dry yesterday @ 5:00 PM

P4
Dir E
Time 0805
View of collection of Seep at SS-1
A bailer used to collect Samples

Due to lack of volume of water from seeps, Techlaw only collected 2-40ml vials for VOC analysis. The volume issue was Discussed w. M. Capiro prior to sampling.

* 0805 Techlaw collects 2-40ml vials Seep-1 from location SS-1

Geomatrix having difficulty collecting volume. leave & come back

SS-1 Northernmost Seep & Sediment Location

Go to location SS-5

P5.-
Dir ~~#~~ SW
Time 0827 Seep
View of Sample collection at SS-5

TL samples 2-40mL VOC's only due to low yielding seeps

*0827 TL collect ~~SS-5~~ MW SEEP-5 2-40mL vials for VOC analysis

Seep at SS-5 is located ~ 1 foot from water level

* SS-5 has 2-foot S.S. well point + collected w/bailer

Geomatrix having difficulty collecting volume Seep almost dry when finish. sample ~~total~~ MW 101101210

0840 Return to SS-1 for Geomatrix to complete sampling.

* Seep samples collected early in morning due to rain predicted in afternoon.

P6
Dir South
Time: 0845
View of Mill Creek

Samples (Seep) placed on ice + locked in Van upon completion. Cooler are unable to be brought to sampling locations due to steep banks.

Geomatrix is waiting for Encores to be delivered from Innovative Technologies

1010 Call in to M. DeRosa to discuss the potential for QC samples for Seep b/c limited volume

1200 Lunch
1230

1245 Go to sediment sampling

1300 Arrive at SS-1

1310 * Collect Sed-1 location SS1

Geomatrix Sample # 211

* Duplicate Sed-1-1 location SS-1
1315

P7
Dir East
Time 1322.
View of collection of Sed. sample at SS-1

1324
Finish sediment sampling at SS-1

1331 Move to location SS-2

1340 * Collect Sed-2
MS/MSD collected from this location
Geomatrix Sample # 212

P8
Dir East
Time 1358
View of ~~seep~~ sed location at SS-2

1401 Move to location SS-3
1410
* Collect Sed-3
at location SS-3
Geomatrix Sample 213
P9
Dir NS
Time 1419
View of seep at location
SS-3.

Move to location ~~SS-3~~ MW SS-4

Each Location ~100 feet
from eachother

P10
Time 1430
Dir East
View of location SS-4

Geomatrix Sample 216

1442 Move to location SS-5
Geomatrix collect
duplicate sample from this location

TL collected 1st three sample
locations b/c thunderstorm forecasted

SS-1 was collocated w/ Seep
sample.

P11
Dir NE
Time 1448
View of location SS-5

A dedicated S. S. trowel used
to collect samples. Encore used
for VOCs.

All seeps at this point appear
moist. SS-1 + SS-5 are wet.

1455
Move to location SS-6
Geomatrix sample # 217

P12
Time 1501
Dir East
View of location SS-6

1508 Move to location SS-7
Geomatrix Samp# ~~218~~ 217 (MW)

P13
Time 1510
Dir East
View of location SS-7

North . . . . . South
SS-1 SS-2 SS-3 . . . . . SS-12
Sample ID ↗

1520 Move to location SS-8
Geomatrix sample # ~~219~~ (MW)
218

P14 (MW)
Dir: East
Time: 1524
View of location SS-8

1533 Go to location SS-9
Geomatrix Sample ~~#220~~ ~~#220~~ (MW)
219

P15
Dir. East
Time 1540
View of location ~~#221~~ (MW) SS-9

1547 Move to location SS-10

P16 Southeast
Dir ~~South West~~ (MW)
Time 1550
View of Location SS-10
Geomatrix sample ~~221~~/MW 220

(MW)

~~1552 Move to Location~~

1600 Move to Location SS-11

P-17
Dir South
Time 1610
View of location SS-11

1615
Move to location SS-12

P-18
Dir: NE
Time 1620
View of location SS-12

1630 Finish Sediment Sampling

1645 Depart Site

1700 Return to hotel to prep Samples + COCs for shipment

1930 Drop Samples off at FedEx

1945 Leave. M. Capiro message on progress @ Morton

10/12/01
Weather
Rain ~60°F

0800 Arrive onsite

Geomatrix sampling monitoring wells

Geomatrix sample Monitoring Well LAW-12-60

A flow thru cell used for field parameters Do, Temp, pH...

A grundfos pump used ~300-400ml/min

0930 Collect for Appendix 9 analysis

0945 Complete sampling at LAW-12-60 well located Northend of facility

Total Depth ~60' bgs

Geomatrix plan on sampling monitoring wells the rest of the day

1030 Depart Site

MW

11/8/01

11/8/01

0840 En Route to Reading OH

Anticipated activities

1. Aquifer Testing
2. 2 Groundwater split samples
   - VOCs - 3 x 40 ml (HCl)
   - SVOCs - 2 x 1000 ml (amber)
   - Metals - 1 x 500 ml (HNO_3, plastic)
   - Cyanide - 1 x 500 ml (NaOH, plastic)
   - Sulfide - 1 x 1000 ml (NaOH + ZnAc, plastic)
   - Pesticide - 2 x 1000 ml
   - PCBs - combined w/ Pesticide
   - Dioxin/Furan -
3. Up to 7 soil split samples From trenching
   - VOCs - 1-25g, 2-5g Encore or 60ml wide
   - SVOC, pest, PCB, herb - 500 ml Amber
   - dioxin/Furan - 250 ml amber

1340 Arrived on site. Signed in. Not allowed to get past guardshack without an escort. Charles Young and Eric Mansell are signed in. They have been paged, No answer.

1410 Still waiting. Organized equipment and bottles.

425 Becky Turner escorted me to the trailer. She's with Rohm Haas EH&S. Charles Young and Jeffrey So were labeling bottles. Eric Mansell is trenching. Anomaly E, Area E

Found Eric at Trench 2. He had just finished PID screening 3-9 foot soils. He had already collected the 3 foot sample and was preparing to collect a 9 foot sample. I told him I wanted a split but by the time I got back from my car he had already filled his containers. I asked him to fill mine from generally the same area and he did. I made sure he understood that for future splits we would need to do a better job getting a homogenized sample and splitting it. He agreed.

Anomaly I, Area F, Trench 1

Eric informed me that they found 2 drums at Trench One, 4-5 feet deep. No strong odor of LEL, some cemented material under one of the drums. The drums were found in the locations of the geophysical anomalies.

He collected a 4-5 foot sample from under one of the drums

Sample collected from Trench 2 called T2-9 (Trench 2, 9 feet). Collection Time 1445. 3 x 250 ml Amber, 2-5g & 1-25g Encore. ~~Sa~~ 11/8
Sandy, gravelly, loamy
Anomaly E, Adjacent to swale area.

1515 Eric is determining the location of Trench 3. Apparently the locations have not been surveyed. Eric is using a tape measure from landmarks (i.e., trees) to find the location of the anomalies. Based on his finding the 2 drums at trench 1 it initially appears that this measurement method works OK.

At 1509 Eric provided me with a copy of the Trenching Contingency Plan document.

While Eric is measuring, Scott Marling, the operator from Equipt, leveled the bucket of the backhoe.

11/8/01

-1	E	1447	Sample collection of Trench 2 9' sample
-2	down	1448	View of trench to Nine Feet.
1-3	down	1512	Drum From Trench 1 in Roll-off
1-4	NW	1533	Beginning of Trench 3 wire seen in stockpiled soil (may be responsible for anomaly
1-5	NW	1535	Trench 3, more wire seen on sidewall of excavation.
1-6	NE	1600	East sidewall of excavation at Trench 3, possible organic layer or maybe bituminous /paved. (probably not)
1-7	E	1615	Conduit protruding from east wall of excavation near location of northern anomaly

11/8/01

As a last note on The Trench 2 sample, it was collected From a black-stained medium sandy area. Eric believes This is The capillary fringe zone based on his Familiarity with The site and the slighty higher moisture content in The soil in This zone.

Trench 3 positioned to intersect 2 anomalies. At The anticipated anomaly position in The south end of The excavation rusted coarse wire was found.

1545 Ron Lancy from Rohm Haas showed up to see some trenching.

Trench 3 caves in frequently.

1630 began backfilling Trench after Eric collected sample from 9 Feet.

I collected a split From 0-3 feet bucket From north end of Trench — sandy with gravel.

Sample name T3-3, collection time 1610.

11/8/01

1645 Trenching done for the day
Left Trenching area to find Charles and Julie groundwater sampling
Found them across from trailer at UAW01-30 filling VOA vials. This is the first well they have sampled.
1700 Finished filling vials. Charles made a list of wells they intend on sampling - in order. He will make a copy for me and I will determine which wells may be best to split.
1730 Checked in with Ron and Eric.
1735 left site.

11/9/01

0715 Arrived on site
Waited at Guard shack, called Erik Mansell's cell phone 512 422 4875
Ron Lancy came at 7:30 Followed Ron and Erik to trailer.
0830 Geomatrix still prepping
Charles & Julie getting ready for GW sampling calibrating equipment, labeling bottles
Erik prepping to auger near SWMU 2 in the area East of the tank. This location has to be augered by hand because the push rig couldn't get access.
Erik and Ron called John Lottinger from Geomatrix - the geophysicist who did the geophysical survey - to get his interpretation of the two anomalies north of the I anomaly. John did not have the report available but based on finding the drums in I he thought it might make sense to investigate the others
Ron, Erik, & I went to Area F to inspect area and be sure no obvious surface debris was in area.

11/9/01

There was no obvious explanation for the other anomalies in Area F. Ron wants to call Mark Hemingway to see what he thinks about digging to find more about the other anomalies. They are also going to talk to a person here at the plant about one of the underground lines in the area.

0935 Charles changed his proposed sampling order for the wells. Rather than proceeding in order based on a list he gave me he wants to start in the southeast portion of the site and move northwest. They did UAW09-20 first from around 0845 to 0945

1000 Finishing decon at UAW09 preparing to purge and sample UAW09-60.

Yesterday Erik informed me that the pump/aquifer testing they had planned for the early part of this field cycle would be postponed until

11/9/01

next week. They have a local drilling contractor with higher capacity pumps coming out to do the work because their 2-5 gpm grundfos pumps do not cause sufficient drawdown. The drilling contracter will be here next week.

The backhoe operator has been on site since around 9:30. at 1010 he's down at the decon pad talking to Erik.

UAW09-60 29.81 depth to water
59.30 depth to bottom

1015 turned pump on to start purging. Back hoe on station at Anomaly D in grass southwest of parking lot. Metal debris, broken china, ash, corroded wire, maybe fencing wire, bottles.

1120 backhoe stopped to refuel. I checked on UAW09-60. They've had problems keeping a constant flow rate. Replaced tubing, still had flow problem, found tangle in new tubing, decomed

11/9/01

-8	SW	1045	Excavation at Aromaly D Round metallic object may be seen in stockpile (tractor wheel?). Some Ash and broken china in hole. Farm waste?
-9	S	1540	~~UAW09-1~~ 11/9 UAW14-10 sampling gate in bkg of pic.
-10	SE	1620	Trench T1a-9 11/9
-11	S	1650	~~Sampling~~ Setting pump in well UAW17-40
-12	S	1720	Augering at SWMU2

everything and replaced tubing again
1125 lowered pump in for 3rd time
backhoe started again.
1130 Erik collected the 9 foot sample - sandy, possibly ironstained.
1140 Erik collected the 3 foot sample more clay than the 9 foot.
Charles decided he would not sample UAW09-60 with this control box & pump
Flow rate would not stay steady.
He ordered a new pump & control for delivery tomorrow.

They figured out the pigtail was damaged They plugged pump cord directly into the control box and it worked.
They sampled UAW09-60.

Ron Lancy and I went to lunch at 1300

Sampling UAW14-10 (starting) at 1500. Sample time 1530. Dup called GW3

11/9/01

Back hoe filled in trench

UAW14-10

8.81' Initial depth to water
5.95' Total depth
3.50 depth of pump
10.82 depth to water after 6 minutes
11.39 15 minute depth
Temp 18.75
pH 5.05
cond 815
color clear
turbidity
D.O. 42.78
Sample Time 1540

1620 collected 9' sample from 2nd Trench near area F (north of I Anomaly.)
Called T1a-9.
Soil seemed native below 2-3 feet.
A concrete block found at 2.5 feet.
Erik identified a capilary fringe area (suspected) at about 9 feet.
Black staining, increased moisture

11/9/01

1630 Anne Haikola arrived on site
1645 Filling in Trench
1650 Went to UAW17-40 to see Ken lowering pump into the well.
1700 Still filling Trench.
Erik Marked location of Anomaly South of Anomaly I
1710 Erik went to SWMU 2 To collect Hand Auger sample.
To keep consistent with direct push samples he's calling this location DP-29. Fat Clay. High plasticity. difficult to get out of Auger.
Because it seems unlikely that this method will yeild sufficient volume to collect splits I will not split this location
Their sample tube was stuck on another rod so he deconed the auger, collected the sample VOCs First, out of the auger.
Sample is wet at bottom of auger.
Sample time around 1750 I did not split.

11/9/01

1805 tried to leave but guard was making his rounds. Went back to ask Anne how I could get out, she said I had to wait.

850 Guard arrived and let Ron and I out.

~~1807~~ 1817 ~~1827~~ Talked to Mirth Capiro 1907 until 1927 about project. Explained that they were not able to do aquifer testing until next week, we would only be able to split low-level GW samples b/c they were only going to be doing the more-upgradient wells thru sunday, and I explained what they had done with the trenching.

1930 - 2100 packaged samples

2100 - 2215 delivered samples to FedEx Cincinnati airport location.

11/10/01

0710 arrived on site, same time as Ron Lancy. pulled into parking lot near swale area, prepped paperwork.

0800 at trailer, Geomatrix still prepping for day.

0830 Anne asked if there was a particular well I would like to split. I mentioned UAW11 would be useful. She thought that would be fine so she asked Charles to make that happen - I was fine with it being the last well of the day. FedEx closes at 5:00 so they will sample it around 2:00.

0845 went to IGA to get more baggies and ice for samples. back hoe still trying to get thru 2nd layer of asphalt

0905 Returned to site. Excavation started. They've been afraid of significant collapse while trenching (reported by John Stacy, plant maintenance mgr) no collapse yet. Much clay in soil.

11/10/01

-13	NE	0950	Trench T-5
-14	NW	1330	On station at UAW11-10 preparing to purge well.
-15	N	1535	Trench 5 note change in color of stockpiled soil
-16	SE Down	1537	View of soil change in trench. The darker sandier soil appears to cave in more than the clayey soil.

11/10/01

0950 to 1045 Stopped digging to do maintenance on hoe and cut more asphalt

1140 Side wall caving in They're considering backfilling the 20 feet of trench that they've done so far to prevent more cave-in.

1245 Still backfilling, I tried to find the GW sampling team but they are at lunch.

1255-1305 left site to get a snack and water.

1320 Erik went to trailer, hoe filling in trench.

1325 Charles and Julie were setting up at well UAW11-10. I will collect a split and MS/MSD from this one. This well had 32,000 ug/l acetone during the spring sampling event. The color of the sample during phase 1 was described as purple.

8.05 depth to water

13.92 total depth

12.00 pump intake depth.

11/10/01

Initial

Rate	850 ml/min
Temp	22.29
pH	7.58
Cond	15,543
Turb	5.5
D.O.	5.7

21 minutes

Rate	850 ml/min	8.38 water level
Temp	22.60	
pH	7.39	
Cond	8,979	
Turb	2.9	
D.O.	19.72	

1420 Sample Time for UAW11-10
1500 Finished filling bottles
went to Trench, They backfilled
and compacted The 35 feet of trench
5 west of The center trench. The
light brown clayey soil contacted a
darker sandier more gravelly soil
From 4' to 12+ feet where The
Trenches intersected. Collected sample
of This material.

11/10/01

Soil sample From trench 5 called
T5-9. Sample Time 1515. Duplicate
sample was collected from This
location called T8-1 with sample
Time of 1230 written on bottles.
1545 packaging samples and
completing paperwork to make
5:00 FedEx time
1640 signed out and left site
dropped off samples at FedEx.
3 coolers airbill # 832661422983

11/11/01

0720 arrived on site. Met Erik at swale area. Site was secured last night after I left with plenty of caution tape and plywood over those portions of the trenches where the asphalt had been removed.

Erik informed me that the backhoe had a blowout in it's front right tire. The men from Equipt were deciding whether to get another hoe out here - but the arm could only dig down 10 feet - or whether they could get someone out to the site this morning to fix their flat tire.

0745 - They are removing some of the particle board from over the trenches. It appears they are going to keep digging with this backhoe for the time-being. By keeping the loader-bucket on the ground the hoe can be stabilized without having its front wheels on the ground. The backhoe was maneuver'd into position over trench at 0748.

TO

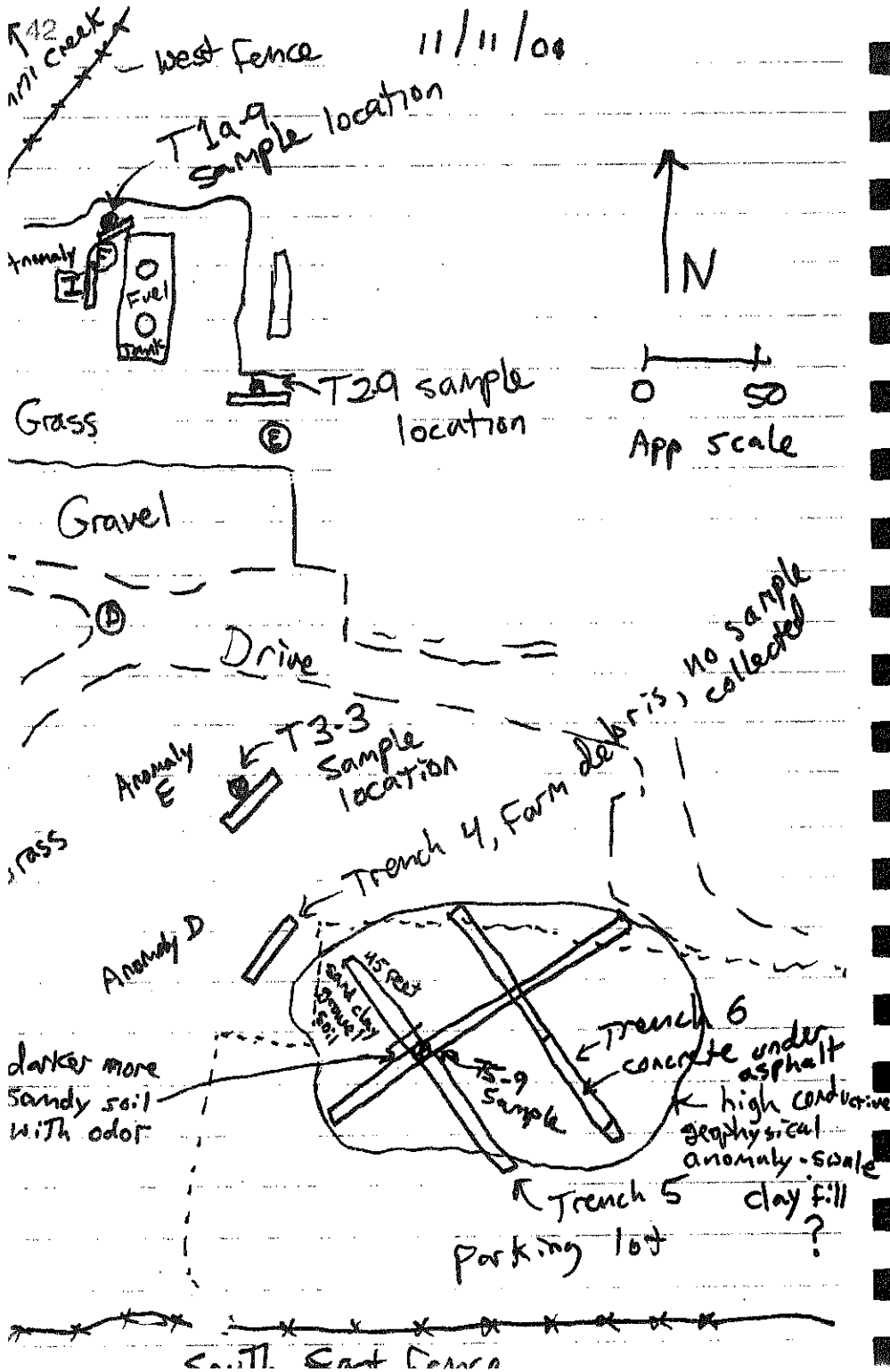
0750 Ron Lancy arrived on site. Erik Mansell is trying to find the plant manager to get him to sigh the "hot work" permit for the day. Once signed they'll be able to get started.

0825 Anne Haikola arrived. The new backhoe arrived at 0815. They're prepping it / getting it off the flatbed.

0845 The new hoe is going to pull asphalt of the other trench (parallel to Trench 5) southern end. Erik and Anne want to see what to expect in the southern portion of this trench. John Stacy, plant maintenance manage, reports that one of the old farm buildings and some concrete (with rebar) are in this area. Erik and Anne think this coincides with the lower conductivity area seen in the geophysics.

0857 The original hoe started digging in Trench 5 again.

TO



11/11/01

0925 found a drum carcass. Filled with soil and debris. One small bottle filled with red tinted oily substance (4 oz volume) with wick? (not wick) some oily sticky shiny substance inside other jars, some wire, piece of brick, maybe a leather shoe lace

drum was 2-3 feet deep, adjacent to a large concrete block.

Finding several bottles/jars, some wood, low readings on PID (high 5 ppm) Some cardboard (?) stained black. White layer either diatomaceous filter material, related to lime, kaolinite unknown depth

Some wood debris a piece of ~1" O.D. tubing/seal getting into some black stained debris w/ string? a shotglass intact, more broken bottles leaking material from bottles PID=~18+, corrugated fiberglass material,

According to their plan, if they started finding material they would stop digging. They will not dig further here.

11/11/01

17	NW	0925	Drum removed from T-5
18	W	0940	White material in bucked is distinct from sandy material found in trench
19	S	0955	Mass of black oily material pulled from 7.5 feet deep below white layer
20	SSE	1005	View into trench near south end
21	W	1100	Sawing concrete, working with stockpiled soil, rolloff in background
22	W	1105	dumping load of impacted soil into rolloff.
23	SE	1145	View of East wall in south portion of trench.
24	E	1205	View of diatomaceous earth on east wall of Trench 5. Orientation of layering in blocks suggests material was mixture of blocks and matrix (pre-induration) when dumped.

11/11/01

They will dig at the extreme south end of ditch to see if this waste extends that far.

Erik is collecting a waste sample. I will not split the waste sample.

1020 Erik still sampling waste

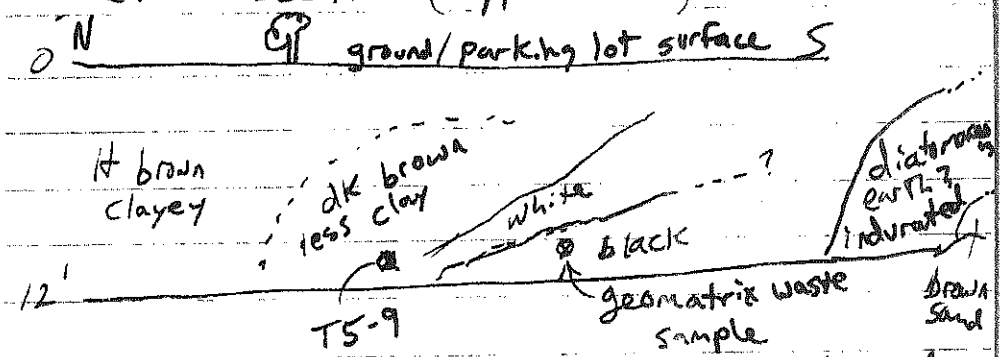
1030 Erik done, They're starting backfill

1040 Visited GW crew at UAW21-80.

~~1055~~ collecting readings during purging

1055 They are segregating the apparently impacted material from the clean material

Cross section (approximate)



The sloped white material was either dumped into a depression from the southern slope of excavated from the north and backfilled with the dk brown gravelly sandy material

TQ

11/11/01

1100 The apparently impacted material is still being placed into the roll off

1105 Started digging at south end of trench 5. There was 6-7 feet of well indurated diatomaceous earth (? from the winery? not kaolinite b/c too dense, maybe lime?) Anne went to get HCl to test the material. Some reaction to sulfuric, almost no reaction to HCl, a secondary precipitate of calcite does occur as a cement between some of the blocks. Some of the calcite was observed to have a flaky crystal habits in one of the void spaces

1230-1300 left site for lunch
The crew was out to lunch, returned fueled backhoe, cleared asphalt

1330 positioning to clear concrete from under asphalt.

335 went to visit GW crew at UAW03-20

Initial depth to water	: 12.77'
Total depth	: 18.48
pump set at	: 16.00

UAW03-20 11/11/01

temp	19.66	15 minute
pH	7.54	
Cond	2957	
Turbidity	3.7	
D.O.	46.52	

1345 Started sampling UAW03-20
I did not collect a split.

1400 They're still trying to break thru concrete in trench 6
Erik mentioned to backhoe operator that there was a possibility that the concrete underlaying the asphalt was a cap over a drum burial pit. This contrasts with what Ron, Anne, and Erik had said to me earlier. They earlier attributed the concrete to, according to John Stacy, the area had issues with too much settling due to high water pressure. The concrete was poured to provide support and prevent settling.

1400 left site.

APPENDIX C

DATA VALIDATION
AND
VALIDATED ANALYTICAL RESULTS

TABLE 1
MORTON INTERNATIONAL
SAMPLE ID TABLE

Field ID	Triangle Lab ID
Sed-2	913561-002
Sed-1	913561-007
Sed-1-1	913561-008
Sed-3	913561-009
T2-9	913967-004
T3-3	913967-005
T1A-9	913967-006
T8-1	913975-002
T5-9	913975-003 and 913975-004
UAW11-09	913976-006
UAW14-10	913968-001
GW-3	913968-002

*Enchem field ID same as laboratory ID

DATA VALIDATION REPORT

Report Date:	February 21, 2002
SDG No.:	913561
Matrix:	1 Sediment Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	October 11, 2001

This report provides the data validation report for 1 sediment sample collected by Techlaw, Inc. on October 11, 2001 from the Morton International facility located in Reading, Ohio. The sample was analyzed for Appendix IX metals on November 1 and 6, 2001 and for mercury on October 31, 2001.

PARAMETER	SAMPLE NUMBER
Appendix IX Metals (SW-846 6020) Mercury (SW-846 7471A)	SED-2 (913561-002)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February, 1994 (Functional Guidelines).

Metals and Mercury Analysis

- *● Data Completeness
- *● Holding Times
- *● Calibration
- ● Blanks
- *● Interference Check Sample
- *● Laboratory Control Samples (LCS)
- ● Duplicate Sample
- ● Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- ● Serial Dilution
- *● Sample Result Verification

* All criteria met for this parameter

Data Completeness

The data appeared to be usable with the exception of the tin result for sample Sed-3. Although this sample was not validated, it appears that the tin result should be rejected due to poor spike recoveries.

Holding Times

Analytical holding times were met (mercury - 28 days from time of collection to time of analysis; all other metals - 6 months from time of collection to analysis) for all parameters.

Calibration

For mercury, the instrument was calibrated using four standards and a blank. For the remaining metals, instrument calibration was performed by utilizing one calibration standard and one laboratory blank sample. All initial calibration verification and continuing calibration verification (ICV/CCV) results for mercury met the QC requirements of 90 - 110 percent recovery (%R) and 80-120 %R respectively. All remaining metals met the QC requirements of 90-110 %R for the ICV/CCV.

Blanks

Magnesium, mercury, manganese and calcium were detected in the initial calibration blank and/or continuing calibration blanks (ICB/CCB). The preparation blank results (PB) met the QC requirements (all concentrations below the estimated quantitation limit [EQL]). No data were qualified based on blank results because the sample concentrations were greater than five times the blank concentrations.

Interference Check Sample

The interference check results met QC requirements of 80 - 120 %R. However, trace amounts of target analytes were reported in Solution A (unspiked solution). This could be due to instrument carry-over contamination or minor instrument sensitivity problems.

LCS

The LCS results met the laboratory's QC requirements and were within 80 - 120 %R.

Duplicate Sample

The duplicate sample relative percent difference (RPD) result for magnesium (19.8 RPD) exceeded the laboratory control limits (0 - 6 RPD) but was within the alternate QC limits (35 RPD). Therefore, no additional action was necessary. The remaining duplicate sample relative percent difference (RPD) results met the laboratory control limits and 35 RPD.

MS/MSD

The MS and MSD %R results for barium (140.7 %R and 155.4 %R, respectively) and tin (21.9 %R and 24.7 %R, respectively) were outside of the laboratory QC limits and 75 - 125 %R. The results for barium and tin were qualified as estimated (J). All remaining MS and MSD and post digest spike %R results were within the laboratory QC limits and 75 - 125 %R.

Serial Dilution

The serial dilution percent difference (%D) results for potassium (10.8 %D), sodium (15.6 %D), vanadium (10.6 %D) and zinc (16.6 %D) exceeded the QC requirement of less than 10 %D. The associated sample results were qualified as estimated (J). The remaining serial dilution results met the QC requirement of less than 10 %D.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913561
METALS (SW-846 METHOD 6020) & MERCURY (SW-846 METHOD 7471A)

Sample ID Number	SED-2	Q
Matrix	Sediment	
Collection Date	10/11/01	
Analyte	mg/kg	
Aluminum	14000	
Antimony	1.1	U
Arsenic	5.1	
Barium	75	J
Beryllium	0.67	
Cadmium	0.21	
Calcium	93000	
Chromium	18	
Cobalt	10	
Copper	14	
Iron	22000	
Lead	10	
Magnesium	24000	
Manganese	630	
Mercury	0.13	
Nickel	20	
Potassium	3600	J
Selenium	1.1	U
Silver	0.54	U
Sodium	250	J
Thallium	1.1	U
Tin	15	J
Vanadium	31	J
Zinc	38	J

Q - Qualifier
mg/kg - Milligrams per kilogram
U - Undetected at reported value
J - Reported value is estimated
R -Rejected

DATA VALIDATION REPORT

Report Date:	February 21, 2002
SDG No.:	913967
Matrix:	1 Soil Sample & 1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	November 8 - 9, 2001

This report provides the data validation report for 1 soil sample and 1 groundwater sample collected by Techlaw, Inc. on November 8 & 9, 2001 from the Morton International facility located in Reading, Ohio. The samples were analyzed for Appendix IX metals on November 21 - 30, 2001 and for mercury on November 20 and 27, 2001.

PARAMETER	SAMPLE NUMBERS
Appendix IX Metals (SW-846 6010B) Mercury (SW-846 7470A & 7471A)	T2-9 (913967-004) and GW3 (913968-002)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February, 1994 (Functional Guidelines).

Metals and Mercury Analysis

- *● Data Completeness
- *● Holding Times
- *● Calibration
- *● Blanks
- *● ICP Interference Check
- *● Laboratory Control Samples (LCS)
- *● Duplicate Sample
- *● Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- ● Serial Dilution
- *● Sample Result Verification

* All criteria met for this parameter

Data Completeness

The data appeared to be usable.

Holding Times

Analytical holding times were met (mercury - 28 days from time of collection to time of analysis; all other metals - 6 months from time of collection to analysis) for all parameters.

Calibration

Instrument calibration was performed by utilizing one calibration standard and one laboratory blank sample for ICP metals and four standards and one blank for mercury. All initial calibration verification and continuing calibration verification (ICV/CCV) results met the QC requirements of 90 - 110 percent recovery (%R) for ICP metals, 90-110 %R for the mercury ICV and 80-120 %R for the mercury CCV.

Blanks

All initial calibration blank and continuing calibration blank (ICB/CCB) results and preparation blank results (PB) met the QC requirements (all concentrations below the estimated quantitation limit [EQL]).

ICP Interference Check

The ICP interference check sample results met QC requirements of 80 - 120 %R. However, trace amounts of target analytes were reported in Solution A (unspiked solution). This could be due to instrument carry-over contamination or minor instrument sensitivity problems.

LCS

The LCS results met the laboratory's QC requirements and were within 80 - 120 %R.

Duplicate Sample

The duplicate sample relative percent difference (RPD) results met the laboratory control limits and 35 RPD (Soil)/20 RPD (Groundwater).

MS/MSD

All MS and MSD %R results were within the laboratory QC limits and 75 - 125 %R.

Serial Dilution

The soil serial dilution percent difference (%D) result for zinc (10.9 %D) exceeded the QC requirement of less than 10 %D. The associated sample result was qualified as estimated (J). The remaining soil and groundwater serial dilution results met the QC requirement of less than 10 %D.

Field Duplicate

No field duplicates were associated with the samples validated in this SDG.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913967
METALS (SW-846 METHOD 6010B) & MERCURY (SW-846 METHODS 7470A & 7471A)

Sample ID Number	T2-9	Q	GW3	Q
Matrix	Soil		Groundwater	
Collection Date	11/8/01		11/9/01	
Analyte	mg/kg		µg/L	
Antimony	1.1	U	10	U
Arsenic	**2.4**		10	U
Barium	**11**		**68**	
Beryllium	**0.20**		1.0	U
Cadmium	**0.13**		1.0	U
Chromium	**5.4**		3.0	U
Cobalt	**2.5**		3.0	U
Copper	**8.7**		10	U
Lead	**3.8**		5.0	U
Mercury	0.038	U	0.20	U
Nickel	**6.6**		5.0	U
Selenium	1.1	U	10	U
Silver	0.56	U	5.0	U
Thallium	1.1	U	10	U
Tin	5.6	U	**26**	
Vanadium	**11**		5.0	U
Zinc	**17**	J	20	U

Q - Qualifier
mg/kg - Milligrams per kilogram
µg/L - Micrograms per liter
U - Undetected at reported value
J - Reported value is estimated

DATA VALIDATION REPORT

Report Date:	February 22, 2002
SDG No.:	913967
Site:	Morton International
Matrix:	1 Soil Sample & 1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	November 8 - 9, 2001

This report provides the data validation review for 1 soil sample and 1 groundwater sample collected on November 8 - 9, 2001 from the Morton International facility located in Reading, Ohio. The samples, which are listed below were analyzed for Appendix IX volatile organic compounds (VOCs) on November 16 - 17, 2001. The associated trip blank results were reviewed during the validation process.

PARAMETER	SAMPLE NUMBERS
Appendix IX VOCs (SW-846-8260B)	T2-9 (913967-004) and GW3 (913967-003)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999 (Functional Guidelines).

Volatile Organic Compounds

- *● Data Completeness
- *● Holding Times
- *● Instrument Performance Check (BFB)
- ● Calibrations
- *● Laboratory Blank Analyses
- *● System Monitoring Compounds
- *● Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)
- ● Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- *● Internal Standards
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible.

Holding Times

Analytical holding times (14 days from collection to analysis for waters, 2 days from collection to preparation and 14 days from preparation to analysis for soils) were met for all analyses in this data package.

Instrument Performance Check

The BFB Instrument Performance check was within QC limits.

Calibrations

Initial calibration (IC) response factor (RF) and continuing calibration (CC) relative response factor (RRF) results associated with the sample T2-9 exceeded acceptance criteria for the following compounds:

Compound	IC	CC	RF/RRF	QC limit
Acetonitrile	X		RF 5 0.045; RF 10 0.040; RF 20 0.038; RF50 0.036; RF100 0.036; RF150 0.036; RF200 0.039	Min. RF 0.050
Isobutanol	X		RF 5 0.028; RF 10 0.024; RF 20 0.024; RF50 0.022; RF100 0.022; RF150 0.023; RF200 0.025	Min. RF 0.050
Acrolein	X		RF 5 0.041; RF 10 0.038; RF 20 0.039; RF50 0.039; RF100 0.040; RF150 0.039; RF200 0.037	Min. RF 0.050
2-Butanone	X		RF 5 0.039; RF 10 0.040; RF 20 0.038; RF50 0.038; RF100 0.038; RF150 0.038; RF200 0.039	Min. RF 0.050
Acrolein		X	RRF50 0.041	Min. RF 0.050
2-Butanone		X	RRF50 0.036	Min. RRF 0.050
Acetone		X	RRF50 0.030	Min. RRF 0.050
Acetonitrile		X	RRF50 0.039	Min. RRF 0.050
Isobutanol		X	RRF50 0.022	Min. RRF 0.050

Results for acetonitrile, isobutanol, acrolein, and 2-butanone were qualified as rejected (R) because of poor RF/RRF results. The result for acetone was qualified as estimated (J) because of poor RRF results.

Initial calibration (IC), response factor (RF), continuing calibration (CC), relative response factor (RRF), and percent difference (%D) results associated with sample GW-3 exceeded the acceptance criteria for the following compounds:

Compound	IC	CC	RF/RRF/%D	QC limit
Acetonitrile	X		RF 20 0.038; RF50 0.043; RF100 0.044; RF150 0.044; RF200 0.043	Min. RF 0.050
Isobutanol	X		RF 5 0.016; RF 10 0.017; RF 20 0.016; RF50 0.016; RF100 0.017; RF150 0.016; RF200 0.016	Min. RF 0.050
Acrolein	X		RF 5 0.048; RF 10 0.048; RF 20 0.051; RF50 0.046; RF100 0.044; RF150 0.046; RF200 0.045	Min. RF 0.050
Acetone	X		RF 10 0.045; RF 20 0.047; RF50 0.042; RF100 0.038; RF150 0.038; RF200 0.037	Min. RF 0.050
2-Butanone	X		RF10 0.044; RF100 0.049; RF150 0.048; RF200 0.043	Min. RF 0.050
Acetonitrile		X	RRF50 0.046	Min. RRF .050
Isobutanol		X	RRF 0.017	Min. RRF 0.050
Vinyl Acetate		X	74.71 %D	Max. 25 %D
Acetone		X	RRF50 0.035	Min. RRF 0.050
2-Butanone		X	RRF50 0.041	Min. RRF 0.050

Results for acetonitrile, isobutanol, acrolein, 2-butanone and acetone were qualified as rejected (R) because of poor RF/RRF results. The result for vinyl acetate was qualified as estimated (UJ) because of poor %D results.

Laboratory/Trip Blank Analyses

There were no detected compounds in the laboratory blanks or trip blank.

System Monitoring Compounds

All of the surrogate recoveries met the required QC limits.

LCS/LCSD Analyses

Soil (Sample VBLK01) LCS/LCSD percent recovery (%R) and relative percent difference (RPD) results were within QC limits. The soil LCS/LCSD MBLK was not associated with T2-9, but it was noted that the %R results for bromomethane (11 %R and 10 %R, respectively) and chloroethane (21 %R and 20 %R) were outside of the QC limits (50 - 150 %R). The results associated with MBLK would be qualified as rejected (R) had they been validated.

Aqueous (Sample VBLK02) LCS/LCSD %R and RPD results were within QC limits.

MS/MSD Analyses

The aqueous MS/MSD %R result for vinyl acetate exceeded the upper control limit. Additionally, aqueous MS/MSD RPD results exceeded the control limits for 5 compounds. No qualification was required since MS/MSD exceedences of this type do not necessitate qualifying the associated non-spiked sample results.

Soil MS/MSD %R results exceeded the control limits for 5 compounds. Additionally, one soil MS/MSD RPD result exceeded the control limits. No qualification was required since MS/MSD exceedences of this type do not necessitate qualifying the associated sample results.

Internal Standards

All of the internal standard recoveries met the required QC limits.

Sample Result Verification

Sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
VOCs DATA SUMMARY TABLE
SW-846 Method 8260B/SDG 913967

Sample ID Number	T2-9	Q	GW3	Q
Matrix	Sediment		Groundwater	
Collection Date	11/08/01		11/9/01	
Analyte	mg/kg		µg/L	
Dichlorodifluoromethane	11	U	2.0	U
Chloromethane	11	U	2.0	U
Vinyl chloride	11	U	2.0	U
Bromomethane	11	U	2.0	U
Chloroethane	11	U	2.0	U
1,1-Dichloroethene	5.6	U	1.0	U
Methylene chloride	5.6	U	1.0	U
trans-1,2-Dichloroethene	5.6	U	1.0	U
1,1-Dichloroethane	5.6	U	1.0	U
Chloroform	5.6	U	1.0	U
1,1,1-Trichloroethane	5.6	U	1.0	U
Carbon tetrachloride	5.6	U	1.0	U
1,2-Dichloroethane	5.6	U	1.0	U
Benzene	5.6	U	1.0	U
Trichloroethene	5.6	U	1.0	U
Proprionitrile	110	U	20	U
Iodomethane	**12**		5.0	U
Isobutanol	560	**R**	100	**R**
1,2-Dichloropropane	5.6	U	1.0	U
Dibromomethane	5.6	U	1.0	U
Bromodichloromethane	5.6	U	1.0	U
cis-1,3-Dichloropropene	5.6	U	1.0	U
Toluene	5.6	U	1.0	U
trans-1,3-Dichloropropene	5.6	U	1.0	U
1,1,2-Trichloroethane	5.6	U	1.0	U
Tetrachloroethene	5.6	U	1.0	U

Q - Qualifier
U - Undetected at reported value
J - Estimated Value
UJ - Reported quantitation limit is estimated
R - Rejected
mg/kg - milligrams per kilogram
µg/L - micrograms per liter

MORTON INTERNATIONAL
VOCs DATA SUMMARY TABLE
SW-846 Method 8260B/SDG 913967

Sample ID Number	T2-9	Q	GW3	Q
Matrix	Soil		Groundwater	
Collection Date	11/08/01		11/9/01	
Analyte	mg/kg		µg/L	
Methacrylonitrile	22	U	10	U
1,2-Dibromoethane	5.6	U	1.0	U
Chlorobenzene	**190**		1.0	U
1,1,1,2-Tetrachloroethane	5.6	U	1.0	U
Ethylbenzene	5.6	U	1.0	U
Vinyl Acetate	5.6	U	5.0	UJ
Total Xylenes	17	U	3.0	U
Styrene	5.6	U	1.0	U
Bromoform	5.6	U	1.0	U
1,1,2,2-Tetrachloroethane	5.6	U	1.0	U
1,2,3-Trichloropropane	5.6	U	1.0	U
Chloroprene	22	U	10	U
1,2-Dibromo-3-chloropropane	5.6	U	2.0	U
Fluorotrichloromethane	11	U	2.0	U
2-Butanone	11	R	5.0	R
2-Hexanone	11	U	5.0	U
4-Methyl-2-pentanone	11	U	5.0	U
Acetone	**34**	J	5.0	R
Acetonitrile	22	R	10	R
Acrolein	22	R	20	R
Acrylonitrile	5.6	U	5.0	U
Allyl Chloride	5.6	U	1.0	U
Carbon Disulfide	**12**		1.0	U
Chlorodibromomethane	5.6	U	1.0	U
Ethyl methacrylate	22	U	5.0	U
trans-1,4-Dichloro-2-butene	5.6	U	5.0	U

Q - Qualifier
U - Undetected at reported value
J - Estimated Value
UJ - Reported quantitation limit is estimated
R - Rejected
mg/kg - milligrams per kilogram
µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date:	February 25, 2002
SDG No.:	913561
Site:	Morton International
Matrix:	1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	October 11, 2001

This report provides the data validation review for 1 groundwater sample collected on October 11, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for Appendix IX volatile organic compounds (VOCs) on October 25, 2001.

PARAMETER	SAMPLE NUMBERS
Appendix IX VOCs (SW-846-8260B)	SEEP-1 (913561-005)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999 (Functional Guidelines).

Volatile Organic Compounds

- ● Data Completeness
- *● Holding Times
- *● Instrument Performance Check (BFB)
- ● Calibrations
- *● Laboratory Blank Analyses
- *● System Monitoring Compounds
- ● Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)
- ● Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- *● Internal Standards
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was legible. Five target compounds (acetonitrile, chloroprene, proprionitrile, methacrylonitrile and isobutanol) were analyzed on an instrument that was not calibrated for these compounds. A tentatively identified compound (TIC) search was performed for these samples. These compounds were not detected as TICs.

The chain-of-custody forms did not specify VOC analysis for this sample (SEEP-1). However, sample tags associated with this sample verified the preservative used and the number of sample vials collected.

Holding Times

Analytical holding times (14 days from collection to analysis) were met.

Instrument Performance Check

The BFB Instrument Performance check was within QC limits.

Calibrations

Poor initial calibration (IC), response factor (RF), continuing calibration (CC), relative response factor (RRF), and percent difference (%D) results were associated with the following compounds:

Compound	IC	CC	RF/RRF/%D	QC limit
Acrolein	X		RF150 0.048; RF200 0.045	Min. RF 0.050
2-butanone		X	RRF50 0.023	Min. RRF 0.050
Bromomethane		X	71.61 %D	Maximum 25 %D
Acetone		X	RRF50 0.038	Min. RRF 0.050

Results for acetone, acrolein and 2-butanone were qualified as rejected (R) because of poor RF/RRF results. The result for bromomethane was qualified as estimated (UJ) because of poor %D results.

Laboratory Blank Analyses

There were no detected compounds in the laboratory blanks.

System Monitoring Compounds

All of the surrogate recoveries met the required QC limits.

LCS/LCSD Analyses

The LCS percent recovery (%R) result for chlorobenzene (118 %R) was slightly outside of the QC limits (88 - 117 %R). Additionally, the LCSD %R results for toluene (120 %R) and chlorobenzene (118 %R) were slightly outside of the QC limits (91 - 119 %R and 88 - 117 %R, respectively). These results were not poor enough to indicate qualifying the associated client sample results.

MS/MSD Analyses

MS/MSD samples were not designated for this SDG. This was due to the limited amount of water for sampling.

Internal Standards

All of the internal standard recoveries met the required QC limits.

Sample Result Verification

Sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
VOCs DATA SUMMARY TABLE
SW-846 Method 8260B/SDG 913561

Sample ID Number	SEEP-1	Q
Matrix	Groundwater	
Collection Date	10/11/01	
Analyte	µg/L	
Dichlorodifluoromethane	2.0	U
Chloromethane	2.0	U
Vinyl chloride	2.0	U
Bromomethane	2.0	UJ
Chloroethane	2.0	U
1,1-Dichloroethene	1.0	U
Methylene chloride	1.0	U
trans-1,2-Dichloroethene	1.0	U
1,1-Dichloroethane	**0.93**	J
Chloroform	1.0	U
1,1,1-Trichloroethane	1.0	U
Carbon tetrachloride	1.0	U
1,2-Dichloroethane	1.0	U
Benzene	**1.3**	
Trichloroethene	1.0	U
Proprionitrile	**	
Iodomethane	5.0	U
Isobutanol	**	
1,2-Dichloropropane	1.0	U
Dibromomethane	1.0	U
Bromodichloromethane	1.0	U
cis-1,3-Dichloropropene	1.0	U
Toluene	1.0	U
trans-1,3-Dichloropropene	1.0	U
1,1,2-Trichloroethane	1.0	U
Tetrachloroethene	1.0	U

Q - Qualifier
U - Undetected at reported value
J - Estimated Value
UJ - Reported quantitation limit is estimated
R - Rejected
µg/L - micrograms per liter
** - Compound was searched for, and not identified as a tentatively identified compound (TIC)

MORTON INTERNATIONAL
VOCs DATA SUMMARY TABLE
SW-846 Method 8260B/SDG 913561

Sample ID Number	SEEP-1	Q
Matrix	Groundwater	
Collection Date	10/11/01	
Analyte	µg/L	
Methyl Methacrylate	5.0	U
Methacrylonitrile	**	
1,2-Dibromoethane	1.0	U
Chlorobenzene	9.0	U
1,1,1,2-Tetrachloroethane	1.0	U
Ethylbenzene	1.0	U
Vinyl Acetate	1.0	U
Total Xylenes	**1.7**	**J**
Styrene	1.0	U
Bromoform	1.0	U
1,1,2,2-Tetrachloroethane	1.0	U
1,2,3-Trichloropropane	1.0	U
Chloroprene	**	
1,2-Dibromo-3-chloropropane	2.0	U
Fluorotrichloromethane	2.0	U
2-Butanone	5.0	**R**
2-Hexanone	5.0	U
4-Methyl-2-pentanone	5.0	U
Acetone	5.0	**R**
Acetonitrile	**	
Acrolein	20	**R**
Acrylonitrile	5.0	U
Allyl Chloride	1.0	U
Carbon Disulfide	**0.48**	**J**
Chlorodibromomethane	1.0	U
Ethyl methacrylate	5.0	U
trans-1,4-Dichloro-2-butene	5.0	U

Q - Qualifier
U - Undetected at reported value
J - Estimated Value
UJ - Reported quantitation limit is estimated
R - Rejected
µg/L - micrograms per liter
** - Compound was searched for, and not identified as a tentatively identified compound (TIC)

DATA VALIDATION REPORT

Report Date:	February 26, 2002
SDG No.:	913561
Site:	Morton International
Matrix:	1 Soil Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	October 11, 2001

This report provides the data validation review for 1 soil sample collected on October 11, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for Appendix IX volatile organic compounds (VOCs) on October 22, 2001. A blind duplicate sample (SED 1-1) was also collected and analyzed. A trip blank associated with this sample delivery group was also reviewed.

PARAMETER	SAMPLE NUMBERS
Appendix IX VOCs (SW-846-8260B)	SED-1 (913561-007) & SED 1-1 (913561-008)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999 (Functional Guidelines).

Volatile Organic Compounds

- Data Completeness
- *Holding Times
- *Instrument Performance Check (BFB)
- Calibrations
- *Laboratory Blank Analyses
- *System Monitoring Compounds
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)
- Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- *Duplicates
- Internal Standards
- *Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. Five target compounds (acetonitrile, chloroprene, proprionitrile, methacrylonitrile and isobutanol) were analyzed on an instrument that was not calibrated for these compounds. A tentatively identified compound (TIC) search was performed on the samples to evaluate the presence of these compounds. These compounds were not detected as TICs.

Holding Times

Analytical holding times (2 days from collection to extraction and 14 days from extraction to analysis) were met for all analyses in this data package.

Instrument Performance Check

The BFB Instrument Performance check was within QC limits.

Calibrations

Poor initial calibration (IC) response factor (RF) and/or continuing calibration (CC) relative response factor (RRF) results were associated with 2-butanone, acetone and acrolein. These results were qualified as rejected (R) since the RF/RRF were less than 0.050 in at least one instance.

Bromomethane results were qualified as estimated (UJ) since the CCAL exceeded the percent difference (%D) limit of 25 (26.18 %D).

Laboratory/Trip Blank Analyses

There were no detected compounds in the laboratory or trip blanks.

System Monitoring Compounds

All of the surrogate recoveries met the required QC limits.

LCS/LCSD Analyses

The soil LCS percent recovery (%R) result for 1,2-dichloroethane (150 %R) was outside of the QC limits (70 - 130 %R). The soil LCSD %R results for acetone (152 %R), 1,2-dichloroethane (156 %R) and bromodichloromethane (132 %R) were outside of the QC limits (50 - 150 %R and 70 - 130 %R respectively). Results for acetone were previously rejected, so no additional qualification was not necessary. The remaining compounds were not reported in the samples, therefore the use of data qualifiers was not necessary.

MS/MSD

According to the laboratory case narrative, the designated MS/MSD samples were analyzed without the addition of the spiking compound. Therefore, no MS/MSD results were available for these samples. No qualifiers were applied due to this oversight since LCS/LCSD and surrogate results appeared acceptable.

Duplicates

Sample SED 1-1 was collected as a blind duplicate of sample SED-1. Chlorobenzene was reported in both samples. The calculated relative percent difference (RPD) of 33.2 was within the QC limits (less than 35 RPD).

Internal Standards

Poor internal standard (IS) recoveries were associated with SED-1 and SED 1-1. The samples were re-analyzed with similarly poor recoveries. Refer to the table below for specifics:

Compound	SED-1	SED-1 RE	SED 1-1	SED 1-1RE	QC Limits
IS1 (Pentafluorbenzene)	59615	**53961**	**54082**	**55407**	59274 - 237098 Area
IS2 (1,4-Difluorobenzene)	96647	**88476**	**90410**	**89204**	95200 - 380800 Area
IS3 (Chlorobenzene-d5)	**73923**	**74761**	**72858**	**76320**	83946 - 335786 Area
IS4 (1,4-Dichlorobenzene-d4)	**28275**	**29367**	**28924**	**29894**	41844 - 167374 Area

Values in bold exceeded the QC limits

With the exception of previously rejected values, all results from Sed 1-1 were qualified as estimated (UJ/J) since all four IS recoveries exceeded QC criteria.

The results for target compounds corresponding to IS3 (trans-1,4-dichlorobutene, ethyl methacrylate, 1,1,1,2-tetrachloroethane, bromoform, chlorobenzene, ethylbenzene, styrene and total xylenes) in sample SED-1 were qualified as estimated (J/UJ).

The results for target compounds corresponding to IS4 (1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane and 1,2-dibromo-3-chloropropane) in sample SED-1 were qualified as estimated (J/UJ).

Since IS recoveries in both the initial and re-analysis of the samples exceeded QC limits, the first set of results has been reported and used in this DVR.

Sample Result Verification

Sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
VOCs DATA SUMMARY TABLE
SW-846 Method 8260B/SDG 913561

Sample ID Number	SED-1	Q	SED 1-1	Q
Matrix	Sediment		Sediment	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
Dichlorodifluoromethane	8.5	U	10	UJ
Chloromethane	8.5	U	10	UJ
Vinyl chloride	8.5	U	10	UJ
Bromomethane	8.5	UJ	10	UJ
Chloroethane	8.5	U	10	UJ
1,1-Dichloroethene	4.2	U	5.0	UJ
Methylene chloride	4.2	U	5.0	UJ
trans-1,2-Dichloroethene	4.2	U	5.0	UJ
1,1-Dichloroethane	4.2	U	5.0	UJ
Chloroform	4.2	U	5.0	UJ
1,1,1-Trichloroethane	4.2	U	5.0	UJ
Carbon tetrachloride	4.2	U	5.0	UJ
1,2-Dichloroethane	4.2	U	5.0	UJ
Benzene	4.2	U	5.0	UJ
Trichloroethene	4.2	U	5.0	UJ
Proprionitrile	**		**	
Iodomethane	4.2	U	5.0	UJ
Isobutanol	**		**	
1,2-Dichloropropane	4.2	U	5.0	UJ
Dibromomethane	4.2	U	5.0	UJ
Bromodichloromethane	4.2	U	5.0	UJ
cis-1,3-Dichloropropene	4.2	U	5.0	UJ
Toluene	4.2	U	5.0	UJ
trans-1,3-Dichloropropene	4.2	U	5.0	UJ
1,1,2-Trichloroethane	4.2	U	5.0	UJ
Tetrachloroethene	4.2	U	5.0	UJ
Methacrylonitrile	**		**	

Q - Qualifier
U - Undetected at reported value
J - Estimated Value
UJ - Reported quantitation limit is estimated
R - Rejected value
µg/kg - micrograms per kilogram
** - Compound was searched for, and not identified as a tentatively identified compound (TIC)

MORTON INTERNATIONAL
VOCs DATA SUMMARY TABLE
SW-846 Method 8260B/SDG 913561

Sample ID Number	SED-1	Q	SED 1-1	Q
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
1,2-Dibromoethane	4.2	U	5.0	UJ
Chlorobenzene	13	J	9.3	J
1,1,1,2-Tetrachloroethane	4.2	UJ	5.0	UJ
Ethylbenzene	4.2	UJ	5.0	UJ
Vinyl Acetate	4.2	U	5.0	UJ
Total Xylenes	13	UJ	15	UJ
Styrene	4.2	UJ	5.0	UJ
Bromoform	4.2	UJ	5.0	UJ
1,1,2,2-Tetrachloroethane	4.2	UJ	5.0	UJ
1,2,3-Trichloropropane	4.2	UJ	5.0	UJ
Chloroprene	**		**	
1,2-Dibromo-3-chloropropane	4.2	UJ	5.0	UJ
Fluorotrichloromethane	8.5	U	10	UJ
2-Butanone	8.5	R	10	R
2-Hexanone	8.5	U	10	UJ
4-Methyl-2-pentanone	8.5	U	10	UJ
Acetone	14	R	10	R
Acetonitrile	**		**	
Acrolein	17	R	20	R
Acrylonitrile	4.2	U	5.0	UJ
Allyl Chloride	4.2	U	5.0	UJ
Carbon Disulfide	4.2	U	5.0	UJ
Chlorodibromomethane	4.2	U	5.0	UJ
Ethyl methacrylate	4.2	UJ	5.0	UJ
trans-1,4-Dichloro-2-butene	4.2	UJ	5.0	UJ

Q - Qualifier
U - Undetected at reported value
J - Estimated Value
UJ - Reported quantitation limit is estimated
R - Rejected value
µg/kg - micrograms per kilogram
** - Compound was searched for, and not identified as a tentatively identified compound (TIC)

DATA VALIDATION REPORT

Report Date:	February 22, 2002
SDG No.:	913967
Site:	Morton International
Matrix:	1 Soil Sample & 1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	November 9 - 10, 2001

This report provides the data validation review for 1 soil sample and 1 groundwater sample collected on November 9 - 10, 2001 from the Morton International facility located in Reading, Ohio. The samples, which are listed below were analyzed for Appendix IX semi-volatile organic compounds (SVOCs) on November 22 - 27, 2001.

PARAMETER	SAMPLE NUMBERS
Appendix IX SVOCs (SW-846-8260B)	T8-1 (913975-002) & GW3 (913968-004)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999 (Functional Guidelines).

Semi-Volatile Organic Compounds

- *● Data Completeness
- ● Holding Times
- *● Instrument Performance Check (DFTPP)
- ● Calibrations
- *● Laboratory Blank Analyses
- *● System Monitoring Compounds
- ● Laboratory Control Sample (LCS)
- ● Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- *● Internal Standards
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible.

Holding Times

Analytical holding times (14 days from collection to extraction/40 days from extraction to analysis) were met for all soil analyses in this SDG. Poor aqueous LCS percent recovery (%R) results were associated with this SDG. The aqueous samples were re-extracted and re-analyzed with another LCS. However, the sample re-extractions took place 10 days after the 7 day extraction holding time limit. Both the original and re-analysis have been included in the data packages and in the Field Oversight and Split Sampling Trip Report. The reanalyzed aqueous sample results were qualified as estimated (J/UJ) due to holding time exceedences.

Instrument Performance Check

The DFTPP Instrument Performance check was within QC limits.

Calibrations

Poor initial calibration (IC) and continuing calibration (CC) relative response factor (RF), relative standard deviation (RSD) and percent difference (%D) results were associated with the following compounds:

Compound	IC	CC	RRF/RSD/%D[4]	QC limit
a,a-dimethylphenethylamine	X		42.2 RSD	maximum 30 RSD
p-phenylenediamine	X		30.7 RSD	maximum 30 RSD
hexachlorophene[1]		X	RRF50 0.034 42.45 %D	minimum 0.050 maximum 25 %D
hexachlorophene[2]	X	X	RRF50 0.032 45.68 %D	minimum 0.050 maximum 25 %D
indeno(1,2,3-cd)pyrene[2]		X	27.23 %D	maximum 25 %D
4-nitroquinoline-1-oxide		X	RRF50 0.037	minimum 0.050
4-nitroquinoline-1-oxide[2]	X	X	RRF50 0.038	minimum 0.050
4-nitroquinoline-1-oxide[3]		X	RRF50 0.033	
a, a-dimethyl phenethylamine[3]		X	46.40%D	maximum 25 %D
1,3,5-trinitrobenzene[3]		X	26.97 %D	maximum 25 %D
hexachlorphene[3]		X	RRF50 0.046	minimum 0.050

[1] - Applies to sample GW3
[2] - Applies to sample T8-1
[3] - Applies to GW3RE
[4] - When more than one RRF is affected, the largest exceedence is included in this table

The results for a,a-dimethylphenethylamine and p-phenylenediamine were qulified as estimated (UJ) based on these exceedences.

Results for hexachlorophene and 4-nitroquinoline-1-oxide in samples T8-1, GW3, and GW3RE were qualified as rejected (R).

The result for indeno(1,2,3-cd)pyrene in sample T8-1 was qualified as UJ because of poor %D results in the CC.

The results for 1,3,5-trinitrobenzene in GW3RE were qualified as UJ.

Laboratory Blank Analyses

There were no detected compounds in the laboratory blanks.

System Monitoring Compounds

All of the surrogate recoveries met the required QC limits.

Laboratory Control Sample (LCS) Analyses

Poor aqueous LCS percent recovery (%R) results were associated with 10 compounds (sample LCS2). Refer to the table below for specifics:

Compound	%R	QC limits
1,3-dichlorobenzene	44 %R	58 - 100 %R
1,4-dichlorobenzene	46 %R	59 - 102 %R
1,2-dichlorobenzene	46 %R	58 - 107 %R
hexachloroethane	41 %R	49 - 106 %R
1,2,4-trichlorobenzene	42 %R	60 - 106 %R
naphthalene	48 %R	69 - 105 %R
4-chloroaniline	130 %R	71 - 123 %R
hexachlorobutadiene	38 %R	41 - 118 %R
2-methylnaphthalene	51 %R	62 - 113 %R
2-chloronaphthalene	63 %R	72 - 106 %R

The results for 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, hexachloroethane, 1,2,4-trichlorobenzene, naphthalene, hexachlorobutadiene, 2-methylnaphthalene and 2-chloronaphthalene in sample GW3 were qualified as rejected (R) based upon the LCS %R results. The results for 4-chloroaniline were not qualified because this analyte was not reported in the sample and a high %R was encountered.

The associated aqueous samples were re-extracted and reanalyzed with sample LCS13. The %R results for 4-chloroaniline (130 %R) and benzo(b)fluoroanthene (120 %R) were outside of the QC limits (71 - 123 %R and 71 - 118 %R, respectively). However, the extraction was performed 10 days past the 7 day holding time limit.

The soil LCS %R result for 2,4-dimethylphenol (109 %R) was outside of the QC limits (51 - 106 %R). However, this analyte was not reported in the sample. Therefore, no further action was necessary.

MS/MSD Analyses

Poor aqueous MS/MSD %R and relative percent difference (RPD) results were associated with the following compounds:

Compound	MS	MSD	%R/RPD	QC limits
phenol	X		82 %R	14 - 68 %R
phenol		X	89 %R	14 - 68 %R
1,3-dichlorobenzene	X		35 %R	68 - 98 %R
1,3-dichlorobenzene		X	60 %R 52 RPD	68 - 98 %R 20 RPD
1,4-dichlorobenzene	X		36 %R	67 - 101 %R
1,4-dichlorobenzene		X	60 %R 45 RPD	67 - 101 %R 20 RPD
1,2-dichlorobenzene	X		37 %R	67 - 104 %R
1,2-dichlorobenzene		X	61 %R 36 RPD	67 - 104 %R 20 RPD
hexachloroethane	X		32 %R	52 - 114 %R
hexachloroethane		X	57 RPD	20 RPD
1,2,4-trichlorobenzene	X		34 %R	62 - 114 %R
1,2,4-trichlorobenzene		X	57 %R 50 RPD	62 - 114 %R 20 RPD
naphthalene	X		40 %R	67 - 111 %R
naphthalene		X	62 %R 42 RPD	67 - 111 %R 20 RPD

Compound	MS	MSD	%R/RPD	QC limits
hexachlorobutadiene	X		30 %R	43 - 134 %R
hexachlorobutadiene		X	60 RPD	20 RPD
2-methylnaphthalene	X		56 %R	66 - 114 %R
hexachlorocyclopentadiene	X		0 %R	8 - 164 %R
hexachlorocyclopentadiene		X	200 RPD	20 RPD
2-chloronaphthalene	X		72 %R	74 - 108 %R
acenaphthylene	X		68 %R	75 - 107 %R
acenaphthylene		X	67 %R	75 - 107 %R

Additionally, the aqueous MS/MSD samples were re-extracted and re-analyzed. The results for the re-extracted MS were improved with only phenol and pentachlorophenol %R above the acceptance criteria. However, the re-extracted MSD results were similar to the initial %R and RPD results. The original results for most of these compounds for GW3 were rejected due to LCS exceedences. Therefore, no additional qualifiers were issued based on these MS/MSD results. All sample GW3RE results were previously qualified based on holding time exceedences. Therefore, no additional qualifiers were applied to these results.

Soil MS/MSD %R results for 2,4-dimethylphenol (118 %R and 110 %R) were outside of the QC limits (54 - 94 %R). Since 2,4-dimethylphenol was not detected in the associated soil sample and since MS/MSD outliers alone do not indicate the need for qualification, no further action was necessary.

Internal Standards

All of the internal standard recoveries met the required QC limits.

Sample Result Verification

Sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913967

Sample ID Number	T8-1	Q	GW3	Q	GW3RE	Q
Matrix	Soil		Groundwater		Groundwater	
Collection Date	11/10/01		11/09/01		11/09/02	
Analyte	µg/kg		µg/L		µg/L	
bis(2-Chloroethyl)ether	380	U	9.9	U	10	UJ
2-Chlorophenol	380	U	9.9	U	10	UJ
1,3-Dichlorobenzene	380	U	9.9	R	10	UJ
1,4-Dichlorobenzene	380	U	9.9	R	10	UJ
1,2-Dichlorobenzene	380	U	9.9	R	10	UJ
2-Methylphenol	380	U	9.9	U	10	UJ
4-Methylphenol	380	U	9.9	U	10	UJ
Hexachloroethane	380	U	9.9	R	10	UJ
N-Nitroso-di-n-propylamine	380	U	9.9	U	10	UJ
Nitrobenzene	380	U	9.9	U	10	UJ
Isophorone	380	U	9.9	U	10	UJ
2-Nitrophenol	380	U	9.9	U	10	UJ
2,4-Dimethylphenol	380	U	9.9	U	10	UJ
bis(2-Chloroethoxy)methane	380	U	9.9	U	10	UJ
2,4-Dichlorophenol	380	U	9.9	U	10	UJ
1,2,4-Trichlorobenzene	380	U	9.9	R	10	UJ
Naphthalene	380	U	9.9	R	10	UJ
4-Chloroaniline	380	U	9.9	U	10	UJ
Hexachlorobutadiene	380	U	9.9	R	10	UJ
4-Chloro-3-methylphenol	380	U	9.9	U	10	UJ
2-Methylnaphthalene	380	U	9.9	R	10	UJ
Hexachlorocyclopentadiene	380	U	9.9	U	10	UJ
2,4,6-Trichlorophenol	380	U	9.9	U	10	UJ
2,4,5-Trichlorophenol	940	U	25	U	25	UJ
2-Chloronapthalene	380	U	9.9	R	10	UJ
2-Nitroaniline	940	U	25	U	25	UJ

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms, µg/L - micrograms per liter

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913967

Sample ID Number	T8-1	Q	GW3	Q	GW3RE	Q
Matrix	Soil		Groundwater		Groundwater	
Collection Date	11/10/01		11/09/01		11/09/02	
Analyte	µg/kg		µg/L			
Acenaphthylene	380	U	9.9	U	10	UJ
Dimethylphthalate	380	U	9.9	U	10	UJ
2,6-Dinitrotoluene	380	U	9.9	U	10	UJ
Acenaphthene	380	U	9.9	U	10	UJ
3-Nitroaniline	380	U	25	U	25	UJ
2,4-Dinitrophenol	380	U	25	U	25	UJ
Dibenzofuran	380	U	9.9	U	10	UJ
2,4-Dinitrotoluene	380	U	9.9	U	10	UJ
4-Nitrophenol	940	U	25	U	25	UJ
Fluorene	380	U	9.9	U	10	UJ
4-Chlorophenyl-phenylether	380	U	9.9	U	10	UJ
Diethylphthalate	380	U	9.9	U	10	UJ
4-Nitroaniline	940	U	25	U	25	UJ
4,6-Dinitro-2-methylphenol	940	U	25	U	25	UJ
n-Nitrosodiphenylamine	380	U	9.9	U	10	UJ
4-Bromophenyl-phenylether	380	U	9.9	U	10	UJ
Hexachlorobenzene	380	U	9.9	U	10	UJ
Pentachlorophenol	940	U	9.9	U	25	UJ
Phenanthrene	380	U	9.9	U	10	UJ
Anthracene	380	U	9.9	U	10	UJ
Di-n-butylphthalate	380	U	9.9	U	10	UJ
Fluoranthene	380	U	9.9	U	10	UJ
Pyrene	380	U	9.9	U	10	UJ
Butylbenzylphthalate	380	U	9.9	U	10	UJ
3,3'-Dichlorobenzidine	380	U	9.9	U	10	UJ
Benzo[a]anthracene	380	U	9.9	U	10	UJ
Chrysene	380	U	9.9	U	10	UJ
bis(2-Ethylhexyl)phthalate	380	U	9.9	U	10	UJ
Di-n-octylphthalate	380	U	9.9	U	10	UJ
Benzo[b]fluoranthene	380	U	9.9	U	10	UJ
Benzo[k]fluoranthene	380	U	9.9	U	10	UJ

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms, µg/L - micrograms per liter

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913967

Sample ID Number	T8-1	Q	GW3	Q	GW3RE	Q
Matrix	Soil		Groundwater		Groundwater	
Collection Date	11/10/01		11/09/01		11/09/02	
Analyte	µg/kg		µg/L		µg/L	
Benzo[a]pyrene	380	U	9.9	U	10	UJ
Indeno[1,2,3-cd]pyrene	380	UJ	9.9	U	10	UJ
Dibenzo[a,h]anthracene	380	U	9.9	U	10	UJ
Benzo[g,h,i]perylene	380	U	9.9	U	10	UJ
1,2,4,5-Tetrachlorobenzene	380	U	9.9	U	10	UJ
1,3,5-Trinitrobenzene	380	U	9.9	U	10	UJ
1,3-Dinitrobenzene	380	U	9.9	U	10	UJ
1,4-Dioxane	380	U	9.9	U	10	UJ
1,4-Naphthoquinone	380	U	9.9	U	10	UJ
1-Naphthylamine	380	U	9.9	U	10	UJ
2,2-oxybis(1-Chloropropane)	380	U	9.9	U	10	UJ
2,3,4,6-Tetrachlorophenol	380	U	9.9	U	10	UJ
2,6-Dichlorophenol	380	U	9.9	U	10	UJ
2-Acetylaminofluorene	380	U	9.9	U	10	UJ
2-Naphthylamine	380	U	9.9	U	10	UJ
2-Picoline	380	U	9.9	U	10	UJ
3,3-Dimethylbenzidine	380	U	9.9	U	10	UJ
Pentachlorobenzene	380	U	9.9	U	10	UJ
Methyl Parathion	380	U	9.9	U	10	UJ
Parathion	380	U	9.9	U	10	UJ
p-Phenylenediamine	38000	UJ	990	UJ	1000	UJ
Ethyl methanesulfonate	380	U	9.9	U	10	UJ
Famphur	380	U	9.9	U	10	UJ
Hexachlorophene	19000	R	500	R	500	R
Hexachloropropene	780	U	20	U	20	UJ
Isodrin	380	U	9.9	U	10	UJ
Isosafrole	380	U	9.9	U	10	UJ

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms, µg/L - micrograms per liter

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913967

Sample ID Number	T8-1	Q	GW3	Q	GW3RE	Q
Matrix	Soil		Groundwater		Groundwater	
Collection Date	11/10/01		11/09/01		11/09/02	
Analyte	µg/kg		µg/L		µg/L	
3-Methylcholanthrene	380	U	9.9	U	10	UJ
3-Methylphenol	380	U	9.9	U	10	UJ
4-Aminobiphenyl	380	U	9.9	U	10	UJ
4-Nitroquinoline-1-oxide	380	R	9.9	R	10	R
5-Nitro-o-toluidine	380	U	9.9	U	10	UJ
7,12-Dimethylbenz(a)anthracene	380	U	9.9	U	10	UJ
a,a-Dimethylphenethylamine	760	UJ	20	UJ	20	UJ
Acetophenone	380	U	9.9	U	10	UJ
Aniline	380	U	9.9	U	10	UJ
Aramite	760	U	20	U	20	UJ
Benzyl Alcohol	380	U	9.9	U	10	UJ
Chlorobenzilate	380	U	9.9	U	10	UJ
Diallate	380	U	9.9	U	10	UJ
Dimethoate	380	U	9.9	U	10	UJ
Dinoseb	380	U	9.9	U	10	UJ
Diphenylamine	380	U	9.9	U	10	UJ
Disulfoton	380	U	9.9	U	10	UJ
Ethyl Methacrylate	380	U	9.9	U	10	UJ
Phenol	380	U	9.9	U	10	UJ
Phorate	380	U	9.9	U	10	UJ
Pronamide	380	U	9.9	U	10	UJ
Pyridine	380	U	9.9	U	10	UJ
Safrole	380	U	9.9	U	10	UJ
Sulfotep	380	U	9.9	U	10	UJ
Thioazin	380	U	9.9	U	10	UJ
Phenacetin	380	U	9.9	U	10	UJ
Pentachloronitrobenzene	380	U	9.9	U	10	UJ
Pentachloroethane	380	U	9.9	U	10	UJ

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms, µg/L - micrograms per liter

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913967

Sample ID Number	T8-1	Q	GW3	Q	GW3 RE	Q
Matrix	Soil		Groundwater		Groundwater	
Collection Date	11/10/01		11/09/01		11/09/01	
Analyte	µg/kg		µg/L		µg/L	
Kepone	1900	U	50	U	50	U
Methapyrilene	760	U	20	U	20	U
Methyl methacrylate	380	U	9.9	U	10	U
Methyl methanesulfonate	380	U	9.9	U	10	U
N-nitrosodi-n-butylamine	380	U	9.9	U	10	U
N-Nitrosodiethylamine	380	U	9.9	U	10	U
N-Nitrosodimethylamine	380	U	9.9	U	10	U
N-Nitrosomethylethylamine	380	U	9.9	U	10	U
N-Nitrosomorpholine	380	U	9.9	U	10	U
N-Nitrosopiperidine	380	U	9.9	U	10	U
N-Nitrosopyrrolidine	380	U	9.9	U	10	U
o,o,o-Triethylphosphorothioate	380	U	9.9	U	10	U
o-Toluidine	380	U	9.9	U	10	U
p-(Dimethylamino)azobenzene	380	U	9.9	U	10	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms, µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date:	April 1, 2002
SDG No.:	913561
Site:	Morton International
Matrix:	1 Soil Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	October 11, 2001

This report provides the data validation review for 1 soil sample collected on October 11, 2001 from the Morton International facility located in Reading, Ohio. It should be noted that sample SED-1-1 was included as a blind duplicate of sample SED-1. The samples, which are listed below were analyzed for Appendix IX semi-volatile organic compounds (SVOCs) on October 22-23, 2001.

PARAMETER	SAMPLE NUMBERS
Appendix IX SVOCs (SW-846-8270C)	SED-1 (913561-007) & SED-1-1 (913561-008)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999 (Functional Guidelines).

Semi-Volatile Organic Compounds

- *● Data Completeness
- *● Holding Times
- *● Instrument Performance Check (DFTPP)
- ● Calibrations
- *● Laboratory Blank Analyses
- *● System Monitoring Compounds
- ● Laboratory Control Sample (LCS)
- *● Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- *● Field Duplicate
- *● Internal Standards
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible.

Holding Times

Analytical holding times (14 days from collection to extraction/40 days from extraction to analysis) were met for all soil analyses.

Instrument Performance Check

The DFTPP Instrument Performance check was within QC limits.

Calibrations

Poor continuing calibration (CC) relative response factor (RRF) and percent difference (%D) results were associated with the following compounds:

Compound	RRF/%D	QC limit
p-phenylenediamine	28.24 %D	maximum 25 %D
hexachlorophene	38.87 %D	maximum 25 %D
4-nitroquinoline-1-oxide	0.040 RRF	minimum 0.050 RRF
benzaldehyde	50.98 %D	minimum 25 %D

The results for p-phenylenediamine, hexachlorophene, and benzaldehyde in samples SED-1 and SED-1-1 were qualified as estimated (UJ) because of the poor continuing calibration %D results.

The results for 4-nitroquinoline-1-oxide in samples SED-1 and SED-1-1 were qualified as rejected (R) because of poor continuing calibration RRF results.

Laboratory Blank Analyses

There were no detected compounds in the laboratory blanks.

System Monitoring Compounds

All of the surrogate recoveries met the required QC limits.

LCS Analyses

The soil LCS percent recovery (%R) result for benzo(g,h,i)perylene (64 %R) was outside of the QC limits (67 - 121 %R). The results for benzo(g,h,i)perylene in samples SED-1 and SED-1-1 were qualified as rejected (R) because of the poor LCS results.

MS/MSD Analyses

MS/MSD results met specified QC requirements.

Field Duplicate Analysis

Sample SED-1-1 was collected as a blind duplicate of sample SED-1. Neither sample had any reported target compounds. Therefore, determining the relative percent difference (RPD) was not possible.

Internal Standards

All of the internal standard recoveries met the required QC limits.

Sample Result Verification

Sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913561

Sample ID Number	SED-1	Q	SED-1-1	Q
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
bis(2-Chloroethyl)ether	380	U	400	U
2-Chlorophenol	380	U	400	U
1,3-Dichlorobenzene	380	U	400	U
1,4-Dichlorobenzene	380	U	400	U
1,2-Dichlorobenzene	380	U	400	U
2-Methylphenol	380	U	400	U
4-Methylphenol	380	U	400	U
Hexachloroethane	380	U	400	U
N-Nitroso-di-n-propylamine	380	U	400	U
Nitrobenzene	380	U	400	U
Isophorone	380	U	400	U
2-Nitrophenol	380	U	400	U
2,4-Dimethylphenol	380	U	400	U
bis(2-Chloroethoxy)methane	380	U	400	U
2,4-Dichlorophenol	380	U	400	U
1,2,4-Trichlorobenzene	380	U	400	U
Naphthalene	380	U	400	U
4-Chloroaniline	380	U	400	U
Hexachlorobutadiene	380	U	400	U
4-Chloro-3-methylphenol	380	U	400	U
2-Methylnaphthalene	380	U	400	U
Hexachlorocyclopentadiene	380	U	400	U
2,4,6-Trichlorophenol	380	U	400	U
2,4,5-Trichlorophenol	960	U	1000	U
2-Chloronapthalene	380	U	400	U
2-Nitroaniline	960	U	1000	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913561

Sample ID Number	SED-1	Q	SED-1-1	Q
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
Acenaphthylene	380	U	400	U
Dimethylphthalate	380	U	400	U
2,6-Dinitrotoluene	380	U	400	U
Acenaphthene	380	U	400	U
3-Nitroaniline	960	U	1000	U
2,4-Dinitrophenol	960	U	1000	U
Dibenzofuran	380	U	400	U
2,4-Dinitrotoluene	380	U	400	U
4-Nitrophenol	960	U	1000	U
Fluorene	380	U	400	U
4-Chlorophenyl-phenylether	380	U	400	U
Diethylphthalate	380	U	400	U
4-Nitroaniline	960	U	1000	U
4,6-Dinitro-2-methylphenol	960	U	1000	U
n-Nitrosodiphenylamine	380	U	400	U
4-Bromophenyl-phenylether	380	U	400	U
Hexachlorobenzene	380	U	400	U
Pentachlorophenol	960	U	1000	U
Phenanthrene	380	U	400	U
Anthracene	380	U	400	U
Di-n-butylphthalate	380	U	400	U
Fluoranthene	380	U	400	U
Pyrene	380	U	400	U
Butylbenzylphthalate	380	U	400	U
3,3'-Dichlorobenzidine	380	U	400	U
Benzo[a]anthracene	380	U	400	U
Chrysene	380	U	400	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913561

Sample ID Number	SED-1	Q	SED-1-1	Q
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
Benzo[a]pyrene	380	U	400	U
Indeno[1,2,3-cd]pyrene	380	U	400	U
Dibenzo[a,h]anthracene	380	U	400	U
Benzo[g,h,i]perylene	380	R	400	R
1,2,4,5-Tetrachlorobenzene	380	U	400	U
1,3,5-Trinitrobenzene	380	U	400	U
1,3-Dinitrobenzene	380	U	400	U
1,4-Dioxane	380	U	400	U
1,4-Naphthoquinone	380	U	400	U
1-Naphthylamine	380	U	400	U
2,2-oxybis(1-Chloropropane)	380	U	400	U
2,3,4,6-Tetrachlorophenol	380	U	400	U
2,6-Dichlorophenol	380	U	400	U
2-Acetylaminofluorene	380	U	400	U
2-Naphthylamine	380	U	400	U
2-Picoline	380	U	400	U
3,3-Dimethylbenzidine	380	U	400	U
Pentachlorobenzene	380	U	400	U
Methyl Parathion	380	U	400	U
Parathion	380	U	400	U
p-Phenylenediamine	38000	UJ	40000	UJ
Ethyl methanesulfonate	380	U	400	U
Famphur	380	U	400	U
Hexachlorophene	19000	UJ	20000	UJ
Hexachloropropene	770	U	800	U
Isodrin	380	U	400	U
Isosafrole	380	U	400	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913561

Sample ID Number	SED-1	Q	SED-1-1	Q
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
3-Methylcholanthrene	380	U	400	U
3-Methylphenol	380	U	400	U
4-Aminobiphenyl	380	U	400	U
4-Nitroquinoline-1-oxide	380	R	400	R
5-Nitro-o-toluidine	380	U	400	U
7,12-Dimethylbenz(a)anthracene	380	U	400	U
a,a-Dimethylphenethylamine	770	U	800	U
Acetophenone	380	U	400	U
Aniline	380	U	400	U
Aramite	770	U	800	U
Benzyl Alcohol	380	U	400	U
Chlorobenzilate	380	U	400	U
Diallate	380	U	400	U
Dimethoate	380	U	400	U
Dinoseb	380	U	400	U
Diphenylamine	380	U	400	U
Disulfoton	380	U	400	U
Ethyl Methacrylate	380	U	400	U
Phenol	380	U	400	U
Phorate	380	U	400	U
Pronamide	380	U	400	U
Pyridine	380	U	400	U
Safrole	380	U	400	U
Sulfotep	380	U	400	U
Thioazin	380	U	400	U
Phenacetin	380	U	400	U
Pentachloronitrobenzene	380	U	400	U
Pentachloroethane	380	U	400	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms

MORTON INTERNATIONAL FACILITY
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C/SDG 913561

Sample ID Number	**SED-1**	**Q**	**SED-1-1**	**Q**
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
Kepone	1900	U	2000	U
Methapyrilene	770	U	800	U
Methyl methacrylate	380	U	400	U
Methyl methanesulfonate	380	U	400	U
N-nitrosodi-n-butylamine	380	U	400	U
N-Nitrosodiethylamine	380	U	400	U
N-Nitrosodimethylamine	380	U	400	U
N-Nitrosomethylethylamine	380	U	400	U
N-Nitrosomorpholine	380	U	400	U
N-Nitrosopiperidine	380	U	400	U
N-Nitrosopyrrolidine	380	U	400	U
o,o,o-Triethylphosphorothioate	380	U	400	U
o-Toluidine	380	U	400	U
p-(Dimethylamino)azobenzene	380	U	400	U
bis(2-Ethylhexyl)phthalate	380	U	400	U
Di-n-octylphthalate	380	U	400	U
Benzo[b]fluoranthene	380	U	400	U
Benzo[k]fluoranthene	380	U	400	U
Benzaldehyde	380	UJ	400	UJ

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Rejected
µg/kg - micrograms per kilograms

DATA VALIDATION REPORT

Report Date:	February 27, 2002
SDG No.:	913561
Site:	Morton International
Matrix:	1 Soil Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	10/11/01

This report provides the data validation review for 1 soil sample collected on October 11, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for PCBs on October 26, 2001. A blind duplicate sample (SED 1-1) was also collected and analyzed.

PARAMETER	SAMPLE NUMBERS
PCBs (SW-846 8082)	SED-1 (913561-007) & SED 1-1 (913561-008)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

PCBs

- *● Data Completeness
- *● Holding Times
- ● Calibration Sample Results
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- *● Field Duplicate Results
- *● Surrogate Spike Sample Results
- *● Laboratory Control Sample (LCS) Results

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data were usable as reported.

Holding Times

Analytical holding times (14 days from collection to extraction and 40 days from extraction to analysis) were met for all PCB compounds.

Calibrations

All initial calibration sample results were within quality control (QC) limits. Individual peaks for some continuing calibration compounds exceeded the QC criteria of 15% difference (%D). However, no qualifiers were applied since the average %D for these continuing calibrations was less than 15%.

Laboratory Blank Analyses

There were no reported compounds in the laboratory blanks.

MS/MSD Analyses

All MS/MSD results met specified accuracy and precision QC requirements.

Field Duplicate Sample Analyses

Sample SED 1-1 was included as a blind duplicate of sample SED-1. PCB compounds were not reported in either sample. Therefore, reporting the relative percent difference (RPD) results was not necessary.

Surrogate Spike Sample Results

All surrogate spike sample results were within QC limits.

LCS Results

All LCS results were within QC limits.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable, and reproducible between the primary and secondary columns.

TABLE 1
MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913561
PCBs (SW-846 METHOD 8082)

Sample ID Number	**SED-1**	**Q**	**SED 1-1**	**Q**
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
Aroclor-1016	57	U	60	U
Aroclor-1221	57	U	60	U
Aroclor-1232	57	U	60	U
Aroclor-1242	57	U	60	U
Aroclor-1248	57	U	60	U
Aroclor-1254	57	U	60	U
Aroclor-1260	57	U	60	U

U - Undetected at reported value
Q - Qualifier
µg/kg - micrograms per kilogram

DATA VALIDATION REPORT

Report Date:	March 4, 2002
SDG No.:	913967
Site:	Morton International
Matrix:	1 Soil Sample & 1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	11/08/01 - 11/09/01

This report provides the data validation review for 1 soil sample and 1 groundwater sample collected on November 8 and 9, 2001 from the Morton International facility located in Reading, Ohio. The samples, which are listed below were analyzed for PCBs on November 22 and 28, 2001.

PARAMETER	SAMPLE NUMBERS
PCBs (SW-846 8082)	T2-9 (913967-004) & UAW 14-10 (913967-004)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

PCBs

- *● Data Completeness
- *● Holding Times
- ● Calibration Sample Results
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- ● Surrogate Spike Sample Results
- *● Laboratory Control Sample (LCS) Results

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data were usable as reported.

Holding Times

Analytical holding times (14 days from collection to extraction for soils, 7 days from collection to extraction for waters and 40 days from extraction to analysis) were met for all PCB compounds.

Calibrations

All initial calibration sample results were within quality control (QC) limits.

The continuing calibrations confirmation column percent difference (%D) for aroclor-1260 (15.94 %D) was slightly outside of the laboratory QC limits (15 %D). However, the average %D for this continuing calibration was acceptable. Therefore, no further action was necessary.

The continuing calibration %D for aroclor-1260 was outside of the 15%D QC limits (at 19.02%D and 25.61%D) in both the primary and confirmation columns for sample UAW-14-10. However, the average %D was acceptable. Therefore, no further action was necessary.

Laboratory Blank Analyses

There were no reported compounds in the laboratory blanks.

MS/MSDAnalyses

All MS/MSD results met specified QC requirements.

Surrogate Spike Sample Results

The surrogate percent recovery (%R) results for tetra-chloro-m-xylene (TCMX) in sample T2-9 (137 %R and 117 %R) were outside of the QC limits (33 - 113 %R). When high surrogate %R results are found in a sample that does not have any reported compounds, the use of data qualifiers is not necessary. Therefore, no further action was necessary.

LCS Results

All laboratory control sample (LCS) results were within QC limits.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

TABLE 1
MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913967
PCBs (SW-846 METHOD 8082)

Sample ID Number	**T2-9**	**Q**	**UAW 14-10**	**Q**
Matrix	Soil		Groundwater	
Collection Date	11/10/01		11/10/01	
Analyte	µg/kg		µg/L	
Aroclor-1016	57	U	0.97	U
Aroclor-1221	57	U	0.97	U
Aroclor-1232	57	U	0.97	U
Aroclor-1242	57	U	0.97	U
Aroclor-1248	57	U	0.97	U
Aroclor-1254	57	U	0.97	U
Aroclor-1260	57	U	0.97	U

U - Undetected at reported value
Q - Qualifier
µg/kg - micrograms per kilogram
µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date: February 23, 2002
SDG No.: 913561
Site: Morton International
Matrix: 1 Soil Sample
Laboratory: EnChem Laboratories, Inc.
Collection Date(s): 10/11/01

This report provides the data validation review for 1 soil sample collected on October 11, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for pesticides on November 1, 2001. A blind duplicate sample (SED 1-1) was also collected and analyzed.

PARAMETER	SAMPLE NUMBERS
Pesticides (SW-846 8081A)	SED-1 (913561-007) & SED 1-1 (913561-008)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

Pesticides

- *● Data Completeness
- *● Holding Times
- ● Calibration Sample Results
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- *● Field Duplicate Sample Results
- *● Surrogate Spike Sample Results
- *● Laboratory Control Sample (LCS) Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

All data appeared to be usable as reported.

Holding Times

Analytical holding times (14 days from collection to extraction and 40 days from extraction to analysis) were met for all pesticide compounds.

Calibrations

All initial calibration results were within quality control (QC) limits. One continuing calibration compound exceeded the percent difference (%D) limit of 15. However, no results were qualified since the average %D was less than 15%. 4,4'-DDT/Endrin breakdown results were acceptable.

Laboratory Blank Analyses

There were no reported compounds in the laboratory blanks.

MS/MSD Analyses

All MS/MSD sample results met specified QC requirements.

Field Duplicate Analyses

Sample SED 1-1 was collected as a blind duplicate of sample SED-1. No target compounds were reported in either sample. Therefore, determining the relative percent difference (RPD) was not possible.

System Monitoring Compounds

All system monitoring compounds met QC requirements.

LCS Analyses

All LCS results were within QC limits.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

TABLE 1
MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913561
PESTICIDES (SW-846 METHOD 8081A)

Sample ID Number	**SED-1**	**Q**	**SED 1-1**	**Q**
Matrix	Soil		Soil	
Collection Date	10/11/01		10/11/01	
Analyte	µg/kg		µg/kg	
4,4'-DDD	5.7	U	6.0	U
4,4'-DDE	5.7	U	6.0	U
4,4'-DDT	5.7	U	6.0	U
Aldrin	2.9	U	3.0	U
alpha-BHC	2.9	U	3.0	U
alpha-Chlordane	2.9	U	3.0	U
beta-BHC	2.9	U	3.0	U
Chlordane (technical)	57	U	60	U
delta-BHC	2.9	U	3.0	U
Dieldrin	5.7	U	6.0	U
Endosulfan I	2.9	U	3.0	U
Endosulfan II	5.7	U	6.0	U
Endosulfan Sulfate	5.7	U	6.0	U
Endrin	5.7	U	6.0	U
Endrin Aldehyde	5.7	U	6.0	U
Endrin Ketone	5.7	U	6.0	U
gamma-BHC (Lindane)	2.9	U	3.0	U
Heptachlor	2.9	U	3.0	U
Heptachlor Epoxide	2.9	U	3.0	U
Methoxychlor	29	U	30	U
Toxaphene	290	U	300	U

U - Undetected at reported value
Q - Qualifier
µg/kg - micrograms per kilogram

DATA VALIDATION REPORT

Report Date:	March 2, 2002
SDG No.:	913967
Site:	Morton International
Matrix:	1 Soil Sample & 1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	11/08/01 & 11/09/01

This report provides the data validation review for 1 soil sample and 1 groundwater sample collected November 8 - 9, 2001 from the Morton International facility located in Reading, Ohio. The samples, which are listed below were analyzed for pesticides on December 2, 2001.

PARAMETER	SAMPLE NUMBERS
Pesticides (SW-846 8081A)	T2-9 (913967-004) & GW3 (913968-002)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

Pesticides

- *● Data Completeness
- *● Holding Times
- ● Calibration Sample Results
- *● Laboratory Blank Analyses
- ● Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- *● Field Duplicate Sample Results
- *● Surrogate Spike Sample Results
- ● Laboratory Control Sample (LCS) Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data appeared usable.

Holding Times

Analytical holding times (14 days from collection to extraction for soils, 7 days from collection to extraction for waters and 40 days from extraction to analysis) were met for all pesticide compounds.

Calibrations

All initial calibration results were within quality control (QC) limits. One continuing calibration compound exceeded the 15 percent difference (%D) acceptance limit. However, the average %D for this sample was less than 15%. Therefore, no data qualifiers were applied based on this outlier. 4,4'-DDT/Endrin breakdown results were acceptable.

Laboratory Blank Analyses

There were no reported compounds in the laboratory blanks.

MS/MSD Analyses

The soil MS percent recovery (%R) result for delta-BHC (56 %R) was slightly outside of the QC limits (57 - 118 %R). However, no data were qualified since the magnitude of this exceedence was minimal and since MS/MSD failures alone do not indicate the need for qualifying associated sample results. All other compound recoveries met QC limits.

Poor aqueous MS/MSD %R and relative percent difference (RPD) results were associated with the compounds listed below:

Compound	MS	MSD	%R/RPD	QC Limits
alpha-BHC	X		57 %R	76 - 132 %R
alpha-BHC		X	0 %R, 200 RPD	76 - 132 %R 14 RPD
gamma-BHC (Lindane)	X		66 %R	78 - 124 %R
gamma-BHC (Lindane)		X	0 %R, 200 RPD	78 - 124 %R 21 RPD
Aldrin	X		52 %R	64 - 138 %R
Aldrin		X	0 %R, 200 RPD	64 - 138 %R 27 RPD

Compound	MS	MSD	%R/RPD	QC Limits
Heptachlor	X		55 %R	77 - 121 %R
Heptachlor		X	0 %R, 200 RPD	77 - 121 %R 25 RPD
Heptachlor Epoxide	X		76 %R	77 - 117 %R
Endosulfan I		X	23 RPD	21 RPD
Dieldrin	X		67 %R	73 - 125 %R
Dieldrin		X	19 RPD	16 RPD
Endosulfan II	X		71 %R	80 - 123 %R
Endosulfan II		X	71 %R	80 - 123 %R
4,4'-DDT	X		65 %R	72 - 136 %R
Endrin Aldehyde	X		32 %R	42 - 157 %R
Endrin Aldehyde		X	34 %R	42 - 157 %R
beta-BHC		X	0 %R, 200 RPD	68 - 128 %R 23 RPD
delta-BHC		X	0 %R, 200 RPD	58 - 132 %R 22 RPD

These outliers were caused by a large interfering peak that was present in sample UAW-11-10, the MS and the MSD. This interfering peak was not present in GW-3, therefore this sample was not qualified. Although UAW-11-10 was not validated, the MS/MSD %R indicate that data qualification is necessary for that sample.

Field Duplicate Analyses

No field duplicate sample analyses were associated with this SDG.

System Monitoring Compounds

All system monitoring compounds met QC requirements.

LCS Analyses

The soil LCS %R results for 4,4'-DDE (145 %R), endrin (145 %R), and 4,4'-DDD (148 %R) were outside of the quality control limits (47 - 138 %R, 35 - 139 %R, and 43 - 141 %R, respectively). However, when high %R results are associated with samples that do not have any reported compounds, data qualification is not necessary.

Aqueous LCS results met QC requirements.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

TABLE 1
MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913967
PESTICIDES (SW-846 METHOD 8081A)

Sample ID Number	**T2-9**	**Q**	**GW3**	**Q**
Matrix	Soil		Groundwater	
Collection Date	11/08/01		11/09/01	
Analyte	µg/kg		µg/L	
4,4'-DDD	5.7	U	0.099	U
4,4'-DDE	5.7	U	0.099	U
4,4'-DDT	5.7	U	0.099	U
Aldrin	2.9	U	0.050	U
alpha-BHC	2.9	U	0.050	U
beta-BHC	2.9	U	0.050	U
Chlordane (technical)	57	U	0.99	U
delta-BHC	2.9	U	0.050	U
Dieldrin	5.7	U	0.099	U
Endosulfan I	2.9	U	0.050	U
Endosulfan II	5.7	U	0.099	U
Endosulfan Sulfate	5.7	U	0.099	U
Endrin	5.7	U	0.099	U
Endrin Aldehyde	5.7	U	0.099	U
gamma-BHC (Lindane)	2.9	U	0.050	U
Heptachlor	2.9	U	0.050	U
Heptachlor Epoxide	2.9	U	0.050	U
Methoxychlor	29	U	0.50	U
Toxaphene	290	U	5.0	U

U - Undetected at reported value
Q - Qualifier
µg/kg - micrograms per kilogram
µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date:	February 28, 2002
SDG No.:	913975
Site:	Morton International
Matrix:	1 Soil Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	11/10/01

This report provides the data validation review for 1 soil sample collected on November 10, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for herbicides on November 28, 2001.

PARAMETER	SAMPLE NUMBER
Herbicides (SW-846 8151)	T8-1 (913975-002)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

Herbicides

- *● Data Completeness
- *● Holding Times
- *● Calibration Sample Results
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- *● Surrogate Spike Sample Results
- *● Laboratory Control Sample (LCS) Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data were usable as reported.

Holding Times

Analytical holding times (14 days from collection to extraction and 40 days from extraction to analysis) were met for all herbicide compounds.

Calibrations

All initial calibration and continuing calibration results were within quality control (QC) limits.

Laboratory Blank Analyses

There were no reported compounds in the laboratory blank.

MS/MSD Analyses

All MS/MSD results met specified QC requirements.

System Monitoring Compounds

All system monitoring compounds met QC requirements.

LCS Analyses

All LCS results were within QC limits.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

TABLE 1
MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 913967
HERBICIDES (SW-846 METHOD 8151)

Sample ID Number	**T8-1**	**Q**
Matrix	Soil	
Collection Date	11/10/01	
Analyte	µg/kg	
2,4,5-T	19	U
2,4,5,-TP (Silvex)	19	U
2,4-D	94	U

U - Undetected at reported value
Q - Qualifier
µg/kg - micrograms per kilogram

DATA VALIDATION REPORT

Report Date:	March 3, 2002
SDG No.:	55849A, 55849B & 55615
Site:	Morton International
Matrix:	2 Soil Samples and 1 Groundwater Sample
Laboratory:	Triangle Laboratories, Inc.
Collection Date(s):	October 11, 2001 & November 10, 2001

This report provides the data validation review for 1 soil sample collected on October 11, 2001, 1 soil sample collected on November 10, 2001 and 1 groundwater sample collected on November 10, 2001 from the Morton International facility located in Reading, Ohio. The samples, which are listed below were originally submitted to EnChem. EnChem subcontracted the samples to Triangle Laboratories for analysis of polychlorinated dibenzo-*p*-dioxins and dibenzofurans (PCDDs/PCDFs). The samples were received by Triangle Laboratories on October 18, 2001, November 13, 2001 and November 14, 2001 and analyzed for PCDD/PCDF compounds on October 25, 2001, November 17, 2001 and November 21, 2001.

PARAMETER	SAMPLE NUMBERS
PCDDs/PCDFs (SW-846 8280A)	SED-2 (913561-002), T5-9 (913975-004) & UAW11-10 (913975-006)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III," (June, 1997); and USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

PCDDs/PCDFs

- *● Data Completeness
- *● Holding Times
- *● Calibration Sample Results
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- *● Internal Standard Sample Results
- *● Clean-up Standard Sample Results
- *● Laboratory Control Sample (LCS)
- *● Field Duplicate Sample Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible.

Holding Times

Analytical holding times (30 days from collection to extraction and 45 days from extraction to analysis) were met for all PCDD/PCDF compounds.

Calibrations

All calibration sample results were within quality control (QC) limits. Analytical sequences were acceptable.

Laboratory Blank Analyses

No compounds were reported in the associated laboratory blanks.

MS/MSD Results

All MS/MSD results met specified QC requirements.

Internal Standard Results

All internal standard sample results met specified QC requirements.

Clean-Up Standard Results

All clean-up standard sample results met specified QC requirements.

LCS Results

All LCS results were within QC limits.

Duplicate Sample Results

Field duplicate sample results were not associated with sample T5-9 or UAW11-10 SDGs. Sample Sed-1 and Sed 1-1 were collected with Sample Sed-2. Sed 1-1 is a duplicate fo Sed-1. All compounds were less than the detection limit in both Sed-1 and Sed 1-1.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

TABLE 1
MORTON INTERNATIONAL
ANALYTICAL DATA SUMMARY TABLE Lot No. 55849A, 55849B & 55615
PCDDs/PCDFs (SW-846 METHOD 8280A)

Sample ID Number	**T5-9**	**Q**	**UAW11-10**	**Q**	**SED-2**	**Q**
Matrix	Soil		Groundwater		Soil	
Collection Date	11/10/01		11/10/01		10/11/01	
Analyte	ppt		ppt		ppt	
2,3,7,8-TCDD	0.005	U	0.1	U	0.04	U
Total TCDD	0.005	U	0.1	U	0.04	U
Total PeCDD	0.007	U	0.2	U	0.05	U
Total HxCDD	0.005	U	0.1	U	0.03	U
Total TCDD EMPC	**2.2**		**21.4**		**2.5**	
Total TCDF	**0.03**		0.1	U	0.03	U
Total PeCDF	**0.04**		0.1	U	0.03	U
Total HxCDF	**0.49**		0.09	U	0.06	U
Total TCDF EMPC	**0.08**		**0.55**		**0.07**	

U - Undetected at reported value
Q - Qualifier
ppt - Parts per trillion
EMPC - Estimated maximum possible concentrations

APPENDIX D

LABORATORY FORM Is
AND ANALYTICAL RESULTS

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Arsenic	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Barium	70	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Beryllium	< 1.0	1.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Cadmium	< 1.0	1.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Chromium	< 3.0	3.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Cobalt	< 3.0	3.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Copper	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Lead	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Mercury	< 0.20	0.20	ug/L		11/27/2001	SW846 7470A	SW846 7470A
Nickel	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Selenium	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Silver	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Thallium	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Tin	26	20	ug/L		11/21/2001	SW846 3015	SW846 6010B
Vanadium	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Zinc	< 20	20	ug/L		11/26/2001	SW846 3015	SW846 6010B

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Arsenic	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Barium	68	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Beryllium	< 1.0	1.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Cadmium	< 1.0	1.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Chromium	< 3.0	3.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Cobalt	< 3.0	3.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Copper	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Lead	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Mercury	< 0.20	0.20	ug/L		11/27/2001	SW846 7470A	SW846 7470A
Nickel	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Selenium	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Silver	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Thallium	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Tin	26	20	ug/L		11/21/2001	SW846 3015	SW846 6010B
Vanadium	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Zinc	< 20	20	ug/L		11/26/2001	SW846 3015	SW846 6010B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Arsenic	6.2	1.0	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Barium	82	0.52	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Beryllium	0.65	0.10	mg/Kg		11/30/2001	SW846 3050B	SW846 6010B
Cadmium	< 0.10	0.10	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Chromium	14	0.31	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Cobalt	5.8	0.52	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Copper	13	1.0	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Lead	24	0.52	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Mercury	< 0.038	0.038	mg/Kg		11/20/2001	SW846 7471A	SW846 7471A
Nickel	12	0.52	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
`elenium	< 1.0	1.0	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Silver	< 0.56	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Thallium	< 1.0	1.0	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Tin	< 5.2	5.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Vanadium	25	0.52	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Zinc	55	2.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Solids, percent	88.2		%		11/13/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Arsenic	7.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Barium	82	0.57	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Beryllium	0.66	0.11	mg/Kg		11/30/2001	SW846 3050B	SW846 6010B
Cadmium	0.13	0.11	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Chromium	15	0.34	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Cobalt	5.4	0.57	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Copper	19	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Lead	17	0.57	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Mercury	< 0.038	0.038	mg/Kg		11/20/2001	SW846 7471A	SW846 7471A
Nickel	19	0.57	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Selenium	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Silver	< 0.57	0.57	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Thallium	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Tin	< 5.7	5.7	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Vanadium	34	0.57	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Zinc	55	2.3	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Solids, percent	87.0		%		11/13/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	61	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Arsenic	83	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Barium	56	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Beryllium	< 1.0	1.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Cadmium	< 1.0	1.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Chromium	16	3.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Cobalt	< 3.0	3.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Copper	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Lead	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Mercury	< 0.20	0.20	ug/L		11/27/2001	SW846 7470A	SW846 7470A
Nickel	44	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Selenium	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Silver	< 5.0	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Thallium	< 10	10	ug/L		11/21/2001	SW846 3015	SW846 6010B
Tin	32000	200	ug/L		11/26/2001	SW846 3015	SW846 6010B
Vanadium	18	5.0	ug/L		11/21/2001	SW846 3015	SW846 6010B
Zinc	< 20	20	ug/L		11/26/2001	SW846 3015	SW846 6010B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/13/2001
Collection Date : 10/11/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	14000	1100	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Antimony	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Arsenic	5.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Barium	75	0.54	mg/Kg	N	11/1/2001	SW846 3050B	SW846 6020
Beryllium	0.67	0.11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cadmium	0.21	0.11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Calcium	93000	540	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Chromium	18	0.32	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cobalt	10	0.54	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Copper	14	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Iron	22000	540	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Lead	10	0.54	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Magnesium	24000	270	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Manganese	630	11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Mercury	0.13	0.039	mg/Kg		10/31/2001	SW846 7471A	SW846 7471A
Nickel	20	0.54	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Potassium	3600	54	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Selenium	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Silver	< 0.54	0.54	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Sodium	250	110	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Thallium	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Tin	15	5.4	mg/Kg	N	11/6/2001	SW846 3050B	SW846 6020
Vanadium	31	0.54	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Zinc	38	2.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Solids, percent	85.6		%		10/15/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/13/2001
Collection Date : 10/11/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	11000	23	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Antimony	< 0.98	0.98	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Arsenic	3.9	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Barium	47	0.57	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Beryllium	0.52	0.11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cadmium	0.23	0.11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Calcium	130000	570	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Chromium	15	0.34	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cobalt	7.0	0.57	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Copper	12	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Iron	16000	11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Lead	7.7	0.57	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Magnesium	33000	280	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Manganese	550	0.23	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Mercury	< 0.038	0.038	mg/Kg		10/31/2001	SW846 7471A	SW846 7471A
Nickel	16	0.57	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Potassium	3700	57	mg/Kg	E	11/1/2001	SW846 3050B	SW846 6020
Selenium	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Silver	< 0.49	0.49	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Sodium	320	110	mg/Kg	E	11/1/2001	SW846 3050B	SW846 6020
Thallium	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Tin	6.9	5.7	mg/Kg		11/6/2001	SW846 3050B	SW846 6020
Vanadium	22	0.57	mg/Kg	E	11/1/2001	SW846 3050B	SW846 6020
Zinc	48	2.3	mg/Kg	E	11/1/2001	SW846 3050B	SW846 6020
Solids, percent	87.1		%		10/15/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/13/2001
Collection Date : 10/11/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	9900	24	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Antimony	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Arsenic	4.8	1.2	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Barium	47	0.60	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Beryllium	0.50	0.12	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cadmium	0.23	0.12	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Calcium	110000	600	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Chromium	15	0.36	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cobalt	6.9	0.60	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Copper	15	1.2	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Iron	16000	12	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Lead	13	0.60	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Magnesium	31000	300	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Manganese	520	0.24	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Mercury	< 0.040	0.040	mg/Kg		10/31/2001	SW846 7471A	SW846 7471A
Nickel	16	0.60	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Potassium	2700	60	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Selenium	< 1.2	1.2	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Silver	< 0.56	0.56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Sodium	310	120	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Thallium	< 1.2	1.2	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Tin	12	6.0	mg/Kg		11/6/2001	SW846 3050B	SW846 6020
Vanadium	21	0.60	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Zinc	38	2.4	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Solids, percent	83.3		%		10/15/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/13/2001
Collection Date : 10/11/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Aluminum	9000	22	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Antimony	< 1.3	1.3	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Arsenic	4.9	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Barium	60	0.56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Beryllium	0.51	0.11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cadmium	0.49	0.11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Calcium	59000	560	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Chromium	20	0.33	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Cobalt	7.2	0.56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Copper	18	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Iron	15000	11	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Lead	28	0.56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Magnesium	14000	5.6	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Manganese	740	0.22	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Mercury	< 0.042	0.042	mg/Kg		10/31/2001	SW846 7471A	SW846 7471A
Nickel	19	0.56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Potassium	1500	56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Selenium	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Silver	< 0.64	0.64	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Sodium	290	110	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Thallium	< 1.1	1.1	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Tin	< 5.6	5.6	mg/Kg		11/6/2001	SW846 3050B	SW846 6020
Vanadium	21	0.56	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Zinc	73	2.2	mg/Kg		11/1/2001	SW846 3050B	SW846 6020
Solids, percent	78.8		%		10/15/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date : 11/08/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Arsenic	2.4	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Barium	11	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Beryllium	0.20	0.11	mg/Kg		11/30/2001	SW846 3050B	SW846 6010B
Cadmium	0.13	0.11	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Chromium	5.4	0.34	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Cobalt	2.5	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Copper	8.7	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Lead	3.8	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Mercury	< 0.038	0.038	mg/Kg		11/20/2001	SW846 7471A	SW846 7471A
Nickel	6.6	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Selenium	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Silver	< 0.56	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Thallium	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Tin	< 5.6	5.6	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Vanadium	11	0.56	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Zinc	17	2.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Solids, percent	87.3		%		11/12/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date : 11/08/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	1.3	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Arsenic	6.4	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Barium	82	0.55	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Beryllium	0.51	0.11	mg/Kg		11/30/2001	SW846 3050B	SW846 6010B
Cadmium	0.34	0.11	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Chromium	13	0.33	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Cobalt	6.7	0.55	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Copper	20	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Lead	330	0.55	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Mercury	0.15	0.037	mg/Kg		11/20/2001	SW846 7471A	SW846 7471A
Nickel	14	0.55	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Selenium	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Silver	< 0.53	0.53	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Thallium	< 1.1	1.1	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Tin	26	5.5	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Vanadium	21	0.55	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Zinc	130	2.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Solids, percent	89.8		%		11/12/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/04/2001
Collection Date : 11/08/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	< 1.2	1.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Arsenic	3.7	1.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Barium	46	0.58	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Beryllium	0.60	0.12	mg/Kg		11/30/2001	SW846 3050B	SW846 6010B
Cadmium	< 0.12	0.12	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Chromium	12	0.35	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Cobalt	5.4	0.58	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Copper	8.6	1.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Lead	6.6	0.58	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Mercury	< 0.040	0.040	mg/Kg		11/20/2001	SW846 7471A	SW846 7471A
Nickel	11	0.58	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Selenium	< 1.2	1.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Silver	< 0.60	0.60	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Thallium	< 1.2	1.2	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Tin	25	5.8	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Vanadium	18	0.58	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Zinc	33	2.3	mg/Kg		11/27/2001	SW846 3050B	SW846 6010B
Solids, percent	84.0		%		11/12/2001	SM 2540G M	SM 2540G M

All soil results are reported on a dry weight basis unless otherwise noted.

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,2,4-Trichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,2-Dichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,3,5-Trinitrobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,3-Dichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,3-Dinitrobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,4-Dichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,4-Dioxane	< 390	390	ug/kg		10/22/01	SW846 8270C
1,4-Naphthoquinone	< 390	390	ug/kg		10/22/01	SW846 8270C
1-Naphthylamine	< 390	390	ug/kg		10/22/01	SW846 8270C
2 2'-oxybis(1-Chloropropane)	< 390	390	ug/kg		10/22/01	SW846 8270C
,4,6-Tetrachlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4,5-Trichlorophenol	< 970	970	ug/kg		10/22/01	SW846 8270C
2,4,6-Trichlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4-Dichlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4-Dimethylphenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrophenol	< 970	970	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrotoluene	< 390	390	ug/kg		10/22/01	SW846 8270C
2,6-Dichlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,6-Dinitrotoluene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Acetylaminofluorene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Chloronaphthalene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Chlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Methylnaphthalene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Methylphenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Naphthylamine	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Nitroaniline	< 970	970	ug/kg		10/22/01	SW846 8270C
2-Nitrophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Picoline	< 390	390	ug/kg		10/22/01	SW846 8270C
3,3-Dichlorobenzidine	< 390	390	ug/kg		10/22/01	SW846 8270C
3,3-Dimethylbenzidine	< 390	390	ug/kg		10/22/01	SW846 8270C
3-Methylcholanthrene	< 390	390	ug/kg		10/22/01	SW846 8270C
3-Methylphenol	< 390	390	ug/kg		10/22/01	SW846 8270C
3-Nitroaniline	< 970	970	ug/kg		10/22/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 970	970	ug/kg		10/22/01	SW846 8270C
minobiphenyl	< 390	390	ug/kg		10/22/01	SW846 8270C
4-Bromophenyl phenyl ether	< 390	390	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Chloroaniline	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Methylphenol	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Nitroaniline	<	970	970	ug/kg		10/22/01	SW846 8270C
4-Nitrophenol	<	970	970	ug/kg		10/22/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	390	390	ug/kg		10/22/01	SW846 8270C
5-Nitro-o-toluidine	<	390	390	ug/kg		10/22/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
a,a-Dimethylphenethylamine	<	780	780	ug/kg		10/22/01	SW846 8270C
Acenaphthene	<	390	390	ug/kg		10/22/01	SW846 8270C
Acenaphthylene	<	390	390	ug/kg		10/22/01	SW846 8270C
Acetophenone	<	390	390	ug/kg		10/22/01	SW846 8270C
Aniline	<	390	390	ug/kg		10/22/01	SW846 8270C
Anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
amite	<	780	780	ug/kg		10/22/01	SW846 8270C
Benzaldehyde	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(a)anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(a)pyrene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(b)fluoranthene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(g,h,i)perylene	<	390	390	ug/kg	&	10/22/01	SW846 8270C
Benzo(k)fluoranthene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzyl alcohol	<	390	390	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	390	390	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethyl)ether	<	390	390	ug/kg		10/22/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Butylbenzylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Chlorobenzilate	<	390	390	ug/kg		10/22/01	SW846 8270C
Chrysene	<	390	390	ug/kg		10/22/01	SW846 8270C
Di-n-butylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Di-n-octylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Diallate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dibenzo(a,h)anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
Dibenzofuran	<	390	390	ug/kg		10/22/01	SW846 8270C
Diethylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dimethoate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dimethylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dinoseb	<	390	390	ug/kg		10/22/01	SW846 8270C
Diphenylamine	<	390	390	ug/kg		10/22/01	SW846 8270C
Disulfoton	<	390	390	ug/kg		10/22/01	SW846 8270C
yl methacrylate	<	390	390	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	390	390	ug/kg	10/22/01	SW846 8270C
Famphur	<	390	390	ug/kg	10/22/01	SW846 8270C
Fluoranthene	<	390	390	ug/kg	10/22/01	SW846 8270C
Fluorene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorobutadiene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorocyclopentadiene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachloroethane	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	10/22/01	SW846 8270C
Hexachloropropene	<	780	780	ug/kg	10/22/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	390	390	ug/kg	10/22/01	SW846 8270C
Isodrin	<	390	390	ug/kg	10/22/01	SW846 8270C
Isophorone	<	390	390	ug/kg	10/22/01	SW846 8270C
Isosafrole	<	390	390	ug/kg	10/22/01	SW846 8270C
Kepone	<	1900	1900	ug/kg	10/22/01	SW846 8270C
ethapyrilene	<	780	780	ug/kg	10/22/01	SW846 8270C
Methyl methacrylate	<	390	390	ug/kg	10/22/01	SW846 8270C
Methyl methanesulfonate	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiethylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodimethylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiphenylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosomethylethylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosomorpholine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosopiperidine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosopyrrolidine	<	390	390	ug/kg	10/22/01	SW846 8270C
Naphthalene	<	390	390	ug/kg	10/22/01	SW846 8270C
Nitrobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	390	390	ug/kg	10/22/01	SW846 8270C
o-Toluidine	<	390	390	ug/kg	10/22/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
p-Phenylenediamine	<	39000	39000	ug/kg	10/22/01	SW846 8270C
Parathion	<	390	390	ug/kg	10/22/01	SW846 8270C
Parathion, Methyl	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachlorobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachloroethane	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachloronitrobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachlorophenol	<	970	970	ug/kg	10/22/01	SW846 8270C
Phenacetin	<	390	390	ug/kg	10/22/01	SW846 8270C
enanthrene	<	390	390	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	390	390	ug/kg	10/22/01	SW846 8270C
Phorate	<	390	390	ug/kg	10/22/01	SW846 8270C
Pronamide	<	390	390	ug/kg	10/22/01	SW846 8270C
Pyrene	<	390	390	ug/kg	10/22/01	SW846 8270C
Pyridine	<	390	390	ug/kg	10/22/01	SW846 8270C
Safrole	<	390	390	ug/kg	10/22/01	SW846 8270C
Sulfotep	<	390	390	ug/kg	10/22/01	SW846 8270C
Thionazin	<	390	390	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,2,4-Trichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,2-Dichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,3,5-Trinitrobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,3-Dichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,3-Dinitrobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,4-Dichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,4-Dioxane	< 380	380	ug/kg		10/22/01	SW846 8270C
1,4-Naphthoquinone	< 380	380	ug/kg		10/22/01	SW846 8270C
1-Naphthylamine	< 380	380	ug/kg		10/22/01	SW846 8270C
? ?'-oxybis(1-Chloropropane)	< 380	380	ug/kg		10/22/01	SW846 8270C
,4,6-Tetrachlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4,5-Trichlorophenol	< 960	960	ug/kg		10/22/01	SW846 8270C
2,4,6-Trichlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4-Dichlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4-Dimethylphenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrophenol	< 960	960	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrotoluene	< 380	380	ug/kg		10/22/01	SW846 8270C
2,6-Dichlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,6-Dinitrotoluene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Acetylaminofluorene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Chloronaphthalene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Chlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Methylnaphthalene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Methylphenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Naphthylamine	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Nitroaniline	< 960	960	ug/kg		10/22/01	SW846 8270C
2-Nitrophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Picoline	< 380	380	ug/kg		10/22/01	SW846 8270C
3,3-Dichlorobenzidine	< 380	380	ug/kg		10/22/01	SW846 8270C
3,3-Dimethylbenzidine	< 380	380	ug/kg		10/22/01	SW846 8270C
3-Methylcholanthrene	< 380	380	ug/kg		10/22/01	SW846 8270C
3-Methylphenol	< 380	380	ug/kg		10/22/01	SW846 8270C
3-Nitroaniline	< 960	960	ug/kg		10/22/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 960	960	ug/kg		10/22/01	SW846 8270C
minobiphenyl	< 380	380	ug/kg		10/22/01	SW846 8270C
4-Bromophenyl phenyl ether	< 380	380	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Chloroaniline	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Methylphenol	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Nitroaniline	<	960	960	ug/kg		10/22/01	SW846 8270C
4-Nitrophenol	<	960	960	ug/kg		10/22/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	380	380	ug/kg		10/22/01	SW846 8270C
5-Nitro-o-toluidine	<	380	380	ug/kg		10/22/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
a,a-Dimethylphenethylamine	<	770	770	ug/kg		10/22/01	SW846 8270C
Acenaphthene	<	380	380	ug/kg		10/22/01	SW846 8270C
Acenaphthylene	<	380	380	ug/kg		10/22/01	SW846 8270C
Acetophenone	<	380	380	ug/kg		10/22/01	SW846 8270C
Aniline	<	380	380	ug/kg		10/22/01	SW846 8270C
Anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
amite	<	770	770	ug/kg		10/22/01	SW846 8270C
Benzaldehyde	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(a)anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(a)pyrene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(b)fluoranthene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(g,h,i)perylene	<	380	380	ug/kg	&	10/22/01	SW846 8270C
Benzo(k)fluoranthene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzyl alcohol	<	380	380	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	380	380	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethyl)ether	<	380	380	ug/kg		10/22/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Butylbenzylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Chlorobenzilate	<	380	380	ug/kg		10/22/01	SW846 8270C
Chrysene	<	380	380	ug/kg		10/22/01	SW846 8270C
Di-n-butylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Di-n-octylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Diallate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dibenzo(a,h)anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
Dibenzofuran	<	380	380	ug/kg		10/22/01	SW846 8270C
Diethylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dimethoate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dimethylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dinoseb	<	380	380	ug/kg		10/22/01	SW846 8270C
Diphenylamine	<	380	380	ug/kg		10/22/01	SW846 8270C
Disulfoton	<	380	380	ug/kg		10/22/01	SW846 8270C
Ethyl methacrylate	<	380	380	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	380	380	ug/kg	10/22/01	SW846 8270C
Famphur	<	380	380	ug/kg	10/22/01	SW846 8270C
Fluoranthene	<	380	380	ug/kg	10/22/01	SW846 8270C
Fluorene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorobutadiene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorocyclopentadiene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachloroethane	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	10/22/01	SW846 8270C
Hexachloropropene	<	770	770	ug/kg	10/22/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	380	380	ug/kg	10/22/01	SW846 8270C
Isodrin	<	380	380	ug/kg	10/22/01	SW846 8270C
Isophorone	<	380	380	ug/kg	10/22/01	SW846 8270C
Isosafrole	<	380	380	ug/kg	10/22/01	SW846 8270C
Kepone	<	1900	1900	ug/kg	10/22/01	SW846 8270C
ethapyrilene	<	770	770	ug/kg	10/22/01	SW846 8270C
Methyl methacrylate	<	380	380	ug/kg	10/22/01	SW846 8270C
Methyl methanesulfonate	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiethylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodimethylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiphenylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosomethylethylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosomorpholine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosopiperidine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosopyrrolidine	<	380	380	ug/kg	10/22/01	SW846 8270C
Naphthalene	<	380	380	ug/kg	10/22/01	SW846 8270C
Nitrobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	380	380	ug/kg	10/22/01	SW846 8270C
o-Toluidine	<	380	380	ug/kg	10/22/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
p-Phenylenediamine	<	38000	38000	ug/kg	10/22/01	SW846 8270C
Parathion	<	380	380	ug/kg	10/22/01	SW846 8270C
Parathion, Methyl	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachlorobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachloroethane	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachloronitrobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachlorophenol	<	960	960	ug/kg	10/22/01	SW846 8270C
Phenacetin	<	380	380	ug/kg	10/22/01	SW846 8270C
Phenanthrene	<	380	380	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	380	380	ug/kg	10/22/01	SW846 8270C
Phorate	<	380	380	ug/kg	10/22/01	SW846 8270C
Pronamide	<	380	380	ug/kg	10/22/01	SW846 8270C
Pyrene	<	380	380	ug/kg	10/22/01	SW846 8270C
Pyridine	<	380	380	ug/kg	10/22/01	SW846 8270C
Safrole	<	380	380	ug/kg	10/22/01	SW846 8270C
Sulfotep	<	380	380	ug/kg	10/22/01	SW846 8270C
Thionazin	<	380	380	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,2,4-Trichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,2-Dichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,3,5-Trinitrobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,3-Dichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,3-Dinitrobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,4-Dichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,4-Dioxane	< 400	400	ug/kg		10/23/01	SW846 8270C
1,4-Naphthoquinone	< 400	400	ug/kg		10/23/01	SW846 8270C
1-Naphthylamine	< 400	400	ug/kg		10/23/01	SW846 8270C
2'-oxybis(1-Chloropropane)	< 400	400	ug/kg		10/23/01	SW846 8270C
3,4,6-Tetrachlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4,5-Trichlorophenol	< 1000	1000	ug/kg		10/23/01	SW846 8270C
2,4,6-Trichlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4-Dichlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4-Dimethylphenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrophenol	< 1000	1000	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrotoluene	< 400	400	ug/kg		10/23/01	SW846 8270C
2,6-Dichlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,6-Dinitrotoluene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Acetylaminofluorene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Chloronaphthalene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Chlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Methylnaphthalene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Methylphenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Naphthylamine	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Nitroaniline	< 1000	1000	ug/kg		10/23/01	SW846 8270C
2-Nitrophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Picoline	< 400	400	ug/kg		10/23/01	SW846 8270C
3,3-Dichlorobenzidine	< 400	400	ug/kg		10/23/01	SW846 8270C
3,3-Dimethylbenzidine	< 400	400	ug/kg		10/23/01	SW846 8270C
3-Methylcholanthrene	< 400	400	ug/kg		10/23/01	SW846 8270C
3-Methylphenol	< 400	400	ug/kg		10/23/01	SW846 8270C
3-Nitroaniline	< 1000	1000	ug/kg		10/23/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 1000	1000	ug/kg		10/23/01	SW846 8270C
Aminobiphenyl	< 400	400	ug/kg		10/23/01	SW846 8270C
4-Bromophenyl phenyl ether	< 400	400	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Chloroaniline	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Methylphenol	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Nitroaniline	<	1000	1000	ug/kg		10/23/01	SW846 8270C
4-Nitrophenol	<	1000	1000	ug/kg		10/23/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	400	400	ug/kg		10/23/01	SW846 8270C
5-Nitro-o-toluidine	<	400	400	ug/kg		10/23/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
a,a-Dimethylphenethylamine	<	800	800	ug/kg		10/23/01	SW846 8270C
Acenaphthene	<	400	400	ug/kg		10/23/01	SW846 8270C
Acenaphthylene	<	400	400	ug/kg		10/23/01	SW846 8270C
Acetophenone	<	400	400	ug/kg		10/23/01	SW846 8270C
Aniline	<	400	400	ug/kg		10/23/01	SW846 8270C
Anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
·amite	<	800	800	ug/kg		10/23/01	SW846 8270C
Benzaldehyde	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(a)anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(a)pyrene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(b)fluoranthene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(g,h,i)perylene	<	400	400	ug/kg	&	10/23/01	SW846 8270C
Benzo(k)fluoranthene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzyl alcohol	<	400	400	ug/kg		10/23/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	400	400	ug/kg		10/23/01	SW846 8270C
bis(2-Chloroethyl)ether	<	400	400	ug/kg		10/23/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Butylbenzylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Chlorobenzilate	<	400	400	ug/kg		10/23/01	SW846 8270C
Chrysene	<	400	400	ug/kg		10/23/01	SW846 8270C
Di-n-butylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Di-n-octylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Diallate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dibenzo(a,h)anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
Dibenzofuran	<	400	400	ug/kg		10/23/01	SW846 8270C
Diethylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dimethoate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dimethylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dinoseb	<	400	400	ug/kg		10/23/01	SW846 8270C
Diphenylamine	<	400	400	ug/kg		10/23/01	SW846 8270C
Disulfoton	<	400	400	ug/kg		10/23/01	SW846 8270C
·hyl methacrylate	<	400	400	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	400	400	ug/kg	10/23/01	SW846 8270C
Famphur	<	400	400	ug/kg	10/23/01	SW846 8270C
Fluoranthene	<	400	400	ug/kg	10/23/01	SW846 8270C
Fluorene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorobutadiene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorocyclopentadiene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachloroethane	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorophene	<	20000	20000	ug/kg	10/23/01	SW846 8270C
Hexachloropropene	<	800	800	ug/kg	10/23/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	400	400	ug/kg	10/23/01	SW846 8270C
Isodrin	<	400	400	ug/kg	10/23/01	SW846 8270C
Isophorone	<	400	400	ug/kg	10/23/01	SW846 8270C
Isosafrole	<	400	400	ug/kg	10/23/01	SW846 8270C
Kepone	<	2000	2000	ug/kg	10/23/01	SW846 8270C
ıthapyrilene	<	800	800	ug/kg	10/23/01	SW846 8270C
Methyl methacrylate	<	400	400	ug/kg	10/23/01	SW846 8270C
Methyl methanesulfonate	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiethylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodimethylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiphenylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosomethylethylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosomorpholine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosopiperidine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosopyrrolidine	<	400	400	ug/kg	10/23/01	SW846 8270C
Naphthalene	<	400	400	ug/kg	10/23/01	SW846 8270C
Nitrobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	400	400	ug/kg	10/23/01	SW846 8270C
o-Toluidine	<	400	400	ug/kg	10/23/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
p-Phenylenediamine	<	40000	40000	ug/kg	10/23/01	SW846 8270C
Parathion	<	400	400	ug/kg	10/23/01	SW846 8270C
Parathion, Methyl	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachlorobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachloroethane	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachloronitrobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachlorophenol	<	1000	1000	ug/kg	10/23/01	SW846 8270C
⁻ʰenacetin	<	400	400	ug/kg	10/23/01	SW846 8270C
..ienanthrene	<	400	400	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	400	400	ug/kg	10/23/01	SW846 8270C
Phorate	<	400	400	ug/kg	10/23/01	SW846 8270C
Pronamide	<	400	400	ug/kg	10/23/01	SW846 8270C
Pyrene	<	400	400	ug/kg	10/23/01	SW846 8270C
Pyridine	<	400	400	ug/kg	10/23/01	SW846 8270C
Safrole	<	400	400	ug/kg	10/23/01	SW846 8270C
Sulfotep	<	400	400	ug/kg	10/23/01	SW846 8270C
Thionazin	<	400	400	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,2,4-Trichlorobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,2-Dichlorobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,3,5-Trinitrobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,3-Dichlorobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,3-Dinitrobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,4-Dichlorobenzene	< 420	420	ug/kg		10/23/01	SW846 8270C
1,4-Dioxane	< 420	420	ug/kg		10/23/01	SW846 8270C
1,4-Naphthoquinone	< 420	420	ug/kg		10/23/01	SW846 8270C
1-Naphthylamine	< 420	420	ug/kg		10/23/01	SW846 8270C
? 2'-oxybis(1-Chloropropane)	< 420	420	ug/kg		10/23/01	SW846 8270C
,3,4,6-Tetrachlorophenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2,4,5-Trichlorophenol	< 1100	1100	ug/kg		10/23/01	SW846 8270C
2,4,6-Trichlorophenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2,4-Dichlorophenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2,4-Dimethylphenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrophenol	< 1100	1100	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrotoluene	< 420	420	ug/kg		10/23/01	SW846 8270C
2,6-Dichlorophenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2,6-Dinitrotoluene	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Acetylaminofluorene	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Chloronaphthalene	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Chlorophenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Methylnaphthalene	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Methylphenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Naphthylamine	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Nitroaniline	< 1100	1100	ug/kg		10/23/01	SW846 8270C
2-Nitrophenol	< 420	420	ug/kg		10/23/01	SW846 8270C
2-Picoline	< 420	420	ug/kg		10/23/01	SW846 8270C
3,3-Dichlorobenzidine	< 420	420	ug/kg		10/23/01	SW846 8270C
3,3-Dimethylbenzidine	< 420	420	ug/kg		10/23/01	SW846 8270C
3-Methylcholanthrene	< 420	420	ug/kg		10/23/01	SW846 8270C
3-Methylphenol	< 420	420	ug/kg		10/23/01	SW846 8270C
3-Nitroaniline	< 1100	1100	ug/kg		10/23/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 1100	1100	ug/kg		10/23/01	SW846 8270C
\minobiphenyl	< 420	420	ug/kg		10/23/01	SW846 8270C
4-Bromophenyl phenyl ether	< 420	420	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	420	420	ug/kg		10/23/01	SW846 8270C
4-Chloroaniline	<	420	420	ug/kg		10/23/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	420	420	ug/kg		10/23/01	SW846 8270C
4-Methylphenol	<	420	420	ug/kg		10/23/01	SW846 8270C
4-Nitroaniline	<	1100	1100	ug/kg		10/23/01	SW846 8270C
4-Nitrophenol	<	1100	1100	ug/kg		10/23/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	420	420	ug/kg		10/23/01	SW846 8270C
5-Nitro-o-toluidine	<	420	420	ug/kg		10/23/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	420	420	ug/kg		10/23/01	SW846 8270C
a,a-Dimethylphenethylamine	<	840	840	ug/kg		10/23/01	SW846 8270C
Acenaphthene	<	420	420	ug/kg		10/23/01	SW846 8270C
Acenaphthylene	<	420	420	ug/kg		10/23/01	SW846 8270C
Acetophenone	<	420	420	ug/kg		10/23/01	SW846 8270C
Aniline	<	420	420	ug/kg		10/23/01	SW846 8270C
Anthracene	<	420	420	ug/kg		10/23/01	SW846 8270C
amite	<	840	840	ug/kg		10/23/01	SW846 8270C
Benzaldehyde	<	420	420	ug/kg		10/23/01	SW846 8270C
Benzo(a)anthracene		700	420	ug/kg		10/23/01	SW846 8270C
Benzo(a)pyrene		770	420	ug/kg		10/23/01	SW846 8270C
Benzo(b)fluoranthene		690	420	ug/kg		10/23/01	SW846 8270C
Benzo(g,h,i)perylene		440	420	ug/kg	&	10/23/01	SW846 8270C
Benzo(k)fluoranthene		790	420	ug/kg		10/23/01	SW846 8270C
Benzyl alcohol	<	420	420	ug/kg		10/23/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	420	420	ug/kg		10/23/01	SW846 8270C
bis(2-Chloroethyl)ether	<	420	420	ug/kg		10/23/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	420	420	ug/kg		10/23/01	SW846 8270C
Butylbenzylphthalate	<	420	420	ug/kg		10/23/01	SW846 8270C
Chlorobenzilate	<	420	420	ug/kg		10/23/01	SW846 8270C
Chrysene		900	420	ug/kg		10/23/01	SW846 8270C
Di-n-butylphthalate	<	420	420	ug/kg		10/23/01	SW846 8270C
Di-n-octylphthalate	<	420	420	ug/kg		10/23/01	SW846 8270C
Diallate	<	420	420	ug/kg		10/23/01	SW846 8270C
Dibenzo(a,h)anthracene	<	420	420	ug/kg		10/23/01	SW846 8270C
Dibenzofuran	<	420	420	ug/kg		10/23/01	SW846 8270C
Diethylphthalate	<	420	420	ug/kg		10/23/01	SW846 8270C
Dimethoate	<	420	420	ug/kg		10/23/01	SW846 8270C
Dimethylphthalate	<	420	420	ug/kg		10/23/01	SW846 8270C
Dinoseb	<	420	420	ug/kg		10/23/01	SW846 8270C
Diphenylamine	<	420	420	ug/kg		10/23/01	SW846 8270C
Disulfotón	<	420	420	ug/kg		10/23/01	SW846 8270C
nyl methacrylate	<	420	420	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	420	420	ug/kg	10/23/01	SW846 8270C
Famphur	<	420	420	ug/kg	10/23/01	SW846 8270C
Fluoranthene		1800	420	ug/kg	10/23/01	SW846 8270C
Fluorene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorobutadiene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorocyclopentadiene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachloroethane	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorophene	<	21000	21000	ug/kg	10/23/01	SW846 8270C
Hexachloropropene	<	840	840	ug/kg	10/23/01	SW846 8270C
Indeno(1,2,3-cd)pyrene		650	420	ug/kg	10/23/01	SW846 8270C
Isodrin	<	420	420	ug/kg	10/23/01	SW846 8270C
Isophorone	<	420	420	ug/kg	10/23/01	SW846 8270C
Isosafrole	<	420	420	ug/kg	10/23/01	SW846 8270C
Kepone	<	2100	2100	ug/kg	10/23/01	SW846 8270C
ethapyrilene	<	840	840	ug/kg	10/23/01	SW846 8270C
Methyl methacrylate	<	420	420	ug/kg	10/23/01	SW846 8270C
Methyl methanesulfonate	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiethylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodimethylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiphenylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosomethylethylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosomorpholine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosopiperidine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosopyrrolidine	<	420	420	ug/kg	10/23/01	SW846 8270C
Naphthalene	<	420	420	ug/kg	10/23/01	SW846 8270C
Nitrobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	420	420	ug/kg	10/23/01	SW846 8270C
o-Toluidine	<	420	420	ug/kg	10/23/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
p-Phenylenediamine	<	42000	42000	ug/kg	10/23/01	SW846 8270C
Parathion	<	420	420	ug/kg	10/23/01	SW846 8270C
Parathion, Methyl	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachlorobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachloroethane	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachloronitrobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachlorophenol	<	1100	1100	ug/kg	10/23/01	SW846 8270C
henacetin	<	420	420	ug/kg	10/23/01	SW846 8270C
enanthrene		830	420	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	420	420	ug/kg	10/23/01	SW846 8270C
Phorate	<	420	420	ug/kg	10/23/01	SW846 8270C
Pronamide	<	420	420	ug/kg	10/23/01	SW846 8270C
Pyrene		1400	420	ug/kg	10/23/01	SW846 8270C
Pyridine	<	420	420	ug/kg	10/23/01	SW846 8270C
Safrole	<	420	420	ug/kg	10/23/01	SW846 8270C
Sulfotep	<	420	420	ug/kg	10/23/01	SW846 8270C
Thionazin	<	420	420	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - HERBICIDES Prep Method: SW846 8151A Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2,4,5-T	< 19	19	ug/kg		11/28/2001	SW846 8150
2,4,5-TP (Silvex)	< 19	19	ug/kg		11/28/2001	SW846 8150
2,4-D	< 94	94	ug/kg		11/28/2001	SW846 8150

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - HERBICIDES Prep Method: SW846 8151A Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
2,4,5-T	< 19	19	ug/kg		11/28/2001	SW846 8150
2,4,5-TP (Silvex)	< 19	19	ug/kg		11/28/2001	SW846 8150
2,4-D	< 96	96	ug/kg		11/28/2001	SW846 8150

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/27/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
4,4'-DDE	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
4,4'-DDT	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
Aldrin	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
alpha-BHC	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
alpha-Chlordane	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
beta-BHC	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Chlordane, technical	< 57	57	ug/kg		11/01/01	SW846 8081A
delta-BHC	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Dieldrin	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
Endosulfan I	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Endosulfan II	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
Endosulfan sulfate	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
Endrin	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
Endrin aldehyde	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
Endrin ketone	< 5.7	5.7	ug/kg		11/01/01	SW846 8081A
gamma-BHC (Lindane)	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Heptachlor	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Heptachlor epoxide	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Methoxychlor	< 29	29	ug/kg		11/01/01	SW846 8081A
Toxaphene	< 290	290	ug/kg		11/01/01	SW846 8081A

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/27/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
4,4'-DDE	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
4,4'-DDT	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
Aldrin	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
alpha-BHC	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
alpha-Chlordane	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
beta-BHC	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
Chlordane, technical	< 60	60	ug/kg		11/01/01	SW846 8081A
delta-BHC	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
Dieldrin	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
Endosulfan I	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
Endosulfan II	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
Endosulfan sulfate	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
Endrin	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
Endrin aldehyde	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
Endrin ketone	< 6.0	6.0	ug/kg		11/01/01	SW846 8081A
gamma-BHC (Lindane)	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
Heptachlor	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
Heptachlor epoxide	< 3.0	3.0	ug/kg		11/01/01	SW846 8081A
Methoxychlor	< 30	30	ug/kg		11/01/01	SW846 8081A
Toxaphene	< 300	300	ug/kg		11/01/01	SW846 8081A

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/27/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
4,4'-DDE	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
4,4'-DDT	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
Aldrin	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
alpha-BHC	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
alpha-Chlordane	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
beta-BHC	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Chlordane, technical	< 58	58	ug/kg		11/01/01	SW846 8081A
delta-BHC	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Dieldrin	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
Endosulfan I	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Endosulfan II	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
Endosulfan sulfate	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
Endrin	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
Endrin aldehyde	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
Endrin ketone	< 5.8	5.8	ug/kg		11/01/01	SW846 8081A
gamma-BHC (Lindane)	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Heptachlor	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Heptachlor epoxide	< 2.9	2.9	ug/kg		11/01/01	SW846 8081A
Methoxychlor	< 29	29	ug/kg		11/01/01	SW846 8081A
Toxaphene	< 290	290	ug/kg		11/01/01	SW846 8081A

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/27/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
4,4'-DDE	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
4,4'-DDT	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
Aldrin	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
alpha-BHC	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
alpha-Chlordane	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
beta-BHC	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
Chlordane, technical	< 63	63	ug/kg		11/01/01	SW846 8081A
delta-BHC	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
Dieldrin	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
Endosulfan I	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
Endosulfan II	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
Endosulfan sulfate	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
Endrin	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
Endrin aldehyde	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
Endrin ketone	< 6.3	6.3	ug/kg		11/01/01	SW846 8081A
gamma-BHC (Lindane)	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
Heptachlor	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
Heptachlor epoxide	< 3.1	3.1	ug/kg		11/01/01	SW846 8081A
Methoxychlor	< 31	31	ug/kg		11/01/01	SW846 8081A
Toxaphene	< 310	310	ug/kg		11/01/01	SW846 8081A

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
4,4'-DDE	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
4,4'-DDT	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
Aldrin	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
alpha-BHC	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
beta-BHC	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
Chlordane, technical	< 0.99	0.99	ug/L		12/2/2001	SW846 8080
delta-BHC	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
Dieldrin	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
Endosulfan I	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
Endosulfan II	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
Endosulfan sulfate	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
Endrin	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
Endrin aldehyde	< 0.099	0.099	ug/L		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
Heptachlor	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
Heptachlor epoxide	< 0.050	0.050	ug/L		12/2/2001	SW846 8080
Methoxychlor	< 0.50	0.50	ug/L		12/2/2001	SW846 8080
Toxaphene	< 5.0	5.0	ug/L		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
4,4'-DDE	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
4,4'-DDT	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Aldrin	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
alpha-BHC	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
beta-BHC	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Chlordane, technical	< 57	57	ug/kg		12/2/2001	SW846 8080
delta-BHC	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Dieldrin	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endosulfan I	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Endosulfan II	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endosulfan sulfate	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endrin	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endrin aldehyde	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Heptachlor	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Heptachlor epoxide	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Methoxychlor	< 29	29	ug/kg		12/2/2001	SW846 8080
Toxaphene	< 290	290	ug/kg		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
4,4'-DDE	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
4,4'-DDT	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
Aldrin	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
alpha-BHC	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
beta-BHC	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
Chlordane, technical	< 0.97	0.97	ug/L		12/2/2001	SW846 8080
delta-BHC	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
Dieldrin	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
Endosulfan I	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
Endosulfan II	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
Endosulfan sulfate	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
Endrin	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
Endrin aldehyde	< 0.097	0.097	ug/L		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
Heptachlor	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
Heptachlor epoxide	< 0.049	0.049	ug/L		12/2/2001	SW846 8080
Methoxychlor	< 0.49	0.49	ug/L		12/2/2001	SW846 8080
Toxaphene	< 4.9	4.9	ug/L		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
4,4'-DDE	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
4,4'-DDT	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
Aldrin	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
alpha-BHC	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
beta-BHC	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Chlordane, technical	< 56	56	ug/kg		12/2/2001	SW846 8080
delta-BHC	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Dieldrin	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
Endosulfan I	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Endosulfan II	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
Endosulfan sulfate	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
Endrin	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
Endrin aldehyde	< 5.6	5.6	ug/kg		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Heptachlor	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Heptachlor epoxide	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Methoxychlor	< 28	28	ug/kg		12/2/2001	SW846 8080
Toxaphene	< 280	280	ug/kg		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
4,4'-DDE	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
4,4'-DDT	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
Aldrin	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
alpha-BHC	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
beta-BHC	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
Chlordane, technical	< 60	60	ug/kg		12/2/2001	SW846 8080
delta-BHC	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
Dieldrin	< 22	22	ug/kg	S	12/2/2001	SW846 8080
Endosulfan I	< 4.5	4.5	ug/kg	S	12/2/2001	SW846 8080
Endosulfan II	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
Endosulfan sulfate	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
Endrin	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
Endrin aldehyde	< 6.0	6.0	ug/kg		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
Heptachlor	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
Heptachlor epoxide	< 3.0	3.0	ug/kg		12/2/2001	SW846 8080
Methoxychlor	< 30	30	ug/kg		12/2/2001	SW846 8080
Toxaphene	< 300	300	ug/kg		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
4,4'-DDE	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
4,4'-DDT	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Aldrin	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
alpha-BHC	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
beta-BHC	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Chlordane, technical	< 57	57	ug/kg		12/2/2001	SW846 8080
delta-BHC	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Dieldrin	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endosulfan I	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Endosulfan II	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endosulfan sulfate	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endrin	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endrin aldehyde	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Heptachlor	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Heptachlor epoxide	< 2.8	2.8	ug/kg		12/2/2001	SW846 8080
Methoxychlor	< 28	28	ug/kg		12/2/2001	SW846 8080
Toxaphene	< 280	280	ug/kg		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
4,4'-DDE	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
4,4'-DDT	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Aldrin	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
alpha-BHC	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
beta-BHC	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Chlordane, technical	< 57	57	ug/kg		12/2/2001	SW846 8080
delta-BHC	< 2.9	2.9	ug/kg	N	12/2/2001	SW846 8080
Dieldrin	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endosulfan I	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Endosulfan II	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endosulfan sulfate	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endrin	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
Endrin aldehyde	< 5.7	5.7	ug/kg		12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Heptachlor	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Heptachlor epoxide	< 2.9	2.9	ug/kg		12/2/2001	SW846 8080
Methoxychlor	< 29	29	ug/kg		12/2/2001	SW846 8080
Toxaphene	< 290	290	ug/kg		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APP.9 LIST-ORGANOCHLORINE PESTICIDE/PCB Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 0.098	0.098	ug/L		12/2/2001	SW846 8080
4,4'-DDE	< 0.098	0.098	ug/L		12/2/2001	SW846 8080
4,4'-DDT	0.12	0.098	ug/L	N	12/2/2001	SW846 8080
Aldrin	< 4.9	4.9	ug/L	N*	12/2/2001	SW846 8080
alpha-BHC	< 4.9	4.9	ug/L	N*	12/2/2001	SW846 8080
beta-BHC	< 4.9	4.9	ug/L	N*	12/2/2001	SW846 8080
Chlordane, technical	< 0.98	0.98	ug/L		12/2/2001	SW846 8080
delta-BHC	< 4.9	4.9	ug/L	N*	12/2/2001	SW846 8080
Dieldrin	< 0.098	0.098	ug/L	N*	12/2/2001	SW846 8080
Endosulfan I	< 0.049	0.049	ug/L	*	12/2/2001	SW846 8080
Endosulfan II	< 0.098	0.098	ug/L	N	12/2/2001	SW846 8080
Endosulfan sulfate	< 0.098	0.098	ug/L		12/2/2001	SW846 8080
Endrin	< 0.098	0.098	ug/L		12/2/2001	SW846 8080
Endrin aldehyde	< 0.098	0.098	ug/L	N	12/2/2001	SW846 8080
gamma-BHC (Lindane)	< 4.9	4.9	ug/L	N	12/2/2001	SW846 8080
Heptachlor	< 4.9	4.9	ug/L	N*	12/2/2001	SW846 8080
Heptachlor epoxide	< 0.049	0.049	ug/L	N	12/2/2001	SW846 8080
Methoxychlor	< 0.49	0.49	ug/L	N	12/2/2001	SW846 8080
Toxaphene	< 4.9	4.9	ug/L		12/2/2001	SW846 8080

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1221	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1232	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1242	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1248	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1254	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1260	< 57	57	ug/kg		11/22/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1221	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1232	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1242	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1248	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1254	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1260	< 57	57	ug/kg		11/22/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 0.98	0.98	ug/L		11/28/2001	SW846 8082
Aroclor 1221	< 0.98	0.98	ug/L		11/28/2001	SW846 8082
Aroclor 1232	< 0.98	0.98	ug/L		11/28/2001	SW846 8082
Aroclor 1242	< 0.98	0.98	ug/L		11/28/2001	SW846 8082
Aroclor 1248	< 0.98	0.98	ug/L		11/28/2001	SW846 8082
Aroclor 1254	< 0.98	0.98	ug/L		11/28/2001	SW846 8082
Aroclor 1260	< 0.98	0.98	ug/L		11/28/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1221	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1232	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1242	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1248	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1254	< 57	57	ug/kg		11/22/2001	SW846 8082
Aroclor 1260	< 57	57	ug/kg		11/22/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 56	56	ug/kg		11/22/2001	SW846 8082
Aroclor 1221	< 56	56	ug/kg		11/22/2001	SW846 8082
Aroclor 1232	< 56	56	ug/kg		11/22/2001	SW846 8082
Aroclor 1242	< 56	56	ug/kg		11/22/2001	SW846 8082
Aroclor 1248	< 56	56	ug/kg		11/22/2001	SW846 8082
Aroclor 1254	< 56	56	ug/kg		11/22/2001	SW846 8082
Aroclor 1260	< 56	56	ug/kg		11/22/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 11/15/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 60	60	ug/kg		11/22/2001	SW846 8082
Aroclor 1221	< 60	60	ug/kg		11/22/2001	SW846 8082
Aroclor 1232	< 60	60	ug/kg		11/22/2001	SW846 8082
Aroclor 1242	< 60	60	ug/kg		11/22/2001	SW846 8082
Aroclor 1248	< 60	60	ug/kg		11/22/2001	SW846 8082
Aroclor 1254	< 60	60	ug/kg		11/22/2001	SW846 8082
Aroclor 1260	< 60	60	ug/kg		11/22/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 0.97	0.97	ug/L		11/28/2001	SW846 8082
Aroclor 1221	< 0.97	0.97	ug/L		11/28/2001	SW846 8082
Aroclor 1232	< 0.97	0.97	ug/L		11/28/2001	SW846 8082
Aroclor 1242	< 0.97	0.97	ug/L		11/28/2001	SW846 8082
Aroclor 1248	< 0.97	0.97	ug/L		11/28/2001	SW846 8082
Aroclor 1254	< 0.97	0.97	ug/L		11/28/2001	SW846 8082
Aroclor 1260	< 0.97	0.97	ug/L		11/28/2001	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/11/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 0.99	0.99	ug/L		11/28/2001	SW846 8082
Aroclor 1221	< 0.99	0.99	ug/L		11/28/2001	SW846 8082
Aroclor 1232	< 0.99	0.99	ug/L		11/28/2001	SW846 8082
Aroclor 1242	< 0.99	0.99	ug/L		11/28/2001	SW846 8082
Aroclor 1248	< 0.99	0.99	ug/L		11/28/2001	SW846 8082
Aroclor 1254	< 0.99	0.99	ug/L		11/28/2001	SW846 8082
Aroclor 1260	< 0.99	0.99	ug/L		11/28/2001	SW846 8082

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/20/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 57	57	ug/kg		10/26/01	SW846 8082
Aroclor 1221	< 57	57	ug/kg		10/26/01	SW846 8082
Aroclor 1232	< 57	57	ug/kg		10/26/01	SW846 8082
Aroclor 1242	< 57	57	ug/kg		10/26/01	SW846 8082
Aroclor 1248	< 57	57	ug/kg		10/26/01	SW846 8082
Aroclor 1254	< 57	57	ug/kg		10/26/01	SW846 8082
Aroclor 1260	< 57	57	ug/kg		10/26/01	SW846 8082

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/20/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 60	60	ug/kg		10/26/01	SW846 8082
Aroclor 1221	< 60	60	ug/kg		10/26/01	SW846 8082
Aroclor 1232	< 60	60	ug/kg		10/26/01	SW846 8082
Aroclor 1242	< 60	60	ug/kg		10/26/01	SW846 8082
Aroclor 1248	< 60	60	ug/kg		10/26/01	SW846 8082
Aroclor 1254	< 60	60	ug/kg		10/26/01	SW846 8082
Aroclor 1260	< 60	60	ug/kg		10/26/01	SW846 8082

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/20/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 58	58	ug/kg		10/26/01	SW846 8082
Aroclor 1221	< 58	58	ug/kg		10/26/01	SW846 8082
Aroclor 1232	< 58	58	ug/kg		10/26/01	SW846 8082
Aroclor 1242	< 58	58	ug/kg		10/26/01	SW846 8082
Aroclor 1248	100	58	ug/kg		10/26/01	SW846 8082
Aroclor 1254	64	58	ug/kg		10/26/01	SW846 8082
Aroclor 1260	< 58	58	ug/kg		10/26/01	SW846 8082

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/20/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 63	63	ug/kg		10/26/01	SW846 8082
Aroclor 1221	< 63	63	ug/kg		10/26/01	SW846 8082
Aroclor 1232	< 63	63	ug/kg		10/26/01	SW846 8082
Aroclor 1242	< 63	63	ug/kg		10/26/01	SW846 8082
Aroclor 1248	310	63	ug/kg		10/26/01	SW846 8082
Aroclor 1254	270	63	ug/kg		10/26/01	SW846 8082
Aroclor 1260	74	63	ug/kg		10/26/01	SW846 8082

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,2-Dichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,3-Dichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,3-Dinitrobenzene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,4-Dichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,4-Dioxane	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,4-Naphthoquinone	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1-Naphthylamine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4,5-Trichlorophenol	< 25	25	ug/L		11/21/2001	SW846 8270C
2,4,6-Trichlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4-Dichlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4-Dimethylphenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4-Dinitrophenol	< 25	25	ug/L		11/21/2001	SW846 8270C
2,4-Dinitrotoluene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,6-Dichlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,6-Dinitrotoluene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Acetylaminofluorene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Chloronaphthalene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
2-Chlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Methylnaphthalene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
2-Methylphenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Naphthylamine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Nitroaniline	< 25	25	ug/L		11/21/2001	SW846 8270C
2-Nitrophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Picoline	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3,3-Dichlorobenzidine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3,3-Dimethylbenzidine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3-Methylcholanthrene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3-Methylphenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3-Nitroaniline	< 25	25	ug/L		11/21/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 25	25	ug/L		11/21/2001	SW846 8270C
4-Aminobiphenyl	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Chloro-3-methylphenol	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Chloroaniline	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Methylphenol	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Nitroaniline	<	25	25	ug/L		11/21/2001	SW846 8270C
4-Nitrophenol	<	25	25	ug/L		11/21/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
5-Nitro-o-toluidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	20	20	ug/L		11/21/2001	SW846 8270C
Acenaphthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Acenaphthylene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Acetophenone	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Aniline	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Aramite	<	20	20	ug/L		11/21/2001	SW846 8270C
Benzo(a)anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(a)pyrene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(b)fluoranthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(g,h,i)perylene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(k)fluoranthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzyl alcohol	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Butylbenzylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Chlorobenzilate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Chrysene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Di-n-butylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Di-n-octylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Diallate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dibenzofuran	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Diethylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dimethoate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dimethylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dinoseb	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Diphenylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Disulfoton	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Ethyl methacrylate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Famphur	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Fluoranthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Fluorene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Hexachlorobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Hexachlorobutadiene	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
Hexachlorocyclopentadiene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Hexachloroethane	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
Hexachlorophene	<	500	500	ug/L		11/21/2001	SW846 8270C
Hexachloropropene	<	20	20	ug/L		11/21/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Isodrin	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Isophorone	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Isosafrole	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Kepone	<	50	50	ug/L		11/21/2001	SW846 8270C
Methapyrilene	<	20	20	ug/L		11/21/2001	SW846 8270C
Methyl methacrylate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Methyl methanesulfonate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodiethylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodimethylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodiphenylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosomethylethylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosomorpholine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosopiperidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosopyrrolidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Naphthalene	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
Nitrobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
o-Toluidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
p-Phenylenediamine	<	990	990	ug/L		11/21/2001	SW846 8270C
Parathion	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Parathion, Methyl	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachlorobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachloroethane	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachloronitrobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachlorophenol	<	25	25	ug/L		11/21/2001	SW846 8270C
Phenacetin	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Phenanthrene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3
Lab Sample Number : 913968-002
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Phenol	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Phorate	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Pronamide	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Pyrene	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Pyridine	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Safrole	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Sulfotep	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Thionazin	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3RE
Lab Sample Number : 913968-004
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 11/26/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,2-Dichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,3-Dichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,3-Dinitrobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Dichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Dioxane	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Naphthoquinone	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1-Naphthylamine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4,5-Trichlorophenol	< 25	25	ug/L	H	11/27/2001	SW846 8270C
2,4,6-Trichlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dichlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dimethylphenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dinitrophenol	< 25	25	ug/L	H	11/27/2001	SW846 8270C
2,4-Dinitrotoluene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,6-Dichlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,6-Dinitrotoluene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Acetylaminofluorene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Chloronaphthalene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Chlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Methylnaphthalene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Methylphenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Naphthylamine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Nitroaniline	< 25	25	ug/L	H	11/27/2001	SW846 8270C
2-Nitrophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Picoline	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3,3-Dichlorobenzidine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3,3-Dimethylbenzidine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3-Methylcholanthrene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3-Methylphenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3-Nitroaniline	< 25	25	ug/L	H	11/27/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 25	25	ug/L	H	11/27/2001	SW846 8270C
4-Aminobiphenyl	< 10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3RE
Lab Sample Number : 913968-004
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Chloro-3-methylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Chloroaniline	<	10	10	ug/L	H&	11/27/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Methylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Nitroaniline	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Nitrophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	10	10	ug/L	H	11/27/2001	SW846 8270C
5-Nitro-o-toluidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Acenaphthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Acenaphthylene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Acetophenone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Aniline	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Aramite	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Benzo(a)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(a)pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(b)fluoranthene	<	10	10	ug/L	H&	11/27/2001	SW846 8270C
Benzo(g,h,i)perylene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(k)fluoranthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzyl alcohol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Butylbenzylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Chlorobenzilate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Chrysene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Di-n-butylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Di-n-octylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diallate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dibenzofuran	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diethylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dimethoate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dimethylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dinoseb	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diphenylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Disulfoton	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Ethyl methacrylate	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3RE
Lab Sample Number : 913968-004
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Famphur	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Fluoranthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Fluorene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorobutadiene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorocyclopentadiene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachloroethane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorophene	<	500	500	ug/L	H	11/27/2001	SW846 8270C
Hexachloropropene	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isodrin	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isophorone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isosafrole	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Kepone	<	50	50	ug/L	H	11/27/2001	SW846 8270C
Methapyrilene	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Methyl methacrylate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Methyl methanesulfonate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodiethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodimethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodiphenylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosomethylethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosomorpholine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosopiperidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosopyrrolidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Naphthalene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Nitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
o-Toluidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
p-Phenylenediamine	<	1000	1000	ug/L	H	11/27/2001	SW846 8270C
Parathion	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Parathion, Methyl	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachloroethane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachloronitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachlorophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
Phenacetin	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Phenanthrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : GW3RE
Lab Sample Number : 913968-004
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Phenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Phorate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pronamide	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pyridine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Safrole	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Sulfotep	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Thionazin	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 11	11	ug/L		11/21/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 11	11	ug/L	&N*	11/21/2001	SW846 8270C
1,2-Dichlorobenzene	17	11	ug/L	&N*	11/21/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 11	11	ug/L		11/21/2001	SW846 8270C
1,3-Dichlorobenzene	< 11	11	ug/L	&N*	11/21/2001	SW846 8270C
1,3-Dinitrobenzene	< 11	11	ug/L		11/21/2001	SW846 8270C
1,4-Dichlorobenzene	< 11	11	ug/L	&N*	11/21/2001	SW846 8270C
1,4-Dioxane	< 11	11	ug/L		11/21/2001	SW846 8270C
1,4-Naphthoquinone	< 11	11	ug/L		11/21/2001	SW846 8270C
1-Naphthylamine	< 11	11	ug/L		11/21/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 11	11	ug/L		11/21/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2,4,5-Trichlorophenol	< 29	29	ug/L		11/21/2001	SW846 8270C
2,4,6-Trichlorophenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2,4-Dichlorophenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2,4-Dimethylphenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2,4-Dinitrophenol	< 29	29	ug/L		11/21/2001	SW846 8270C
2,4-Dinitrotoluene	< 11	11	ug/L		11/21/2001	SW846 8270C
2,6-Dichlorophenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2,6-Dinitrotoluene	< 11	11	ug/L		11/21/2001	SW846 8270C
2-Acetylaminofluorene	< 11	11	ug/L		11/21/2001	SW846 8270C
2-Chloronaphthalene	< 11	11	ug/L	&N	11/21/2001	SW846 8270C
2-Chlorophenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2-Methylnaphthalene	< 11	11	ug/L	&N	11/21/2001	SW846 8270C
2-Methylphenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2-Naphthylamine	< 11	11	ug/L		11/21/2001	SW846 8270C
2-Nitroaniline	< 29	29	ug/L		11/21/2001	SW846 8270C
2-Nitrophenol	< 11	11	ug/L		11/21/2001	SW846 8270C
2-Picoline	< 11	11	ug/L		11/21/2001	SW846 8270C
3,3-Dichlorobenzidine	< 11	11	ug/L		11/21/2001	SW846 8270C
3,3-Dimethylbenzidine	< 11	11	ug/L		11/21/2001	SW846 8270C
3-Methylcholanthrene	< 11	11	ug/L		11/21/2001	SW846 8270C
3-Methylphenol	< 11	11	ug/L		11/21/2001	SW846 8270C
3-Nitroaniline	< 29	29	ug/L		11/21/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 29	29	ug/L		11/21/2001	SW846 8270C
4-Aminobiphenyl	< 11	11	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	11	11	ug/L		11/21/2001	SW846 8270C
4-Chloro-3-methylphenol	<	11	11	ug/L		11/21/2001	SW846 8270C
4-Chloroaniline	<	11	11	ug/L	&	11/21/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	11	11	ug/L		11/21/2001	SW846 8270C
4-Methylphenol	<	11	11	ug/L		11/21/2001	SW846 8270C
4-Nitroaniline	<	29	29	ug/L		11/21/2001	SW846 8270C
4-Nitrophenol	<	29	29	ug/L		11/21/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	11	11	ug/L		11/21/2001	SW846 8270C
5-Nitro-o-toluidine	<	11	11	ug/L		11/21/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	11	11	ug/L		11/21/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	23	23	ug/L		11/21/2001	SW846 8270C
Acenaphthene	<	11	11	ug/L		11/21/2001	SW846 8270C
Acenaphthylene	<	11	11	ug/L	N	11/21/2001	SW846 8270C
Acetophenone	<	11	11	ug/L		11/21/2001	SW846 8270C
Aniline	<	11	11	ug/L		11/21/2001	SW846 8270C
Anthracene	<	11	11	ug/L		11/21/2001	SW846 8270C
Aramite	<	23	23	ug/L		11/21/2001	SW846 8270C
Benzo(a)anthracene	<	11	11	ug/L		11/21/2001	SW846 8270C
Benzo(a)pyrene	<	11	11	ug/L		11/21/2001	SW846 8270C
Benzo(b)fluoranthene	<	11	11	ug/L		11/21/2001	SW846 8270C
Benzo(g,h,i)perylene	<	11	11	ug/L		11/21/2001	SW846 8270C
Benzo(k)fluoranthene	<	11	11	ug/L		11/21/2001	SW846 8270C
Benzyl alcohol	<	11	11	ug/L		11/21/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	11	11	ug/L		11/21/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	11	11	ug/L		11/21/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	11	11	ug/L		11/21/2001	SW846 8270C
Butylbenzylphthalate	<	11	11	ug/L		11/21/2001	SW846 8270C
Chlorobenzilate	<	11	11	ug/L		11/21/2001	SW846 8270C
Chrysene	<	11	11	ug/L		11/21/2001	SW846 8270C
Di-n-butylphthalate	<	11	11	ug/L		11/21/2001	SW846 8270C
Di-n-octylphthalate	<	11	11	ug/L		11/21/2001	SW846 8270C
Diallate	<	11	11	ug/L		11/21/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	11	11	ug/L		11/21/2001	SW846 8270C
Dibenzofuran	<	11	11	ug/L		11/21/2001	SW846 8270C
Diethylphthalate	<	11	11	ug/L		11/21/2001	SW846 8270C
Dimethoate	<	11	11	ug/L		11/21/2001	SW846 8270C
Dimethylphthalate	<	11	11	ug/L		11/21/2001	SW846 8270C
Dinoseb	<	11	11	ug/L		11/21/2001	SW846 8270C
Diphenylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
Disulfoton	<	11	11	ug/L		11/21/2001	SW846 8270C
Ethyl methacrylate	<	11	11	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	11	11	ug/L		11/21/2001	SW846 8270C
Famphur	<	11	11	ug/L		11/21/2001	SW846 8270C
Fluoranthene	<	11	11	ug/L		11/21/2001	SW846 8270C
Fluorene	<	11	11	ug/L		11/21/2001	SW846 8270C
Hexachlorobenzene	<	11	11	ug/L		11/21/2001	SW846 8270C
Hexachlorobutadiene	<	11	11	ug/L	&N*	11/21/2001	SW846 8270C
Hexachlorocyclopentadiene	<	11	11	ug/L	N*	11/21/2001	SW846 8270C
Hexachloroethane	<	11	11	ug/L	&N*	11/21/2001	SW846 8270C
Hexachlorophene	<	570	570	ug/L		11/21/2001	SW846 8270C
Hexachloropropene	<	23	23	ug/L		11/21/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	11	11	ug/L		11/21/2001	SW846 8270C
Isodrin	<	11	11	ug/L		11/21/2001	SW846 8270C
Isophorone	<	11	11	ug/L		11/21/2001	SW846 8270C
Isosafrole	<	11	11	ug/L		11/21/2001	SW846 8270C
Kepone	<	57	57	ug/L		11/21/2001	SW846 8270C
Methapyrilene	<	23	23	ug/L		11/21/2001	SW846 8270C
Methyl methacrylate	<	11	11	ug/L		11/21/2001	SW846 8270C
Methyl methanesulfonate	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosodiethylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosodimethylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosodiphenylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosomethylethylamine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosomorpholine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosopiperidine	<	11	11	ug/L		11/21/2001	SW846 8270C
N-Nitrosopyrrolidine	<	11	11	ug/L		11/21/2001	SW846 8270C
Naphthalene	<	11	11	ug/L	&N*	11/21/2001	SW846 8270C
Nitrobenzene	<	11	11	ug/L		11/21/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	11	11	ug/L		11/21/2001	SW846 8270C
o-Toluidine	<	11	11	ug/L		11/21/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	11	11	ug/L		11/21/2001	SW846 8270C
p-Phenylenediamine	<	1100	1100	ug/L		11/21/2001	SW846 8270C
Parathion	<	11	11	ug/L		11/21/2001	SW846 8270C
Parathion, Methyl	<	11	11	ug/L		11/21/2001	SW846 8270C
Pentachlorobenzene	<	11	11	ug/L		11/21/2001	SW846 8270C
Pentachloroethane	<	11	11	ug/L		11/21/2001	SW846 8270C
Pentachloronitrobenzene	<	11	11	ug/L		11/21/2001	SW846 8270C
Pentachlorophenol	<	29	29	ug/L		11/21/2001	SW846 8270C
Phenacetin	<	11	11	ug/L		11/21/2001	SW846 8270C
Phenanthrene	<	11	11	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Phenol	<	11	11	ug/L	N	11/21/2001	SW846 8270C
Phorate	<	11	11	ug/L		11/21/2001	SW846 8270C
Pronamide	<	11	11	ug/L		11/21/2001	SW846 8270C
Pyrene	<	11	11	ug/L		11/21/2001	SW846 8270C
Pyridine	<	11	11	ug/L		11/21/2001	SW846 8270C
Safrole	<	11	11	ug/L		11/21/2001	SW846 8270C
Sulfotep	<	11	11	ug/L		11/21/2001	SW846 8270C
Thionazin	<	11	11	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10RE
Lab Sample Number : 913975-009
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 11/26/2001

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
1,2,4-Trichlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
1,2-Dichlorobenzene		18	10	ug/L	HN	11/27/2001	SW846 8270C
1,3,5-Trinitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
1,3-Dichlorobenzene	<	10	10	ug/L	HN*	11/27/2001	SW846 8270C
1,3-Dinitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Dichlorobenzene	<	10	10	ug/L	HN*	11/27/2001	SW846 8270C
1,4-Dioxane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Naphthoquinone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
1-Naphthylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,4,5-Trichlorophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
2,4,6-Trichlorophenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dichlorophenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dimethylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dinitrophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
2,4-Dinitrotoluene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,6-Dichlorophenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2,6-Dinitrotoluene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Acetylaminofluorene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Chloronaphthalene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Chlorophenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Methylnaphthalene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Methylphenol	<	10	10	ug/L	H*	11/27/2001	SW846 8270C
2-Naphthylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Nitroaniline	<	25	25	ug/L	H	11/27/2001	SW846 8270C
2-Nitrophenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
2-Picoline	<	10	10	ug/L	H	11/27/2001	SW846 8270C
3,3-Dichlorobenzidine	<	10	10	ug/L	H*	11/27/2001	SW846 8270C
3,3-Dimethylbenzidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
3-Methylcholanthrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
3-Methylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
3-Nitroaniline	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Aminobiphenyl	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10RE
Lab Sample Number : 913975-009
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Chloro-3-methylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Chloroaniline	<	10	10	ug/L	H&	11/27/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Methylphenol	<	10	10	ug/L	H*	11/27/2001	SW846 8270C
4-Nitroaniline	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Nitrophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	10	10	ug/L	H	11/27/2001	SW846 8270C
5-Nitro-o-toluidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Acenaphthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Acenaphthylene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Acetophenone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Aniline	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Aramite	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Benzo(a)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(a)pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(b)fluoranthene	<	10	10	ug/L	H&	11/27/2001	SW846 8270C
Benzo(g,h,i)perylene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(k)fluoranthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzyl alcohol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Butylbenzylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Chlorobenzilate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Chrysene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Di-n-butylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Di-n-octylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diallate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dibenzofuran	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diethylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dimethoate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dimethylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dinoseb	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diphenylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Disulfoton	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Ethyl methacrylate	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10RE
Lab Sample Number : 913975-009
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Famphur	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Fluoranthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Fluorene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorobutadiene	<	10	10	ug/L	H*	11/27/2001	SW846 8270C
Hexachlorocyclopentadiene	<	10	10	ug/L	H*	11/27/2001	SW846 8270C
Hexachloroethane	<	10	10	ug/L	H*	11/27/2001	SW846 8270C
Hexachlorophene	<	510	510	ug/L	H	11/27/2001	SW846 8270C
Hexachloropropene	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isodrin	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isophorone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isosafrole	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Kepone	<	51	51	ug/L	H	11/27/2001	SW846 8270C
Methapyrilene	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Methyl methacrylate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Methyl methanesulfonate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodiethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodimethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodiphenylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosomethylethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosomorpholine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosopiperidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosopyrrolidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Naphthalene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Nitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
o-Toluidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
p-Phenylenediamine	<	1000	1000	ug/L	H	11/27/2001	SW846 8270C
Parathion	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Parathion, Methyl	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachloroethane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachloronitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachlorophenol	<	25	25	ug/L	HN	11/27/2001	SW846 8270C
Phenacetin	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Phenanthrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10RE
Lab Sample Number : 913975-009
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Phenol	<	10	10	ug/L	HN	11/27/2001	SW846 8270C
Phorate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pronamide	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pyridine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Safrole	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Sulfotep	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Thionazin	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST

Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,2,4-Trichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,2-Dichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,3,5-Trinitrobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,3-Dichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,3-Dinitrobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,4-Dichlorobenzene	< 400	400	ug/kg		10/23/01	SW846 8270C
1,4-Dioxane	< 400	400	ug/kg		10/23/01	SW846 8270C
1,4-Naphthoquinone	< 400	400	ug/kg		10/23/01	SW846 8270C
1-Naphthylamine	< 400	400	ug/kg		10/23/01	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 400	400	ug/kg		10/23/01	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4,5-Trichlorophenol	< 1000	1000	ug/kg		10/23/01	SW846 8270C
2,4,6-Trichlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4-Dichlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4-Dimethylphenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrophenol	< 1000	1000	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrotoluene	< 400	400	ug/kg		10/23/01	SW846 8270C
2,6-Dichlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2,6-Dinitrotoluene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Acetylaminofluorene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Chloronaphthalene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Chlorophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Methylnaphthalene	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Methylphenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Naphthylamine	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Nitroaniline	< 1000	1000	ug/kg		10/23/01	SW846 8270C
2-Nitrophenol	< 400	400	ug/kg		10/23/01	SW846 8270C
2-Picoline	< 400	400	ug/kg		10/23/01	SW846 8270C
3,3-Dichlorobenzidine	< 400	400	ug/kg		10/23/01	SW846 8270C
3,3-Dimethylbenzidine	< 400	400	ug/kg		10/23/01	SW846 8270C
3-Methylcholanthrene	< 400	400	ug/kg		10/23/01	SW846 8270C
3-Methylphenol	< 400	400	ug/kg		10/23/01	SW846 8270C
3-Nitroaniline	< 1000	1000	ug/kg		10/23/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 1000	1000	ug/kg		10/23/01	SW846 8270C
Aminobiphenyl	< 400	400	ug/kg		10/23/01	SW846 8270C
4-Bromophenyl phenyl ether	< 400	400	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Chloroaniline	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Methylphenol	<	400	400	ug/kg		10/23/01	SW846 8270C
4-Nitroaniline	<	1000	1000	ug/kg		10/23/01	SW846 8270C
4-Nitrophenol	<	1000	1000	ug/kg		10/23/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	400	400	ug/kg		10/23/01	SW846 8270C
5-Nitro-o-toluidine	<	400	400	ug/kg		10/23/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
a,a-Dimethylphenethylamine	<	800	800	ug/kg		10/23/01	SW846 8270C
Acenaphthene	<	400	400	ug/kg		10/23/01	SW846 8270C
Acenaphthylene	<	400	400	ug/kg		10/23/01	SW846 8270C
Acetophenone	<	400	400	ug/kg		10/23/01	SW846 8270C
Aniline	<	400	400	ug/kg		10/23/01	SW846 8270C
Anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
Aramite	<	800	800	ug/kg		10/23/01	SW846 8270C
Benzaldehyde	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(a)anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(a)pyrene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(b)fluoranthene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzo(g,h,i)perylene	<	400	400	ug/kg	&	10/23/01	SW846 8270C
Benzo(k)fluoranthene	<	400	400	ug/kg		10/23/01	SW846 8270C
Benzyl alcohol	<	400	400	ug/kg		10/23/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	400	400	ug/kg		10/23/01	SW846 8270C
bis(2-Chloroethyl)ether	<	400	400	ug/kg		10/23/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Butylbenzylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Chlorobenzilate	<	400	400	ug/kg		10/23/01	SW846 8270C
Chrysene	<	400	400	ug/kg		10/23/01	SW846 8270C
Di-n-butylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Di-n-octylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Diallate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dibenzo(a,h)anthracene	<	400	400	ug/kg		10/23/01	SW846 8270C
Dibenzofuran	<	400	400	ug/kg		10/23/01	SW846 8270C
Diethylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dimethoate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dimethylphthalate	<	400	400	ug/kg		10/23/01	SW846 8270C
Dinoseb	<	400	400	ug/kg		10/23/01	SW846 8270C
Diphenylamine	<	400	400	ug/kg		10/23/01	SW846 8270C
Disulfoton	<	400	400	ug/kg		10/23/01	SW846 8270C
Ethyl methacrylate	<	400	400	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	400	400	ug/kg	10/23/01	SW846 8270C
Famphur	<	400	400	ug/kg	10/23/01	SW846 8270C
Fluoranthene	<	400	400	ug/kg	10/23/01	SW846 8270C
Fluorene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorobutadiene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorocyclopentadiene	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachloroethane	<	400	400	ug/kg	10/23/01	SW846 8270C
Hexachlorophene	<	20000	20000	ug/kg	10/23/01	SW846 8270C
Hexachloropropene	<	800	800	ug/kg	10/23/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	400	400	ug/kg	10/23/01	SW846 8270C
Isodrin	<	400	400	ug/kg	10/23/01	SW846 8270C
Isophorone	<	400	400	ug/kg	10/23/01	SW846 8270C
Isosafrole	<	400	400	ug/kg	10/23/01	SW846 8270C
Kepone	<	2000	2000	ug/kg	10/23/01	SW846 8270C
Methapyrilene	<	800	800	ug/kg	10/23/01	SW846 8270C
Methyl methacrylate	<	400	400	ug/kg	10/23/01	SW846 8270C
Methyl methanesulfonate	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiethylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodimethylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiphenylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosomethylethylamine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosomorpholine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosopiperidine	<	400	400	ug/kg	10/23/01	SW846 8270C
N-Nitrosopyrrolidine	<	400	400	ug/kg	10/23/01	SW846 8270C
Naphthalene	<	400	400	ug/kg	10/23/01	SW846 8270C
Nitrobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	400	400	ug/kg	10/23/01	SW846 8270C
o-Toluidine	<	400	400	ug/kg	10/23/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
p-Phenylenediamine	<	40000	40000	ug/kg	10/23/01	SW846 8270C
Parathion	<	400	400	ug/kg	10/23/01	SW846 8270C
Parathion, Methyl	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachlorobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachloroethane	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachloronitrobenzene	<	400	400	ug/kg	10/23/01	SW846 8270C
Pentachlorophenol	<	1000	1000	ug/kg	10/23/01	SW846 8270C
Phenacetin	<	400	400	ug/kg	10/23/01	SW846 8270C
Phenanthrene	<	400	400	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	400	400	ug/kg	10/23/01	SW846 8270C
Phorate	<	400	400	ug/kg	10/23/01	SW846 8270C
Pronamide	<	400	400	ug/kg	10/23/01	SW846 8270C
Pyrene	<	400	400	ug/kg	10/23/01	SW846 8270C
Pyridine	<	400	400	ug/kg	10/23/01	SW846 8270C
Safrole	<	400	400	ug/kg	10/23/01	SW846 8270C
Sulfotep	<	400	400	ug/kg	10/23/01	SW846 8270C
Thionazin	<	400	400	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,2,4-Trichlorobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,2-Dichlorobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,3,5-Trinitrobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,3-Dichlorobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,3-Dinitrobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,4-Dichlorobenzene	<	420	420	ug/kg		10/23/01	SW846 8270C
1,4-Dioxane	<	420	420	ug/kg		10/23/01	SW846 8270C
1,4-Naphthoquinone	<	420	420	ug/kg		10/23/01	SW846 8270C
1-Naphthylamine	<	420	420	ug/kg		10/23/01	SW846 8270C
2,2'-oxybis(1-Chloropropane)	<	420	420	ug/kg		10/23/01	SW846 8270C
2,3,4,6-Tetrachlorophenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2,4,5-Trichlorophenol	<	1100	1100	ug/kg		10/23/01	SW846 8270C
2,4,6-Trichlorophenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2,4-Dichlorophenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2,4-Dimethylphenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrophenol	<	1100	1100	ug/kg		10/23/01	SW846 8270C
2,4-Dinitrotoluene	<	420	420	ug/kg		10/23/01	SW846 8270C
2,6-Dichlorophenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2,6-Dinitrotoluene	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Acetylaminofluorene	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Chloronaphthalene	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Chlorophenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Methylnaphthalene	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Methylphenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Naphthylamine	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Nitroaniline	<	1100	1100	ug/kg		10/23/01	SW846 8270C
2-Nitrophenol	<	420	420	ug/kg		10/23/01	SW846 8270C
2-Picoline	<	420	420	ug/kg		10/23/01	SW846 8270C
3,3-Dichlorobenzidine	<	420	420	ug/kg		10/23/01	SW846 8270C
3,3-Dimethylbenzidine	<	420	420	ug/kg		10/23/01	SW846 8270C
3-Methylcholanthrene	<	420	420	ug/kg		10/23/01	SW846 8270C
3-Methylphenol	<	420	420	ug/kg		10/23/01	SW846 8270C
3-Nitroaniline	<	1100	1100	ug/kg		10/23/01	SW846 8270C
4,6-Dinitro-2-methylphenol	<	1100	1100	ug/kg		10/23/01	SW846 8270C
Aminobiphenyl	<	420	420	ug/kg		10/23/01	SW846 8270C
4-Bromophenyl phenyl ether	<	420	420	ug/kg		10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	420	420	ug/kg			10/23/01	SW846 8270C
4-Chloroaniline	<	420	420	ug/kg			10/23/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	420	420	ug/kg			10/23/01	SW846 8270C
4-Methylphenol	<	420	420	ug/kg			10/23/01	SW846 8270C
4-Nitroaniline	<	1100	1100	ug/kg			10/23/01	SW846 8270C
4-Nitrophenol	<	1100	1100	ug/kg			10/23/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	420	420	ug/kg			10/23/01	SW846 8270C
5-Nitro-o-toluidine	<	420	420	ug/kg			10/23/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	420	420	ug/kg			10/23/01	SW846 8270C
a,a-Dimethylphenethylamine	<	840	840	ug/kg			10/23/01	SW846 8270C
Acenaphthene	<	420	420	ug/kg			10/23/01	SW846 8270C
Acenaphthylene	<	420	420	ug/kg			10/23/01	SW846 8270C
Acetophenone	<	420	420	ug/kg			10/23/01	SW846 8270C
Aniline	<	420	420	ug/kg			10/23/01	SW846 8270C
Anthracene	<	420	420	ug/kg			10/23/01	SW846 8270C
Aramite	<	840	840	ug/kg			10/23/01	SW846 8270C
Benzaldehyde	<	420	420	ug/kg			10/23/01	SW846 8270C
Benzo(a)anthracene		700	420	ug/kg			10/23/01	SW846 8270C
Benzo(a)pyrene		770	420	ug/kg			10/23/01	SW846 8270C
Benzo(b)fluoranthene		690	420	ug/kg			10/23/01	SW846 8270C
Benzo(g,h,i)perylene		440	420	ug/kg			10/23/01	SW846 8270C
Benzo(k)fluoranthene		790	420	ug/kg		&	10/23/01	SW846 8270C
Benzyl alcohol	<	420	420	ug/kg			10/23/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	420	420	ug/kg			10/23/01	SW846 8270C
bis(2-Chloroethyl)ether	<	420	420	ug/kg			10/23/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	420	420	ug/kg			10/23/01	SW846 8270C
Butylbenzylphthalate	<	420	420	ug/kg			10/23/01	SW846 8270C
Chlorobenzilate	<	420	420	ug/kg			10/23/01	SW846 8270C
Chrysene		900	420	ug/kg			10/23/01	SW846 8270C
Di-n-butylphthalate	<	420	420	ug/kg			10/23/01	SW846 8270C
Di-n-octylphthalate	<	420	420	ug/kg			10/23/01	SW846 8270C
Diallate	<	420	420	ug/kg			10/23/01	SW846 8270C
Dibenzo(a,h)anthracene	<	420	420	ug/kg			10/23/01	SW846 8270C
Dibenzofuran	<	420	420	ug/kg			10/23/01	SW846 8270C
Diethylphthalate	<	420	420	ug/kg			10/23/01	SW846 8270C
Dimethoate	<	420	420	ug/kg			10/23/01	SW846 8270C
Dimethylphthalate	<	420	420	ug/kg			10/23/01	SW846 8270C
Dinoseb	<	420	420	ug/kg			10/23/01	SW846 8270C
Diphenylamine	<	420	420	ug/kg			10/23/01	SW846 8270C
Disulfotón	<	420	420	ug/kg			10/23/01	SW846 8270C
:hyl methacrylate	<	420	420	ug/kg			10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	420	420	ug/kg	10/23/01	SW846 8270C
Famphur	<	420	420	ug/kg	10/23/01	SW846 8270C
Fluoranthene		1800	420	ug/kg	10/23/01	SW846 8270C
Fluorene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorobutadiene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorocyclopentadiene	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachloroethane	<	420	420	ug/kg	10/23/01	SW846 8270C
Hexachlorophene	<	21000	21000	ug/kg	10/23/01	SW846 8270C
Hexachloropropene	<	840	840	ug/kg	10/23/01	SW846 8270C
Indeno(1,2,3-cd)pyrene		650	420	ug/kg	10/23/01	SW846 8270C
Isodrin	<	420	420	ug/kg	10/23/01	SW846 8270C
Isophorone	<	420	420	ug/kg	10/23/01	SW846 8270C
Isosafrole	<	420	420	ug/kg	10/23/01	SW846 8270C
Kepone	<	2100	2100	ug/kg	10/23/01	SW846 8270C
Methapyrilene	<	840	840	ug/kg	10/23/01	SW846 8270C
Methyl methacrylate	<	420	420	ug/kg	10/23/01	SW846 8270C
Methyl methanesulfonate	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiethylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodimethylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosodiphenylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosomethylethylamine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosomorpholine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosopiperidine	<	420	420	ug/kg	10/23/01	SW846 8270C
N-Nitrosopyrrolidine	<	420	420	ug/kg	10/23/01	SW846 8270C
Naphthalene	<	420	420	ug/kg	10/23/01	SW846 8270C
Nitrobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	420	420	ug/kg	10/23/01	SW846 8270C
o-Toluidine	<	420	420	ug/kg	10/23/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
p-Phenylenediamine	<	42000	42000	ug/kg	10/23/01	SW846 8270C
Parathion	<	420	420	ug/kg	10/23/01	SW846 8270C
Parathion, Methyl	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachlorobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachloroethane	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachloronitrobenzene	<	420	420	ug/kg	10/23/01	SW846 8270C
Pentachlorophenol	<	1100	1100	ug/kg	10/23/01	SW846 8270C
Phenacetin	<	420	420	ug/kg	10/23/01	SW846 8270C
Phenanthrene		830	420	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	420	420	ug/kg	10/23/01	SW846 8270C
Phorate	<	420	420	ug/kg	10/23/01	SW846 8270C
Pronamide	<	420	420	ug/kg	10/23/01	SW846 8270C
Pyrene		1400	420	ug/kg	10/23/01	SW846 8270C
Pyridine	<	420	420	ug/kg	10/23/01	SW846 8270C
Safrole	<	420	420	ug/kg	10/23/01	SW846 8270C
Sulfotep	<	420	420	ug/kg	10/23/01	SW846 8270C
Thionazin	<	420	420	ug/kg	10/23/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,2,4-Trichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,2-Dichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,3,5-Trinitrobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,3-Dichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,3-Dinitrobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,4-Dichlorobenzene	< 390	390	ug/kg		10/22/01	SW846 8270C
1,4-Dioxane	< 390	390	ug/kg		10/22/01	SW846 8270C
1,4-Naphthoquinone	< 390	390	ug/kg		10/22/01	SW846 8270C
1-Naphthylamine	< 390	390	ug/kg		10/22/01	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 390	390	ug/kg		10/22/01	SW846 8270C
3,4,6-Tetrachlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4,5-Trichlorophenol	< 970	970	ug/kg		10/22/01	SW846 8270C
2,4,6-Trichlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4-Dichlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4-Dimethylphenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrophenol	< 970	970	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrotoluene	< 390	390	ug/kg		10/22/01	SW846 8270C
2,6-Dichlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2,6-Dinitrotoluene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Acetylaminofluorene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Chloronaphthalene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Chlorophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Methylnaphthalene	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Methylphenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Naphthylamine	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Nitroaniline	< 970	970	ug/kg		10/22/01	SW846 8270C
2-Nitrophenol	< 390	390	ug/kg		10/22/01	SW846 8270C
2-Picoline	< 390	390	ug/kg		10/22/01	SW846 8270C
3,3-Dichlorobenzidine	< 390	390	ug/kg		10/22/01	SW846 8270C
3,3-Dimethylbenzidine	< 390	390	ug/kg		10/22/01	SW846 8270C
3-Methylcholanthrene	< 390	390	ug/kg		10/22/01	SW846 8270C
3-Methylphenol	< 390	390	ug/kg		10/22/01	SW846 8270C
3-Nitroaniline	< 970	970	ug/kg		10/22/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 970	970	ug/kg		10/22/01	SW846 8270C
Aminobiphenyl	< 390	390	ug/kg		10/22/01	SW846 8270C
Bromophenyl phenyl ether	< 390	390	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Chloroaniline	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Methylphenol	<	390	390	ug/kg		10/22/01	SW846 8270C
4-Nitroaniline	<	970	970	ug/kg		10/22/01	SW846 8270C
4-Nitrophenol	<	970	970	ug/kg		10/22/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	390	390	ug/kg		10/22/01	SW846 8270C
5-Nitro-o-toluidine	<	390	390	ug/kg		10/22/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
a,a-Dimethylphenethylamine	<	780	780	ug/kg		10/22/01	SW846 8270C
Acenaphthene	<	390	390	ug/kg		10/22/01	SW846 8270C
Acenaphthylene	<	390	390	ug/kg		10/22/01	SW846 8270C
Acetophenone	<	390	390	ug/kg		10/22/01	SW846 8270C
Aniline	<	390	390	ug/kg		10/22/01	SW846 8270C
Anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
Aramite	<	780	780	ug/kg		10/22/01	SW846 8270C
Benzaldehyde	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(a)anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(a)pyrene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(b)fluoranthene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzo(g,h,i)perylene	<	390	390	ug/kg	&	10/22/01	SW846 8270C
Benzo(k)fluoranthene	<	390	390	ug/kg		10/22/01	SW846 8270C
Benzyl alcohol	<	390	390	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	390	390	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethyl)ether	<	390	390	ug/kg		10/22/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Butylbenzylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Chlorobenzilate	<	390	390	ug/kg		10/22/01	SW846 8270C
Chrysene	<	390	390	ug/kg		10/22/01	SW846 8270C
Di-n-butylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Di-n-octylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Diallate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dibenzo(a,h)anthracene	<	390	390	ug/kg		10/22/01	SW846 8270C
Dibenzofuran	<	390	390	ug/kg		10/22/01	SW846 8270C
Diethylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dimethoate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dimethylphthalate	<	390	390	ug/kg		10/22/01	SW846 8270C
Dinoseb	<	390	390	ug/kg		10/22/01	SW846 8270C
Diphenylamine	<	390	390	ug/kg		10/22/01	SW846 8270C
Disulfoton	<	390	390	ug/kg		10/22/01	SW846 8270C
Ethyl methacrylate	<	390	390	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	390	390	ug/kg	10/22/01	SW846 8270C
Famphur	<	390	390	ug/kg	10/22/01	SW846 8270C
Fluoranthene	<	390	390	ug/kg	10/22/01	SW846 8270C
Fluorene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorobutadiene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorocyclopentadiene	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachloroethane	<	390	390	ug/kg	10/22/01	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	10/22/01	SW846 8270C
Hexachloropropene	<	780	780	ug/kg	10/22/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	390	390	ug/kg	10/22/01	SW846 8270C
Isodrin	<	390	390	ug/kg	10/22/01	SW846 8270C
Isophorone	<	390	390	ug/kg	10/22/01	SW846 8270C
Isosafrole	<	390	390	ug/kg	10/22/01	SW846 8270C
Kepone	<	1900	1900	ug/kg	10/22/01	SW846 8270C
Methapyrilene	<	780	780	ug/kg	10/22/01	SW846 8270C
Methyl methacrylate	<	390	390	ug/kg	10/22/01	SW846 8270C
Methyl methanesulfonate	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiethylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodimethylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiphenylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosomethylethylamine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosomorpholine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosopiperidine	<	390	390	ug/kg	10/22/01	SW846 8270C
N-Nitrosopyrrolidine	<	390	390	ug/kg	10/22/01	SW846 8270C
Naphthalene	<	390	390	ug/kg	10/22/01	SW846 8270C
Nitrobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	390	390	ug/kg	10/22/01	SW846 8270C
o-Toluidine	<	390	390	ug/kg	10/22/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
p-Phenylenediamine	<	39000	39000	ug/kg	10/22/01	SW846 8270C
Parathion	<	390	390	ug/kg	10/22/01	SW846 8270C
Parathion, Methyl	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachlorobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachloroethane	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachloronitrobenzene	<	390	390	ug/kg	10/22/01	SW846 8270C
Pentachlorophenol	<	970	970	ug/kg	10/22/01	SW846 8270C
Phenacetin	<	390	390	ug/kg	10/22/01	SW846 8270C
Phenanthrene	<	390	390	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	390	390	ug/kg	10/22/01	SW846 8270C
Phorate	<	390	390	ug/kg	10/22/01	SW846 8270C
Pronamide	<	390	390	ug/kg	10/22/01	SW846 8270C
Pyrene	<	390	390	ug/kg	10/22/01	SW846 8270C
Pyridine	<	390	390	ug/kg	10/22/01	SW846 8270C
Safrole	<	390	390	ug/kg	10/22/01	SW846 8270C
Sulfotep	<	390	390	ug/kg	10/22/01	SW846 8270C
Thionazin	<	390	390	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3550 Prep Date: 10/16/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,2,4-Trichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,2-Dichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,3,5-Trinitrobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,3-Dichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,3-Dinitrobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,4-Dichlorobenzene	< 380	380	ug/kg		10/22/01	SW846 8270C
1,4-Dioxane	< 380	380	ug/kg		10/22/01	SW846 8270C
1,4-Naphthoquinone	< 380	380	ug/kg		10/22/01	SW846 8270C
1-Naphthylamine	< 380	380	ug/kg		10/22/01	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 380	380	ug/kg		10/22/01	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4,5-Trichlorophenol	< 960	960	ug/kg		10/22/01	SW846 8270C
2,4,6-Trichlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4-Dichlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4-Dimethylphenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrophenol	< 960	960	ug/kg		10/22/01	SW846 8270C
2,4-Dinitrotoluene	< 380	380	ug/kg		10/22/01	SW846 8270C
2,6-Dichlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2,6-Dinitrotoluene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Acetylaminofluorene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Chloronaphthalene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Chlorophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Methylnaphthalene	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Methylphenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Naphthylamine	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Nitroaniline	< 960	960	ug/kg		10/22/01	SW846 8270C
2-Nitrophenol	< 380	380	ug/kg		10/22/01	SW846 8270C
2-Picoline	< 380	380	ug/kg		10/22/01	SW846 8270C
3,3-Dichlorobenzidine	< 380	380	ug/kg		10/22/01	SW846 8270C
3,3-Dimethylbenzidine	< 380	380	ug/kg		10/22/01	SW846 8270C
3-Methylcholanthrene	< 380	380	ug/kg		10/22/01	SW846 8270C
3-Methylphenol	< 380	380	ug/kg		10/22/01	SW846 8270C
3-Nitroaniline	< 960	960	ug/kg		10/22/01	SW846 8270C
4,6-Dinitro-2-methylphenol	< 960	960	ug/kg		10/22/01	SW846 8270C
Aminobiphenyl	< 380	380	ug/kg		10/22/01	SW846 8270C
4-Bromophenyl phenyl ether	< 380	380	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Chloro-3-methylphenol	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Chloroaniline	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Chlorophenyl phenyl ether	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Methylphenol	<	380	380	ug/kg		10/22/01	SW846 8270C
4-Nitroaniline	<	960	960	ug/kg		10/22/01	SW846 8270C
4-Nitrophenol	<	960	960	ug/kg		10/22/01	SW846 8270C
4-Nitroquinoline-1-oxide	<	380	380	ug/kg		10/22/01	SW846 8270C
5-Nitro-o-toluidine	<	380	380	ug/kg		10/22/01	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
a,a-Dimethylphenethylamine	<	770	770	ug/kg		10/22/01	SW846 8270C
Acenaphthene	<	380	380	ug/kg		10/22/01	SW846 8270C
Acenaphthylene	<	380	380	ug/kg		10/22/01	SW846 8270C
Acetophenone	<	380	380	ug/kg		10/22/01	SW846 8270C
Aniline	<	380	380	ug/kg		10/22/01	SW846 8270C
Anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
Aramite	<	770	770	ug/kg		10/22/01	SW846 8270C
Benzaldehyde	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(a)anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(a)pyrene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(b)fluoranthene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzo(g,h,i)perylene	<	380	380	ug/kg	&	10/22/01	SW846 8270C
Benzo(k)fluoranthene	<	380	380	ug/kg		10/22/01	SW846 8270C
Benzyl alcohol	<	380	380	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethoxy)methane	<	380	380	ug/kg		10/22/01	SW846 8270C
bis(2-Chloroethyl)ether	<	380	380	ug/kg		10/22/01	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Butylbenzylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Chlorobenzilate	<	380	380	ug/kg		10/22/01	SW846 8270C
Chrysene	<	380	380	ug/kg		10/22/01	SW846 8270C
Di-n-butylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Di-n-octylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Diallate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dibenzo(a,h)anthracene	<	380	380	ug/kg		10/22/01	SW846 8270C
Dibenzofuran	<	380	380	ug/kg		10/22/01	SW846 8270C
Diethylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dimethoate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dimethylphthalate	<	380	380	ug/kg		10/22/01	SW846 8270C
Dinoseb	<	380	380	ug/kg		10/22/01	SW846 8270C
Diphenylamine	<	380	380	ug/kg		10/22/01	SW846 8270C
Disulfoton	<	380	380	ug/kg		10/22/01	SW846 8270C
Ethyl methacrylate	<	380	380	ug/kg		10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	380	380	ug/kg	10/22/01	SW846 8270C
Famphur	<	380	380	ug/kg	10/22/01	SW846 8270C
Fluoranthene	<	380	380	ug/kg	10/22/01	SW846 8270C
Fluorene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorobutadiene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorocyclopentadiene	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachloroethane	<	380	380	ug/kg	10/22/01	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	10/22/01	SW846 8270C
Hexachloropropene	<	770	770	ug/kg	10/22/01	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	380	380	ug/kg	10/22/01	SW846 8270C
Isodrin	<	380	380	ug/kg	10/22/01	SW846 8270C
Isophorone	<	380	380	ug/kg	10/22/01	SW846 8270C
Isosafrole	<	380	380	ug/kg	10/22/01	SW846 8270C
Kepone	<	1900	1900	ug/kg	10/22/01	SW846 8270C
Methapyrilene	<	770	770	ug/kg	10/22/01	SW846 8270C
Methyl methacrylate	<	380	380	ug/kg	10/22/01	SW846 8270C
Methyl methanesulfonate	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitroso-di-n-propylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodi-n-butylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiethylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodimethylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosodiphenylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosomethylethylamine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosomorpholine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosopiperidine	<	380	380	ug/kg	10/22/01	SW846 8270C
N-Nitrosopyrrolidine	<	380	380	ug/kg	10/22/01	SW846 8270C
Naphthalene	<	380	380	ug/kg	10/22/01	SW846 8270C
Nitrobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
o,o,o-Triethylphosphorothioate	<	380	380	ug/kg	10/22/01	SW846 8270C
o-Toluidine	<	380	380	ug/kg	10/22/01	SW846 8270C
p-(Dimethylamino)azobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
p-Phenylenediamine	<	38000	38000	ug/kg	10/22/01	SW846 8270C
Parathion	<	380	380	ug/kg	10/22/01	SW846 8270C
Parathion, Methyl	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachlorobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachloroethane	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachloronitrobenzene	<	380	380	ug/kg	10/22/01	SW846 8270C
Pentachlorophenol	<	960	960	ug/kg	10/22/01	SW846 8270C
Phenacetin	<	380	380	ug/kg	10/22/01	SW846 8270C
henanthrene	<	380	380	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 11/26/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	380	380	ug/kg	10/22/01	SW846 8270C
Phorate	<	380	380	ug/kg	10/22/01	SW846 8270C
Pronamide	<	380	380	ug/kg	10/22/01	SW846 8270C
Pyrene	<	380	380	ug/kg	10/22/01	SW846 8270C
Pyridine	<	380	380	ug/kg	10/22/01	SW846 8270C
Safrole	<	380	380	ug/kg	10/22/01	SW846 8270C
Sulfotep	<	380	380	ug/kg	10/22/01	SW846 8270C
Thionazin	<	380	380	ug/kg	10/22/01	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3550 Prep Date: 11/19/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,2-Dichlorobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,3-Dichlorobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,3-Dinitrobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,4-Dichlorobenzene	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,4-Dioxane	< 380	380	ug/kg		11/21/2001	SW846 8270C
1,4-Naphthoquinone	< 380	380	ug/kg		11/21/2001	SW846 8270C
1-Naphthylamine	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,4,5-Trichlorophenol	< 950	950	ug/kg		11/21/2001	SW846 8270C
2,4,6-Trichlorophenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,4-Dichlorophenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,4-Dimethylphenol	< 380	380	ug/kg	&	11/21/2001	SW846 8270C
2,4-Dinitrophenol	< 950	950	ug/kg		11/21/2001	SW846 8270C
2,4-Dinitrotoluene	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,6-Dichlorophenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2,6-Dinitrotoluene	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Acetylaminofluorene	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Chloronaphthalene	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Chlorophenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Methylnaphthalene	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Methylphenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Naphthylamine	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Nitroaniline	< 950	950	ug/kg		11/21/2001	SW846 8270C
2-Nitrophenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
2-Picoline	< 380	380	ug/kg		11/21/2001	SW846 8270C
3,3-Dichlorobenzidine	< 380	380	ug/kg		11/21/2001	SW846 8270C
3,3-Dimethylbenzidine	< 380	380	ug/kg		11/21/2001	SW846 8270C
3-Methylcholanthrene	< 380	380	ug/kg		11/21/2001	SW846 8270C
3-Methylphenol	< 380	380	ug/kg		11/21/2001	SW846 8270C
3-Nitroaniline	< 950	950	ug/kg		11/21/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 950	950	ug/kg		11/21/2001	SW846 8270C
4-Aminobiphenyl	< 380	380	ug/kg		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	380	380	ug/kg	11/21/2001	SW846 8270C
4-Chloro-3-methylphenol	<	380	380	ug/kg	11/21/2001	SW846 8270C
4-Chloroaniline	<	380	380	ug/kg	11/21/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	380	380	ug/kg	11/21/2001	SW846 8270C
4-Methylphenol	<	380	380	ug/kg	11/21/2001	SW846 8270C
4-Nitroaniline	<	950	950	ug/kg	11/21/2001	SW846 8270C
4-Nitrophenol	<	950	950	ug/kg	11/21/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	380	380	ug/kg	11/21/2001	SW846 8270C
5-Nitro-o-toluidine	<	380	380	ug/kg	11/21/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	380	380	ug/kg	11/21/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	760	760	ug/kg	11/21/2001	SW846 8270C
Acenaphthene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Acenaphthylene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Acetophenone	<	380	380	ug/kg	11/21/2001	SW846 8270C
Aniline	<	380	380	ug/kg	11/21/2001	SW846 8270C
Anthracene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Aramite	<	760	760	ug/kg	11/21/2001	SW846 8270C
Benzo(a)anthracene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Benzo(a)pyrene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Benzo(b)fluoranthene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Benzo(g,h,i)perylene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Benzo(k)fluoranthene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Benzyl alcohol	<	380	380	ug/kg	11/21/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	380	380	ug/kg	11/21/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	380	380	ug/kg	11/21/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Butylbenzylphthalate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Chlorobenzilate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Chrysene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Di-n-butylphthalate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Di-n-octylphthalate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Diallate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Dibenzofuran	<	380	380	ug/kg	11/21/2001	SW846 8270C
Diethylphthalate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Dimethoate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Dimethylphthalate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Dinoseb	<	380	380	ug/kg	11/21/2001	SW846 8270C
Diphenylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
Disulfoton	<	380	380	ug/kg	11/21/2001	SW846 8270C
Ethyl methacrylate	<	380	380	ug/kg	11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Famphur	<	380	380	ug/kg	11/21/2001	SW846 8270C
Fluoranthene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Fluorene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Hexachlorobenzene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Hexachlorobutadiene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Hexachlorocyclopentadiene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Hexachloroethane	<	380	380	ug/kg	11/21/2001	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	11/21/2001	SW846 8270C
Hexachloropropene	<	760	760	ug/kg	11/21/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Isodrin	<	380	380	ug/kg	11/21/2001	SW846 8270C
Isophorone	<	380	380	ug/kg	11/21/2001	SW846 8270C
Isosafrole	<	380	380	ug/kg	11/21/2001	SW846 8270C
Kepone	<	1900	1900	ug/kg	11/21/2001	SW846 8270C
Methapyrilene	<	760	760	ug/kg	11/21/2001	SW846 8270C
Methyl methacrylate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Methyl methanesulfonate	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosodiethylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosodimethylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosodiphenylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosomethylethylamine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosomorpholine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosopiperidine	<	380	380	ug/kg	11/21/2001	SW846 8270C
N-Nitrosopyrrolidine	<	380	380	ug/kg	11/21/2001	SW846 8270C
Naphthalene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Nitrobenzene	<	380	380	ug/kg	11/21/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	380	380	ug/kg	11/21/2001	SW846 8270C
o-Toluidine	<	380	380	ug/kg	11/21/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	380	380	ug/kg	11/21/2001	SW846 8270C
p-Phenylenediamine	<	38000	38000	ug/kg	11/21/2001	SW846 8270C
Parathion	<	380	380	ug/kg	11/21/2001	SW846 8270C
Parathion, Methyl	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pentachlorobenzene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pentachloroethane	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pentachloronitrobenzene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pentachlorophenol	<	950	950	ug/kg	11/21/2001	SW846 8270C
Phenacetin	<	380	380	ug/kg	11/21/2001	SW846 8270C
Phenanthrene	<	380	380	ug/kg	11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	380	380	ug/kg	11/21/2001	SW846 8270C
Phorate	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pronamide	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pyrene	<	380	380	ug/kg	11/21/2001	SW846 8270C
Pyridine	<	380	380	ug/kg	11/21/2001	SW846 8270C
Safrole	<	380	380	ug/kg	11/21/2001	SW846 8270C
Sulfotep	<	380	380	ug/kg	11/21/2001	SW846 8270C
Thionazin	<	380	380	ug/kg	11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3550 Prep Date: 11/19/2001

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,2,4-Trichlorobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,2-Dichlorobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,3,5-Trinitrobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,3-Dichlorobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,3-Dinitrobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,4-Dichlorobenzene	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,4-Dioxane	<	370	370	ug/kg		11/22/2001	SW846 8270C
1,4-Naphthoquinone	<	370	370	ug/kg		11/22/2001	SW846 8270C
1-Naphthylamine	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,4,5-Trichlorophenol	<	930	930	ug/kg		11/22/2001	SW846 8270C
2,4,6-Trichlorophenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,4-Dichlorophenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,4-Dimethylphenol	<	370	370	ug/kg	&	11/22/2001	SW846 8270C
2,4-Dinitrophenol	<	930	930	ug/kg		11/22/2001	SW846 8270C
2,4-Dinitrotoluene	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,6-Dichlorophenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2,6-Dinitrotoluene	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Acetylaminofluorene	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Chloronaphthalene	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Chlorophenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Methylnaphthalene	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Methylphenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Naphthylamine	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Nitroaniline	<	930	930	ug/kg		11/22/2001	SW846 8270C
2-Nitrophenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
2-Picoline	<	370	370	ug/kg		11/22/2001	SW846 8270C
3,3-Dichlorobenzidine	<	370	370	ug/kg		11/22/2001	SW846 8270C
3,3-Dimethylbenzidine	<	370	370	ug/kg		11/22/2001	SW846 8270C
3-Methylcholanthrene	<	370	370	ug/kg		11/22/2001	SW846 8270C
3-Methylphenol	<	370	370	ug/kg		11/22/2001	SW846 8270C
3-Nitroaniline	<	930	930	ug/kg		11/22/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	<	930	930	ug/kg		11/22/2001	SW846 8270C
4-Aminobiphenyl	<	370	370	ug/kg		11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	370	370	ug/kg	11/22/2001	SW846 8270C
4-Chloro-3-methylphenol	<	370	370	ug/kg	11/22/2001	SW846 8270C
4-Chloroaniline	<	370	370	ug/kg	11/22/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	370	370	ug/kg	11/22/2001	SW846 8270C
4-Methylphenol	<	370	370	ug/kg	11/22/2001	SW846 8270C
4-Nitroaniline	<	930	930	ug/kg	11/22/2001	SW846 8270C
4-Nitrophenol	<	930	930	ug/kg	11/22/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	370	370	ug/kg	11/22/2001	SW846 8270C
5-Nitro-o-toluidine	<	370	370	ug/kg	11/22/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	370	370	ug/kg	11/22/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	740	740	ug/kg	11/22/2001	SW846 8270C
Acenaphthene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Acenaphthylene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Acetophenone	<	370	370	ug/kg	11/22/2001	SW846 8270C
Aniline	<	370	370	ug/kg	11/22/2001	SW846 8270C
Anthracene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Aramite	<	740	740	ug/kg	11/22/2001	SW846 8270C
Benzo(a)anthracene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Benzo(a)pyrene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Benzo(b)fluoranthene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Benzo(g,h,i)perylene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Benzo(k)fluoranthene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Benzyl alcohol	<	370	370	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	370	370	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	370	370	ug/kg	11/22/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Butylbenzylphthalate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Chlorobenzilate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Chrysene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Di-n-butylphthalate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Di-n-octylphthalate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Diallate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Dibenzofuran	<	370	370	ug/kg	11/22/2001	SW846 8270C
Diethylphthalate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Dimethoate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Dimethylphthalate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Dinoseb	<	370	370	ug/kg	11/22/2001	SW846 8270C
Diphenylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
Disulfoton	<	370	370	ug/kg	11/22/2001	SW846 8270C
Ethyl methacrylate	<	370	370	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Famphur	<	370	370	ug/kg	11/22/2001	SW846 8270C
Fluoranthene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Fluorene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Hexachlorobenzene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Hexachlorobutadiene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Hexachlorocyclopentadiene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Hexachloroethane	<	370	370	ug/kg	11/22/2001	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	11/22/2001	SW846 8270C
Hexachloropropene	<	740	740	ug/kg	11/22/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Isodrin	<	370	370	ug/kg	11/22/2001	SW846 8270C
Isophorone	<	370	370	ug/kg	11/22/2001	SW846 8270C
Isosafrole	<	370	370	ug/kg	11/22/2001	SW846 8270C
Kepone	<	1900	1900	ug/kg	11/22/2001	SW846 8270C
Methapyrilene	<	740	740	ug/kg	11/22/2001	SW846 8270C
Methyl methacrylate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Methyl methanesulfonate	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiethylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodimethylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiphenylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomethylethylamine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomorpholine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopiperidine	<	370	370	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopyrrolidine	<	370	370	ug/kg	11/22/2001	SW846 8270C
Naphthalene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Nitrobenzene	<	370	370	ug/kg	11/22/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	370	370	ug/kg	11/22/2001	SW846 8270C
o-Toluidine	<	370	370	ug/kg	11/22/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	370	370	ug/kg	11/22/2001	SW846 8270C
p-Phenylenediamine	<	37000	37000	ug/kg	11/22/2001	SW846 8270C
Parathion	<	370	370	ug/kg	11/22/2001	SW846 8270C
Parathion, Methyl	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pentachlorobenzene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pentachloroethane	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pentachloronitrobenzene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pentachlorophenol	<	930	930	ug/kg	11/22/2001	SW846 8270C
Phenacetin	<	370	370	ug/kg	11/22/2001	SW846 8270C
Phenanthrene	<	370	370	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	370	370	ug/kg	11/22/2001	SW846 8270C
Phorate	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pronamide	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pyrene	<	370	370	ug/kg	11/22/2001	SW846 8270C
Pyridine	<	370	370	ug/kg	11/22/2001	SW846 8270C
Safrole	<	370	370	ug/kg	11/22/2001	SW846 8270C
Sulfotep	<	370	370	ug/kg	11/22/2001	SW846 8270C
Thionazin	<	370	370	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3550 Prep Date: 11/19/2001

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,2,4-Trichlorobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,2-Dichlorobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,3,5-Trinitrobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,3-Dichlorobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,3-Dinitrobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,4-Dichlorobenzene	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,4-Dioxane	<	400	400	ug/kg		11/22/2001	SW846 8270C
1,4-Naphthoquinone	<	400	400	ug/kg		11/22/2001	SW846 8270C
1-Naphthylamine	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,4,5-Trichlorophenol	<	990	990	ug/kg		11/22/2001	SW846 8270C
2,4,6-Trichlorophenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,4-Dichlorophenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,4-Dimethylphenol	<	400	400	ug/kg	&	11/22/2001	SW846 8270C
2,4-Dinitrophenol	<	990	990	ug/kg		11/22/2001	SW846 8270C
2,4-Dinitrotoluene	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,6-Dichlorophenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2,6-Dinitrotoluene	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Acetylaminofluorene	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Chloronaphthalene	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Chlorophenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Methylnaphthalene	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Methylphenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Naphthylamine	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Nitroaniline	<	990	990	ug/kg		11/22/2001	SW846 8270C
2-Nitrophenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
2-Picoline	<	400	400	ug/kg		11/22/2001	SW846 8270C
3,3-Dichlorobenzidine	<	400	400	ug/kg		11/22/2001	SW846 8270C
3,3-Dimethylbenzidine	<	400	400	ug/kg		11/22/2001	SW846 8270C
3-Methylcholanthrene	<	400	400	ug/kg		11/22/2001	SW846 8270C
3-Methylphenol	<	400	400	ug/kg		11/22/2001	SW846 8270C
3-Nitroaniline	<	990	990	ug/kg		11/22/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	<	990	990	ug/kg		11/22/2001	SW846 8270C
4-Aminobiphenyl	<	400	400	ug/kg		11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	400	400	ug/kg	11/22/2001	SW846 8270C
4-Chloro-3-methylphenol	<	400	400	ug/kg	11/22/2001	SW846 8270C
4-Chloroaniline	<	400	400	ug/kg	11/22/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	400	400	ug/kg	11/22/2001	SW846 8270C
4-Methylphenol	<	400	400	ug/kg	11/22/2001	SW846 8270C
4-Nitroaniline	<	990	990	ug/kg	11/22/2001	SW846 8270C
4-Nitrophenol	<	990	990	ug/kg	11/22/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	400	400	ug/kg	11/22/2001	SW846 8270C
5-Nitro-o-toluidine	<	400	400	ug/kg	11/22/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	400	400	ug/kg	11/22/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	790	790	ug/kg	11/22/2001	SW846 8270C
Acenaphthene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Acenaphthylene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Acetophenone	<	400	400	ug/kg	11/22/2001	SW846 8270C
Aniline	<	400	400	ug/kg	11/22/2001	SW846 8270C
Anthracene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Aramite	<	790	790	ug/kg	11/22/2001	SW846 8270C
Benzo(a)anthracene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Benzo(a)pyrene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Benzo(b)fluoranthene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Benzo(g,h,i)perylene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Benzo(k)fluoranthene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Benzyl alcohol	<	400	400	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	400	400	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	400	400	ug/kg	11/22/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Butylbenzylphthalate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Chlorobenzilate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Chrysene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Di-n-butylphthalate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Di-n-octylphthalate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Diallate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Dibenzofuran	<	400	400	ug/kg	11/22/2001	SW846 8270C
Diethylphthalate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Dimethoate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Dimethylphthalate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Dinoseb	<	400	400	ug/kg	11/22/2001	SW846 8270C
Diphenylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
Disulfoton	<	400	400	ug/kg	11/22/2001	SW846 8270C
Ethyl methacrylate	<	400	400	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Famphur	<	400	400	ug/kg	11/22/2001	SW846 8270C
Fluoranthene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Fluorene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Hexachlorobenzene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Hexachlorobutadiene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Hexachlorocyclopentadiene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Hexachloroethane	<	400	400	ug/kg	11/22/2001	SW846 8270C
Hexachlorophene	<	20000	20000	ug/kg	11/22/2001	SW846 8270C
Hexachloropropene	<	790	790	ug/kg	11/22/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Isodrin	<	400	400	ug/kg	11/22/2001	SW846 8270C
Isophorone	<	400	400	ug/kg	11/22/2001	SW846 8270C
Isosafrole	<	400	400	ug/kg	11/22/2001	SW846 8270C
Kepone	<	2000	2000	ug/kg	11/22/2001	SW846 8270C
Methapyrilene	<	790	790	ug/kg	11/22/2001	SW846 8270C
Methyl methacrylate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Methyl methanesulfonate	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiethylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodimethylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiphenylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomethylethylamine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomorpholine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopiperidine	<	400	400	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopyrrolidine	<	400	400	ug/kg	11/22/2001	SW846 8270C
Naphthalene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Nitrobenzene	<	400	400	ug/kg	11/22/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	400	400	ug/kg	11/22/2001	SW846 8270C
o-Toluidine	<	400	400	ug/kg	11/22/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	400	400	ug/kg	11/22/2001	SW846 8270C
p-Phenylenediamine	<	40000	40000	ug/kg	11/22/2001	SW846 8270C
Parathion	<	400	400	ug/kg	11/22/2001	SW846 8270C
Parathion, Methyl	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pentachlorobenzene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pentachloroethane	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pentachloronitrobenzene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pentachlorophenol	<	990	990	ug/kg	11/22/2001	SW846 8270C
Phenacetin	<	400	400	ug/kg	11/22/2001	SW846 8270C
Phenanthrene	<	400	400	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/8/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	400	400	ug/kg	11/22/2001	SW846 8270C
Phorate	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pronamide	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pyrene	<	400	400	ug/kg	11/22/2001	SW846 8270C
Pyridine	<	400	400	ug/kg	11/22/2001	SW846 8270C
Safrole	<	400	400	ug/kg	11/22/2001	SW846 8270C
Sulfotep	<	400	400	ug/kg	11/22/2001	SW846 8270C
Thionazin	<	400	400	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3550 Prep Date:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,2-Dichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,3-Dichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,3-Dinitrobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,4-Dichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,4-Dioxane	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,4-Naphthoquinone	< 380	380	ug/kg		11/22/2001	SW846 8270C
1-Naphthylamine	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,4,5-Trichlorophenol	< 940	940	ug/kg		11/22/2001	SW846 8270C
2,4,6-Trichlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,4-Dichlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,4-Dimethylphenol	< 380	380	ug/kg	&	11/22/2001	SW846 8270C
2,4-Dinitrophenol	< 940	940	ug/kg		11/22/2001	SW846 8270C
2,4-Dinitrotoluene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,6-Dichlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,6-Dinitrotoluene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Acetylaminofluorene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Chloronaphthalene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Chlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Methylnaphthalene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Methylphenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Naphthylamine	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Nitroaniline	< 940	940	ug/kg		11/22/2001	SW846 8270C
2-Nitrophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Picoline	< 380	380	ug/kg		11/22/2001	SW846 8270C
3,3-Dichlorobenzidine	< 380	380	ug/kg		11/22/2001	SW846 8270C
3,3-Dimethylbenzidine	< 380	380	ug/kg		11/22/2001	SW846 8270C
3-Methylcholanthrene	< 380	380	ug/kg		11/22/2001	SW846 8270C
3-Methylphenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
3-Nitroaniline	< 940	940	ug/kg		11/22/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 940	940	ug/kg		11/22/2001	SW846 8270C
4-Aminobiphenyl	< 380	380	ug/kg		11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Chloro-3-methylphenol	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Chloroaniline	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Methylphenol	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Nitroaniline	<	940	940	ug/kg	11/22/2001	SW846 8270C
4-Nitrophenol	<	940	940	ug/kg	11/22/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	380	380	ug/kg	11/22/2001	SW846 8270C
5-Nitro-o-toluidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	760	760	ug/kg	11/22/2001	SW846 8270C
Acenaphthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Acenaphthylene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Acetophenone	<	380	380	ug/kg	11/22/2001	SW846 8270C
Aniline	<	380	380	ug/kg	11/22/2001	SW846 8270C
Anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Aramite	<	760	760	ug/kg	11/22/2001	SW846 8270C
Benzo(a)anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(a)pyrene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(b)fluoranthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(g,h,i)perylene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(k)fluoranthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzyl alcohol	<	380	380	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	380	380	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	380	380	ug/kg	11/22/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Butylbenzylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Chlorobenzilate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Chrysene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Di-n-butylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Di-n-octylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Diallate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dibenzofuran	<	380	380	ug/kg	11/22/2001	SW846 8270C
Diethylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dimethoate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dimethylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dinoseb	<	380	380	ug/kg	11/22/2001	SW846 8270C
Diphenylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
Disulfoton	<	380	380	ug/kg	11/22/2001	SW846 8270C
Ethyl methacrylate	<	380	380	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Chloro-3-methylphenol	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Chloroaniline	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Methylphenol	<	380	380	ug/kg	11/22/2001	SW846 8270C
4-Nitroaniline	<	960	960	ug/kg	11/22/2001	SW846 8270C
4-Nitrophenol	<	960	960	ug/kg	11/22/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	380	380	ug/kg	11/22/2001	SW846 8270C
5-Nitro-o-toluidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	770	770	ug/kg	11/22/2001	SW846 8270C
Acenaphthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Acenaphthylene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Acetophenone	<	380	380	ug/kg	11/22/2001	SW846 8270C
Aniline	<	380	380	ug/kg	11/22/2001	SW846 8270C
Anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Aramite	<	770	770	ug/kg	11/22/2001	SW846 8270C
Benzo(a)anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(a)pyrene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(b)fluoranthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(g,h,i)perylene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzo(k)fluoranthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Benzyl alcohol	<	380	380	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	380	380	ug/kg	11/22/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	380	380	ug/kg	11/22/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Butylbenzylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Chlorobenzilate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Chrysene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Di-n-butylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Di-n-octylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Diallate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dibenzofuran	<	380	380	ug/kg	11/22/2001	SW846 8270C
Diethylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dimethoate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dimethylphthalate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Dinoseb	<	380	380	ug/kg	11/22/2001	SW846 8270C
Diphenylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
Disulfoton	<	380	380	ug/kg	11/22/2001	SW846 8270C
Ethyl methacrylate	<	380	380	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Famphur	<	380	380	ug/kg	11/22/2001	SW846 8270C
Fluoranthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Fluorene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorobutadiene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorocyclopentadiene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachloroethane	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	11/22/2001	SW846 8270C
Hexachloropropene	<	770	770	ug/kg	11/22/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Isodrin	<	380	380	ug/kg	11/22/2001	SW846 8270C
Isophorone	<	380	380	ug/kg	11/22/2001	SW846 8270C
Isosafrole	<	380	380	ug/kg	11/22/2001	SW846 8270C
Kepone	<	1900	1900	ug/kg	11/22/2001	SW846 8270C
Methapyrilene	<	770	770	ug/kg	11/22/2001	SW846 8270C
Methyl methacrylate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Methyl methanesulfonate	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiethylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodimethylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiphenylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomethylethylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomorpholine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopiperidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopyrrolidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
Naphthalene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Nitrobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	380	380	ug/kg	11/22/2001	SW846 8270C
o-Toluidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
p-Phenylenediamine	<	38000	38000	ug/kg	11/22/2001	SW846 8270C
Parathion	<	380	380	ug/kg	11/22/2001	SW846 8270C
Parathion, Methyl	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachlorobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachloroethane	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachloronitrobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachlorophenol	<	960	960	ug/kg	11/22/2001	SW846 8270C
Phenacetin	<	380	380	ug/kg	11/22/2001	SW846 8270C
Phenanthrene	<	380	380	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	380	380	ug/kg	11/22/2001	SW846 8270C
Phorate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pronamide	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pyrene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pyridine	<	380	380	ug/kg	11/22/2001	SW846 8270C
Safrole	<	380	380	ug/kg	11/22/2001	SW846 8270C
Sulfotep	<	380	380	ug/kg	11/22/2001	SW846 8270C
Thionazin	<	380	380	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Phenol	<	380	380	ug/kg	11/22/2001	SW846 8270C
Phorate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pronamide	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pyrene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pyridine	<	380	380	ug/kg	11/22/2001	SW846 8270C
Safrole	<	380	380	ug/kg	11/22/2001	SW846 8270C
Sulfotep	<	380	380	ug/kg	11/22/2001	SW846 8270C
Thionazin	<	380	380	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3550 Prep Date: 11/19/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,2-Dichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,3-Dichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,3-Dinitrobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,4-Dichlorobenzene	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,4-Dioxane	< 380	380	ug/kg		11/22/2001	SW846 8270C
1,4-Naphthoquinone	< 380	380	ug/kg		11/22/2001	SW846 8270C
1-Naphthylamine	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,4,5-Trichlorophenol	< 960	960	ug/kg		11/22/2001	SW846 8270C
2,4,6-Trichlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,4-Dichlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,4-Dimethylphenol	< 380	380	ug/kg	&N	11/22/2001	SW846 8270C
2,4-Dinitrophenol	< 960	960	ug/kg		11/22/2001	SW846 8270C
2,4-Dinitrotoluene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,6-Dichlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2,6-Dinitrotoluene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Acetylaminofluorene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Chloronaphthalene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Chlorophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Methylnaphthalene	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Methylphenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Naphthylamine	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Nitroaniline	< 960	960	ug/kg		11/22/2001	SW846 8270C
2-Nitrophenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
2-Picoline	< 380	380	ug/kg		11/22/2001	SW846 8270C
3,3-Dichlorobenzidine	< 380	380	ug/kg		11/22/2001	SW846 8270C
3,3-Dimethylbenzidine	< 380	380	ug/kg		11/22/2001	SW846 8270C
3-Methylcholanthrene	< 380	380	ug/kg		11/22/2001	SW846 8270C
3-Methylphenol	< 380	380	ug/kg		11/22/2001	SW846 8270C
3-Nitroaniline	< 960	960	ug/kg		11/22/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 960	960	ug/kg		11/22/2001	SW846 8270C
4-Aminobiphenyl	< 380	380	ug/kg		11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date : 11/10/2001
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Famphur	<	380	380	ug/kg	11/22/2001	SW846 8270C
Fluoranthene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Fluorene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorobutadiene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorocyclopentadiene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachloroethane	<	380	380	ug/kg	11/22/2001	SW846 8270C
Hexachlorophene	<	19000	19000	ug/kg	11/22/2001	SW846 8270C
Hexachloropropene	<	760	760	ug/kg	11/22/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Isodrin	<	380	380	ug/kg	11/22/2001	SW846 8270C
Isophorone	<	380	380	ug/kg	11/22/2001	SW846 8270C
Isosafrole	<	380	380	ug/kg	11/22/2001	SW846 8270C
Kepone	<	1900	1900	ug/kg	11/22/2001	SW846 8270C
Methapyrilene	<	760	760	ug/kg	11/22/2001	SW846 8270C
Methyl methacrylate	<	380	380	ug/kg	11/22/2001	SW846 8270C
Methyl methanesulfonate	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiethylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodimethylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosodiphenylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomethylethylamine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosomorpholine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopiperidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
N-Nitrosopyrrolidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
Naphthalene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Nitrobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	380	380	ug/kg	11/22/2001	SW846 8270C
o-Toluidine	<	380	380	ug/kg	11/22/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
p-Phenylenediamine	<	38000	38000	ug/kg	11/22/2001	SW846 8270C
Parathion	<	380	380	ug/kg	11/22/2001	SW846 8270C
Parathion, Methyl	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachlorobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachloroethane	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachloronitrobenzene	<	380	380	ug/kg	11/22/2001	SW846 8270C
Pentachlorophenol	<	940	940	ug/kg	11/22/2001	SW846 8270C
Phenacetin	<	380	380	ug/kg	11/22/2001	SW846 8270C
Phenanthrene	<	380	380	ug/kg	11/22/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 11/14/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,2-Dichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,3-Dichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,3-Dinitrobenzene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,4-Dichlorobenzene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
1,4-Dioxane	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1,4-Naphthoquinone	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
1-Naphthylamine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4,5-Trichlorophenol	< 25	25	ug/L		11/21/2001	SW846 8270C
2,4,6-Trichlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4-Dichlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4-Dimethylphenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,4-Dinitrophenol	< 25	25	ug/L		11/21/2001	SW846 8270C
2,4-Dinitrotoluene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,6-Dichlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2,6-Dinitrotoluene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Acetylaminofluorene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Chloronaphthalene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
2-Chlorophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Methylnaphthalene	< 9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
2-Methylphenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Naphthylamine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Nitroaniline	< 25	25	ug/L		11/21/2001	SW846 8270C
2-Nitrophenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
2-Picoline	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3,3-Dichlorobenzidine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3,3-Dimethylbenzidine	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3-Methylcholanthrene	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3-Methylphenol	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C
3-Nitroaniline	< 25	25	ug/L		11/21/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 25	25	ug/L		11/21/2001	SW846 8270C
4-Aminobiphenyl	< 9.9	9.9	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Chloro-3-methylphenol	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Chloroaniline	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Methylphenol	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
4-Nitroaniline	<	25	25	ug/L		11/21/2001	SW846 8270C
4-Nitrophenol	<	25	25	ug/L		11/21/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
5-Nitro-o-toluidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	20	20	ug/L		11/21/2001	SW846 8270C
Acenaphthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Acenaphthylene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Acetophenone	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Aniline	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Aramite	<	20	20	ug/L		11/21/2001	SW846 8270C
Benzo(a)anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(a)pyrene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(b)fluoranthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(g,h,i)perylene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzo(k)fluoranthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Benzyl alcohol	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Butylbenzylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Chlorobenzilate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Chrysene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Di-n-butylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Di-n-octylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dialate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dibenzofuran	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Diethylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dimethoate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dimethylphthalate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Dinoseb	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Diphenylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Disulfoton	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Ethyl methacrylate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Famphur	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Fluoranthene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Fluorene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Hexachlorobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Hexachlorobutadiene	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
Hexachlorocyclopentadiene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Hexachloroethane	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
Hexachlorophene	<	500	500	ug/L		11/21/2001	SW846 8270C
Hexachloropropene	<	20	20	ug/L		11/21/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Isodrin	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Isophorone	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Isosafrole	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Kepone	<	50	50	ug/L		11/21/2001	SW846 8270C
Methapyrilene	<	20	20	ug/L		11/21/2001	SW846 8270C
Methyl methacrylate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Methyl methanesulfonate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodiethylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodimethylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosodiphenylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosomethylethylamine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosomorpholine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosopiperidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
N-Nitrosopyrrolidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Naphthalene	<	9.9	9.9	ug/L	&	11/21/2001	SW846 8270C
Nitrobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
o-Toluidine	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
p-Phenylenediamine	<	990	990	ug/L		11/21/2001	SW846 8270C
Parathion	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Parathion, Methyl	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachlorobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachloroethane	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachloronitrobenzene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Pentachlorophenol	<	25	25	ug/L		11/21/2001	SW846 8270C
Phenacetin	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C
Phenanthrene	<	9.9	9.9	ug/L		11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10
Lab Sample Number : 913968-001
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Phenol	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Phorate	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Pronamide	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Pyrene	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Pyridine	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Safrole	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Sulfotep	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C
Thionazin	<	9.9	9.9	ug/L	11/21/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10RE
Lab Sample Number : 913968-003
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

APPENDIX 9 LIST - SEMIVOLATILES Prep Method: SW846 3510 Prep Date: 11/26/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,2,4-Trichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,2-Dichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,3,5-Trinitrobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,3-Dichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,3-Dinitrobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Dichlorobenzene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Dioxane	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1,4-Naphthoquinone	< 10	10	ug/L	H	11/27/2001	SW846 8270C
1-Naphthylamine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,2'-oxybis(1-Chloropropane)	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,3,4,6-Tetrachlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4,5-Trichlorophenol	< 25	25	ug/L	H	11/27/2001	SW846 8270C
2,4,6-Trichlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dichlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dimethylphenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,4-Dinitrophenol	< 25	25	ug/L	H	11/27/2001	SW846 8270C
2,4-Dinitrotoluene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,6-Dichlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2,6-Dinitrotoluene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Acetylaminofluorene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Chloronaphthalene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Chlorophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Methylnaphthalene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Methylphenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Naphthylamine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Nitroaniline	< 25	25	ug/L	H	11/27/2001	SW846 8270C
2-Nitrophenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
2-Picoline	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3,3-Dichlorobenzidine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3,3-Dimethylbenzidine	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3-Methylcholanthrene	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3-Methylphenol	< 10	10	ug/L	H	11/27/2001	SW846 8270C
3-Nitroaniline	< 25	25	ug/L	H	11/27/2001	SW846 8270C
4,6-Dinitro-2-methylphenol	< 25	25	ug/L	H	11/27/2001	SW846 8270C
4-Aminobiphenyl	< 10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10RE
Lab Sample Number : 913968-003
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Chloro-3-methylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Chloroaniline	<	10	10	ug/L	H&	11/27/2001	SW846 8270C
4-Chlorophenyl phenyl ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Methylphenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
4-Nitroaniline	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Nitrophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
4-Nitroquinoline-1-oxide	<	10	10	ug/L	H	11/27/2001	SW846 8270C
5-Nitro-o-toluidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
7,12-Dimethylbenz(a)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
a,a-Dimethylphenethylamine	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Acenaphthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Acenaphthylene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Acetophenone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Aniline	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Aramite	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Benzo(a)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(a)pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(b)fluoranthene	<	10	10	ug/L	H&	11/27/2001	SW846 8270C
Benzo(g,h,i)perylene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzo(k)fluoranthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Benzyl alcohol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Chloroethoxy)methane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Chloroethyl)ether	<	10	10	ug/L	H	11/27/2001	SW846 8270C
bis(2-Ethylhexyl)phthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Butylbenzylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Chlorobenzilate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Chrysene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Di-n-butylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Di-n-octylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diallate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dibenzo(a,h)anthracene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dibenzofuran	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diethylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dimethoate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dimethylphthalate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Dinoseb	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Diphenylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Disulfoton	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Ethyl methacrylate	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10RE
Lab Sample Number : 913968-003
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Famphur	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Fluoranthene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Fluorene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorobutadiene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorocyclopentadiene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachloroethane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Hexachlorophene	<	500	500	ug/L	H	11/27/2001	SW846 8270C
Hexachloropropene	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Indeno(1,2,3-cd)pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isodrin	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isophorone	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Isosafrole	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Kepone	<	50	50	ug/L	H	11/27/2001	SW846 8270C
Methapyrilene	<	20	20	ug/L	H	11/27/2001	SW846 8270C
Methyl methacrylate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Methyl methanesulfonate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitroso-di-n-propylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodi-n-butylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodiethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodimethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosodiphenylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosomethylethylamine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosomorpholine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosopiperidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
N-Nitrosopyrrolidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Naphthalene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Nitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
o,o,o-Triethylphosphorothioate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
o-Toluidine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
p-(Dimethylamino)azobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
p-Phenylenediamine	<	1000	1000	ug/L	H	11/27/2001	SW846 8270C
Parathion	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Parathion, Methyl	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachlorobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachloroethane	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachloronitrobenzene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pentachlorophenol	<	25	25	ug/L	H	11/27/2001	SW846 8270C
Phenacetin	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Phenanthrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MOR
Project Number : R05705
Field ID : UAW14-10RE
Lab Sample Number : 913968-003
Lab Project Number : 913968

Submitter : TECHLAW INC
Report Date : 12/4/2001
Collection Date :
Matrix Type : WATER
WI DNR LAB ID : 113172950

Phenol	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Phorate	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pronamide	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pyrene	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Pyridine	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Safrole	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Sulfotep	<	10	10	ug/L	H	11/27/2001	SW846 8270C
Thionazin	<	10	10	ug/L	H	11/27/2001	SW846 8270C

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

SPECIAL VOLATILE LIST - SOIL Prep Method: SW846 5035 10/22/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1,1-Trichloroethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1,2-Trichloroethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethene	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2,3-Trichloropropane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2-Dibromoethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2-Dichloroethane	< 5.0	5.0	ug/kg	&	10/22/01	SW846 8260B
1,2-Dichloropropane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
2-Butanone	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
2-Hexanone	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
4-Methyl-2-pentanone	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
Acetone	< 10.0	10.0	ug/kg	&	10/22/01	SW846 8260B
Acrolein	< 20	20	ug/kg		10/22/01	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Benzene	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Bromodichloromethane	< 5.0	5.0	ug/kg	&	10/22/01	SW846 8260B
Bromoform	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Bromomethane	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
Carbon disulfide	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Carbon tetrachloride	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chlorobenzene	9.3	5.0	ug/kg		10/22/01	SW846 8260B
Chlorodibromomethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chloroethane	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
Chloroform	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chloromethane	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
cis-1,3-Dichloropropene	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Dibromomethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Dichlorodifluoromethane	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Ethylbenzene	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Fluorotrichloromethane	< 10.0	10.0	ug/kg		10/22/01	SW846 8260B
Iodomethane	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B
Methylene chloride	< 5.0	5.0	ug/kg		10/22/01	SW846 8260B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1-1
Lab Sample Number : 913561-008
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Styrene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Tetrachloroethene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Toluene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Trichloroethene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Vinyl chloride	<	10.0	10.0	ug/kg	10/22/01	SW846 8260B
Xylene, total	<	15	15	ug/kg	10/22/01	SW846 8260B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SED-1-1

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) SOIL Lab Sample ID: 913561-008

Sample wt/vol: 6.0 (g/mL) G Lab File ID: C5012

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. 16.7 Date Analyzed: 10/22/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

SPECIAL VOLATILE LIST - SOIL Prep Method: SW846 5035 10/22/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,1,1-Trichloroethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,1,2-Trichloroethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethene	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,2,3-Trichloropropane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,2-Dibromoethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
1,2-Dichloroethane	< 6.0	6.0	ug/kg	&	10/22/01	SW846 8260B
1,2-Dichloropropane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
2-Butanone	< 12	12	ug/kg		10/22/01	SW846 8260B
2-Hexanone	< 12	12	ug/kg		10/22/01	SW846 8260B
4-Methyl-2-pentanone	< 12	12	ug/kg		10/22/01	SW846 8260B
Acetone	< 12	12	ug/kg	&	10/22/01	SW846 8260B
Acrolein	< 24	24	ug/kg		10/22/01	SW846 8260B
Acrylonitrile	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Allyl Chloride	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Benzene	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Bromodichloromethane	< 6.0	6.0	ug/kg	&	10/22/01	SW846 8260B
Bromoform	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Bromomethane	< 12	12	ug/kg		10/22/01	SW846 8260B
Carbon disulfide	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Carbon tetrachloride	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Chlorobenzene	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Chlorodibromomethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Chloroethane	< 12	12	ug/kg		10/22/01	SW846 8260B
Chloroform	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Chloromethane	< 12	12	ug/kg		10/22/01	SW846 8260B
cis-1,3-Dichloropropene	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Dibromomethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Dichlorodifluoromethane	< 12	12	ug/kg		10/22/01	SW846 8260B
Ethyl methacrylate	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Ethylbenzene	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Fluorotrichloromethane	< 12	12	ug/kg		10/22/01	SW846 8260B
Iodomethane	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B
Methylene chloride	< 6.0	6.0	ug/kg		10/22/01	SW846 8260B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-3
Lab Sample Number : 913561-009
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Styrene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
Tetrachloroethene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
Toluene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
trans-1,2-Dichloroethene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
trans-1,3-Dichloropropene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
Trichloroethene	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
Vinyl acetate	<	6.0	6.0	ug/kg	10/22/01	SW846 8260B
Vinyl chloride	<	12	12	ug/kg	10/22/01	SW846 8260B
Xylene, total	<	18	18	ug/kg	10/22/01	SW846 8260B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SED-3

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) SOIL Lab Sample ID: 913561-009

Sample wt/vol: 5.3 (g/mL) G Lab File ID: C5013

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. 21.2 Date Analyzed: 10/22/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SEEP-1

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3985

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/25/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	DICHLORODIFLUOROMETHANE	2.0	U
74-87-3	CHLOROMETHANE	2.0	U
75-01-4	VINYL CHLORIDE	2.0	U
74-83-9	BROMOMETHANE	2.0	U
75-00-3	CHLOROETHANE	2.0	U
75-69-4	TRICHLOROFLUOROMETHANE	2.0	U
107-02-8	ACROLEIN	20	U
75-35-4	1 1-DICHLOROETHENE	1.0	U
67-64-1	ACETONE	5.0	U
74-88-4	IODOMETHANE	5.0	U
75-15-0	CARBON DISULFIDE	0.48	J
107-05-1	ALLYL CHLORIDE	1.0	U
75-09-2	METHYLENE CHLORIDE	1.0	U
156-60-5	TRANS-1 2-DICHLOROETHENE	1.0	U
107-13-1	ACRYLONITRILE	5.0	U
75-34-3	1 1-DICHLOROETHANE	0.93	J
108-05-4	VINYL ACETATE	1.0	U
78-93-3	2-BUTANONE	5.0	U
67-66-3	CHLOROFORM	1.0	U
71-55-6	1 1 1-TRICHLOROETHANE	1.0	U
56-23-5	CARBON TETRACHLORIDE	1.0	U
71-43-2	BENZENE	1.3	
107-06-2	1 2-DICHLOROETHANE	1.0	U
79-01-6	TRICHLOROETHENE	1.0	U
78-87-5	1 2-DICHLOROPROPANE	1.0	U
74-95-3	DIBROMOMETHANE	1.0	U
80-62-6	METHYL METHACRYLATE	5.0	U
75-27-4	BROMODICHLOROMETHANE	1.0	U
10061-01-5	CIS-1 3-DICHLOROPROPENE	1.0	U
108-10-1	4-METHYL-2-PENTANONE	5.0	U
108-88-3	TOLUENE	1.0	U
10061-02-6	TRANS-1 3-DICHLOROPROPENE	1.0	U
97-63-2	ETHYL METHACRYLATE	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SEEP-1

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3985

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/25/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(u

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
127-18-4	TETRACHLOROETHENE	1.0	U
79-00-5	1 1 2-TRICHLOROETHANE	1.0	U
591-78-6	2-HEXANONE	5.0	U
124-48-1	DIBROMOCHLOROMETHANE	1.0	U
106-93-4	1 2-DIBROMOETHANE	1.0	U
108-90-7	CHLOROBENZENE	9.0	&
100-41-4	ETHYL BENZENE	1.0	U
630-26-6	1 1 1 2-TETRACHLOROETHANE	1.0	U
1330-20-7	TOTAL XYLENES	1.7	J
100-42-5	STYRENE	1.0	U
75-25-2	BROMOFORM	1.0	U
79-34-5	1 1 2 2-TETRACHLOROETHANE	1.0	U
96-18-4	1 2 3-TRICHLOROPROPANE	1.0	U
110-57-6	TRANS-1 4-DICHLORO-2-BUTENE	5.0	U
96-12-8	1 2-DIBROMO-3-CHLOROPROPANE	2.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SEEP-1

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3985

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/25/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uI

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SEEP-5

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3986

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/25/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(u

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-83-9	DICHLORODIFLUOROMETHANE	2.0	U
74-87-3	CHLOROMETHANE	2.0	U
75-01-4	VINYL CHLORIDE	2.0	U
74-83-9	BROMOMETHANE	2.0	U
75-00-3	CHLOROETHANE	2.0	U
75-69-4	TRICHLOROFLUOROMETHANE	2.0	U
107-02-8	ACROLEIN	20	U
75-35-4	1 1-DICHLOROETHENE	1.0	U
67-64-1	ACETONE	5.0	U
74-88-4	IODOMETHANE	5.0	U
75-15-0	CARBON DISULFIDE	1.0	U
107-05-1	ALLYL CHLORIDE	1.0	U
75-09-2	METHYLENE CHLORIDE	1.0	U
156-60-5	TRANS-1 2-DICHLOROETHENE	1.0	U
107-13-1	ACRYLONITRILE	5.0	U
75-34-3	1 1-DICHLOROETHANE	0.72	J
108-05-4	VINYL ACETATE	1.0	U
78-93-3	2-BUTANONE	5.0	U
67-66-3	CHLOROFORM	1.0	U
71-55-6	1 1 1-TRICHLOROETHANE	1.0	U
56-23-5	CARBON TETRACHLORIDE	1.0	U
71-43-2	BENZENE	1.0	U
107-06-2	1 2-DICHLOROETHANE	1.0	U
79-01-6	TRICHLOROETHENE	1.0	U
78-87-5	1 2-DICHLOROPROPANE	1.0	U
74-95-3	DIBROMOMETHANE	1.0	U
80-62-6	METHYL METHACRYLATE	5.0	U
75-27-4	BROMODICHLOROMETHANE	1.0	U
10061-01-5	CIS-1 3-DICHLOROPROPENE	1.0	U
108-10-1	4-METHYL-2-PENTANONE	5.0	U
108-88-3	TOLUENE	0.54	J
10061-02-6	TRANS-1 3-DICHLOROPROPENE	1.0	U
97-63-2	ETHYL METHACRYLATE	5.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SEEP-5

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3986

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/25/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(ul

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
127-18-4	TETRACHLOROETHENE	1.0	U
79-00-5	1 1 2-TRICHLOROETHANE	1.0	U
591-78-6	2-HEXANONE	5.0	U
124-48-1	DIBROMOCHLOROMETHANE	1.0	U
106-93-4	1 2-DIBROMOETHANE	1.0	U
108-90-7	CHLOROBENZENE	29	&
100-41-4	ETHYL BENZENE	1.0	U
630-26-6	1 1 1 2-TETRACHLOROETHANE	1.0	U
1330-20-7	TOTAL XYLENES	2.0	U
100-42-5	STYRENE	1.0	U
75-25-2	BROMOFORM	1.0	U
79-34-5	1 1 2 2-TETRACHLOROETHANE	1.0	U
96-18-4	1 2 3-TRICHLOROPROPANE	1.0	U
110-57-6	TRANS-1 4-DICHLORO-2-BUTENE	5.0	U
96-12-8	1 2-DIBROMO-3-CHLOROPROPANE	2.0	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SEEP-5

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3986

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/25/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(u

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	4.08	5.9	J
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3.					
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FORM I VOA-TIC

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : TRIP BLANK
Lab Sample Number : 913561-001
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Volatile Organic Results

SPECIAL VOLATILE LIST - WATER Prep Method: SW846 5030 10/24/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L		10/24/01	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
Acetone	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
Acrolein	< 20	20	ug/L		10/24/01	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
Benzene	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L	&	10/24/01	SW846 8260B
Carbon disulfide	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L	&	10/24/01	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		10/24/01	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		10/24/01	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		10/24/01	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L		10/24/01	SW846 8260B
Fluorotrichloromethane	< 2.0	2.0	ug/L		10/24/01	SW846 8260B
Iodomethane	< 5.0	5.0	ug/L		10/24/01	SW846 8260B
Methylene chloride	< 1.0	1.0	ug/L		10/24/01	SW846 8260B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : TRIP BLANK
Lab Sample Number : 913561-001
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Styrene	<	1.0	1.0	ug/L			10/24/01	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L			10/24/01	SW846 8260B
Toluene	<	1.0	1.0	ug/L		&	10/24/01	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L			10/24/01	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L			10/24/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L			10/24/01	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L			10/24/01	SW846 8260B
Vinyl acetate	<	1.0	1.0	ug/L			10/24/01	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L			10/24/01	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L			10/24/01	SW846 8260B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TRIP BLANK

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) WATER Lab Sample ID: 913561-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: E3938

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. _____ Date Analyzed: 10/24/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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FORM I VOA-TIC

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

SPECIAL VOLATILE LIST - SOIL Prep Method: SW846 5035 10/22/01

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1,1-Trichloroethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1,2,2-Tetrachloroethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1,2-Trichloroethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethene	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2,3-Trichloropropane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2-Dibromo-3-chloropropane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2-Dibromoethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
1,2-Dichloroethane	<	5.0	5.0	ug/kg	&	10/22/01	SW846 8260B
1,2-Dichloropropane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
2-Butanone	<	10	10	ug/kg		10/22/01	SW846 8260B
2-Hexanone	<	10	10	ug/kg		10/22/01	SW846 8260B
4-Methyl-2-pentanone	<	10	10	ug/kg		10/22/01	SW846 8260B
Acetone	<	10	10	ug/kg	&	10/22/01	SW846 8260B
Acrolein	<	20	20	ug/kg		10/22/01	SW846 8260B
Acrylonitrile	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Allyl Chloride	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Benzene	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Bromodichloromethane	<	5.0	5.0	ug/kg	&	10/22/01	SW846 8260B
Bromoform	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Bromomethane	<	10	10	ug/kg		10/22/01	SW846 8260B
Carbon disulfide	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Carbon tetrachloride	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chlorobenzene	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chlorodibromomethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chloroethane	<	10	10	ug/kg		10/22/01	SW846 8260B
Chloroform	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Chloromethane	<	10	10	ug/kg		10/22/01	SW846 8260B
cis-1,3-Dichloropropene	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Dibromomethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Dichlorodifluoromethane	<	10	10	ug/kg		10/22/01	SW846 8260B
Ethyl methacrylate	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Ethylbenzene	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Fluorotrichloromethane	<	10	10	ug/kg		10/22/01	SW846 8260B
'odomethane	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B
Methylene chloride	<	5.0	5.0	ug/kg		10/22/01	SW846 8260B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-2
Lab Sample Number : 913561-002
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Styrene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Tetrachloroethene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Toluene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Trichloroethene	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/kg	10/22/01	SW846 8260B
Vinyl chloride	<	10	10	ug/kg	10/22/01	SW846 8260B
Xylene, total	<	15	15	ug/kg	10/22/01	SW846 8260B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SED-2

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) SOIL Lab Sample ID: 913561-002

Sample wt/vol: 5.8 (g/mL) G Lab File ID: C5008

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. 14.4 Date Analyzed: 10/22/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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FORM I VOA-TIC

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/08/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE SOILS Prep Method: SW846 5035 11/10/01

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,1-Trichloroethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,2-Trichloroethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2,3-Trichloropropane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dibromoethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dichloroethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dichloropropane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
2-Butanone	<	11	11	ug/kg		11/16/01	SW846 8260B
2-Hexanone	<	11	11	ug/kg		11/16/01	SW846 8260B
4-Methyl-2-pentanone	<	11	11	ug/kg		11/16/01	SW846 8260B
Acetone		34	11	ug/kg		11/16/01	SW846 8260B
Acetonitrile	<	22	22	ug/kg		11/16/01	SW846 8260B
Acrolein	<	22	22	ug/kg		11/16/01	SW846 8260B
Acrylonitrile	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Allyl Chloride	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Benzene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromodichloromethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromoform	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromomethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Carbon disulfide		12	5.6	ug/kg		11/16/01	SW846 8260B
Carbon tetrachloride	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chlorobenzene		190	5.6	ug/kg		11/16/01	SW846 8260B
Chlorodibromomethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chloroethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Chloroform	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chloromethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Chloroprene	<	22	22	ug/kg		11/16/01	SW846 8260B
cis-1,3-Dichloropropene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Dibromomethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Dichlorodifluoromethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Ethyl methacrylate	<	22	22	ug/kg		11/16/01	SW846 8260B
Ethylbenzene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T2-9
Lab Sample Number : 913967-004
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/08/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	11	11	ug/kg	11/16/01	SW846 8260B
Iodomethane		12	5.6	ug/kg	11/16/01	SW846 8260B
Isobutanol	<	560	560	ug/kg	11/16/01	SW846 8260B
Methacrylonitrile	<	22	22	ug/kg	11/16/01	SW846 8260B
Methylene chloride	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Propionitrile	<	110	110	ug/kg	11/16/01	SW846 8260B
Styrene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Tetrachloroethene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Toluene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Trichloroethene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Vinyl acetate	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Vinyl chloride	<	11	11	ug/kg	11/16/01	SW846 8260B
Xylene, total	<	17	17	ug/kg	11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : GW3
Lab Sample Number : 913967-003
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS Prep Method: SW846 5030B 11/17/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetonitrile	< 10	10	ug/L		11/17/2001	SW846 8260B
Acrolein	< 20	20	ug/L		11/17/2001	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Allyl Chloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Benzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Carbon disulfide	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroprene	< 10	10	ug/L		11/17/2001	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : GW3
Lab Sample Number : 913967-003
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Iodomethane	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Isobutanol	<	100	100	ug/L	11/17/2001	SW846 8260B
Methacrylonitrile	<	10	10	ug/L	11/17/2001	SW846 8260B
Methylene chloride	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Propionitrile	<	20	20	ug/L	11/17/2001	SW846 8260B
Styrene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Toluene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Xylene, o-	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L	11/17/2001	SW846 8260B
Xylenes, m-, p-	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : TRIP BLANK
Lab Sample Number : 913967-001
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS Prep Method: SW846 5030B 11/17/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetonitrile	< 10	10	ug/L		11/17/2001	SW846 8260B
Acrolein	< 20	20	ug/L		11/17/2001	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Allyl Chloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Benzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Carbon disulfide	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroprene	< 10	10	ug/L		11/17/2001	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : TRIP BLANK
Lab Sample Number : 913967-001
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Iodomethane	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Isobutanol	<	100	100	ug/L	11/17/2001	SW846 8260B
Methacrylonitrile	<	10	10	ug/L	11/17/2001	SW846 8260B
Methylene chloride	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Propionitrile	<	20	20	ug/L	11/17/2001	SW846 8260B
Styrene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Toluene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Xylene, o-	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L	11/17/2001	SW846 8260B
Xylenes, m-, p-	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : UAW14-10
Lab Sample Number : 913967-002
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS Prep Method: SW846 5030B 11/17/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetonitrile	< 10	10	ug/L		11/17/2001	SW846 8260B
Acrolein	< 20	20	ug/L		11/17/2001	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Allyl Chloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Benzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Carbon disulfide	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroprene	< 10	10	ug/L		11/17/2001	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : UAW14-10
Lab Sample Number : 913967-002
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/9/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Iodomethane	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Isobutanol	<	100	100	ug/L	11/17/2001	SW846 8260B
Methacrylonitrile	<	10	10	ug/L	11/17/2001	SW846 8260B
Methylene chloride	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Propionitrile	<	20	20	ug/L	11/17/2001	SW846 8260B
Styrene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Toluene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Xylene, o-	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L	11/17/2001	SW846 8260B
Xylenes, m-, p-	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/08/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE SOILS Prep Method: SW846 5035 11/10/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,1-Trichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,2-Trichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2,3-Trichloropropane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dibromoethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dichloropropane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
2-Butanone	< 11	11	ug/kg		11/16/01	SW846 8260B
2-Hexanone	< 11	11	ug/kg		11/16/01	SW846 8260B
4-Methyl-2-pentanone	< 11	11	ug/kg		11/16/01	SW846 8260B
Acetone	< 11	11	ug/kg		11/16/01	SW846 8260B
Acetonitrile	< 22	22	ug/kg		11/16/01	SW846 8260B
Acrolein	< 22	22	ug/kg		11/16/01	SW846 8260B
Acrylonitrile	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Allyl Chloride	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Benzene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromodichloromethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromoform	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromomethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Carbon disulfide	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Carbon tetrachloride	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chlorobenzene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chlorodibromomethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chloroethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Chloroform	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chloromethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Chloroprene	< 22	22	ug/kg		11/16/01	SW846 8260B
cis-1,3-Dichloropropene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Dibromomethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Dichlorodifluoromethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Ethyl methacrylate	< 22	22	ug/kg		11/16/01	SW846 8260B
Ethylbenzene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T3-3
Lab Sample Number : 913967-005
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/08/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	11	11	ug/kg	11/16/01	SW846 8260B
Iodomethane	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Isobutanol	<	560	560	ug/kg	11/16/01	SW846 8260B
Methacrylonitrile	<	22	22	ug/kg	11/16/01	SW846 8260B
Methylene chloride	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Propionitrile	<	110	110	ug/kg	11/16/01	SW846 8260B
Styrene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Tetrachloroethene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Toluene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Trichloroethene	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Vinyl acetate	<	5.6	5.6	ug/kg	11/16/01	SW846 8260B
Vinyl chloride	<	11	11	ug/kg	11/16/01	SW846 8260B
Xylene, total	<	17	17	ug/kg	11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/08/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE SOILS Prep Method: SW846 5035 11/10/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,1,1-Trichloroethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,1,2-Trichloroethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethene	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,2,3-Trichloropropane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,2-Dibromoethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,2-Dichloroethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
1,2-Dichloropropane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
2-Butanone	41	11	ug/kg		11/16/01	SW846 8260B
2-Hexanone	< 11	11	ug/kg		11/16/01	SW846 8260B
4-Methyl-2-pentanone	< 11	11	ug/kg		11/16/01	SW846 8260B
Acetone	200	11	ug/kg		11/16/01	SW846 8260B
Acetonitrile	< 22	22	ug/kg		11/16/01	SW846 8260B
Acrolein	< 22	22	ug/kg		11/16/01	SW846 8260B
Acrylonitrile	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Allyl Chloride	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Benzene	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Bromodichloromethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Bromoform	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Bromomethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Carbon disulfide	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Carbon tetrachloride	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Chlorobenzene	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Chlorodibromomethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Chloroethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Chloroform	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Chloromethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Chloroprene	< 22	22	ug/kg		11/16/01	SW846 8260B
cis-1,3-Dichloropropene	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Dibromomethane	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B
Dichlorodifluoromethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Ethyl methacrylate	< 22	22	ug/kg		11/16/01	SW846 8260B
Ethylbenzene	< 5.5	5.5	ug/kg		11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R0570518
Field ID : T1A-9
Lab Sample Number : 913967-006
Lab Project Number : 913967

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/08/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	11	11	ug/kg	11/16/01	SW846 8260B
Iodomethane		15	5.5	ug/kg	11/16/01	SW846 8260B
Isobutanol	<	550	550	ug/kg	11/16/01	SW846 8260B
Methacrylonitrile	<	22	22	ug/kg	11/16/01	SW846 8260B
Methylene chloride	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
Propionitrile	<	110	110	ug/kg	11/16/01	SW846 8260B
Styrene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
Tetrachloroethene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
Toluene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
Trichloroethene	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
Vinyl acetate	<	5.5	5.5	ug/kg	11/16/01	SW846 8260B
Vinyl chloride	<	11	11	ug/kg	11/16/01	SW846 8260B
Xylene, total	<	16	16	ug/kg	11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : TRIP BLANK
Lab Sample Number : 913975-001
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS

Prep Method: SW846 5030B

11/17/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetone	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Acetonitrile	< 10	10	ug/L		11/17/2001	SW846 8260B
Acrolein	< 20	20	ug/L		11/17/2001	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
Allyl Chloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Benzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Carbon disulfide	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Chloroprene	< 10	10	ug/L		11/17/2001	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		11/17/2001	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		11/17/2001	SW846 8260B
thylbenzene	< 1.0	1.0	ug/L		11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : TRIP BLANK
Lab Sample Number : 913975-001
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Iodomethane	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Isobutanol	<	100	100	ug/L	11/17/2001	SW846 8260B
Methacrylonitrile	<	10	10	ug/L	11/17/2001	SW846 8260B
Methylene chloride	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Propionitrile	<	20	20	ug/L	11/17/2001	SW846 8260B
Styrene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Toluene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/L	11/17/2001	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B
Xylene, o-	<	1.0	1.0	ug/L	11/17/2001	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L	11/17/2001	SW846 8260B
Xylenes, m-, p-	<	2.0	2.0	ug/L	11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/10/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE SOILS Prep Method: SW846 5035 11/10/01

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,1,1-Trichloroethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,1,2-Trichloroethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethene	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,2,3-Trichloropropane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,2-Dibromoethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,2-Dichloroethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
1,2-Dichloropropane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
2-Butanone	<	11	11	ug/kg		11/16/01	SW846 8260B
2-Hexanone	<	11	11	ug/kg		11/16/01	SW846 8260B
4-Methyl-2-pentanone	<	11	11	ug/kg		11/16/01	SW846 8260B
Acetone		47	11	ug/kg		11/16/01	SW846 8260B
Acetonitrile	<	21	21	ug/kg		11/16/01	SW846 8260B
Acrolein	<	21	21	ug/kg		11/16/01	SW846 8260B
Acrylonitrile	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Allyl Chloride	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Benzene	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Bromodichloromethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Bromoform	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Bromomethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Carbon disulfide	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Carbon tetrachloride	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Chlorobenzene		3400	57	ug/kg	D	11/17/01	SW846 8260B
Chlorodibromomethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Chloroethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Chloroform	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Chloromethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Chloroprene	<	21	21	ug/kg		11/16/01	SW846 8260B
cis-1,3-Dichloropropene	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Dibromomethane	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B
Dichlorodifluoromethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Ethyl methacrylate	<	21	21	ug/kg		11/16/01	SW846 8260B
Ethylbenzene	<	5.3	5.3	ug/kg		11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T8-1
Lab Sample Number : 913975-002
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/10/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	11	11	ug/kg	11/16/01	SW846 8260B
Iodomethane	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Isobutanol	<	530	530	ug/kg	11/16/01	SW846 8260B
Methacrylonitrile	<	21	21	ug/kg	11/16/01	SW846 8260B
Methylene chloride	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Propionitrile	<	110	110	ug/kg	11/16/01	SW846 8260B
Styrene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Tetrachloroethene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Toluene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Trichloroethene	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Vinyl acetate	<	5.3	5.3	ug/kg	11/16/01	SW846 8260B
Vinyl chloride	<	11	11	ug/kg	11/16/01	SW846 8260B
Xylene, total	<	16	16	ug/kg	11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/10/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE SOILS Prep Method: SW846 5035 11/10/01

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,1-Trichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,2,2-Tetrachloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1,2-Trichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,1-Dichloroethene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2,3-Trichloropropane	< 5.6	5.6	ug/kg	*	11/16/01	SW846 8260B
1,2-Dibromo-3-chloropropane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dibromoethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dichloroethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
1,2-Dichloropropane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
2-Butanone	< 11	11	ug/kg		11/16/01	SW846 8260B
2-Hexanone	< 11	11	ug/kg		11/16/01	SW846 8260B
4-Methyl-2-pentanone	< 11	11	ug/kg		11/16/01	SW846 8260B
Acetone	46	11	ug/kg		11/16/01	SW846 8260B
Acetonitrile	< 22	22	ug/kg		11/16/01	SW846 8260B
Acrolein	< 22	22	ug/kg		11/16/01	SW846 8260B
Acrylonitrile	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Allyl Chloride	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Benzene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromodichloromethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromoform	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Bromomethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Carbon disulfide	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Carbon tetrachloride	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chlorobenzene	2200	57	ug/kg	ND	11/17/01	SW846 8260B
Chlorodibromomethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chloroethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Chloroform	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Chloromethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Chloroprene	< 22	22	ug/kg		11/16/01	SW846 8260B
cis-1,3-Dichloropropene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Dibromomethane	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B
Dichlorodifluoromethane	< 11	11	ug/kg		11/16/01	SW846 8260B
Ethyl methacrylate	< 22	22	ug/kg		11/16/01	SW846 8260B
Ethylbenzene	< 5.6	5.6	ug/kg		11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : T5-9
Lab Sample Number : 913975-003
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/12/01
Collection Date : 11/10/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	11	11	ug/kg		11/16/01	SW846 8260B
Iodomethane	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Isobutanol	<	560	560	ug/kg		11/16/01	SW846 8260B
Methacrylonitrile	<	22	22	ug/kg		11/16/01	SW846 8260B
Methylene chloride	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Propionitrile	<	110	110	ug/kg		11/16/01	SW846 8260B
Styrene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Tetrachloroethene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Toluene	<	5.6	5.6	ug/kg	N	11/16/01	SW846 8260B
trans-1,2-Dichloroethene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
trans-1,3-Dichloropropene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Trichloroethene	<	5.6	5.6	ug/kg		11/16/01	SW846 8260B
Vinyl acetate	<	5.6	5.6	ug/kg	N	11/16/01	SW846 8260B
Vinyl chloride	<	11	11	ug/kg		11/16/01	SW846 8260B
Xylene, total	<	17	17	ug/kg		11/16/01	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS Prep Method: SW846 5030B 11/17/2001

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,1,1-Trichloroethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,1,2-Trichloroethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,1-Dichloroethene	<	100	100	ug/L		11/17/2001	SW846 8260B
1,2,3-Trichloropropane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	<	200	200	ug/L		11/17/2001	SW846 8260B
1,2-Dibromoethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,2-Dichloroethane	<	100	100	ug/L		11/17/2001	SW846 8260B
1,2-Dichloropropane	<	100	100	ug/L		11/17/2001	SW846 8260B
2-Butanone	<	500	500	ug/L		11/17/2001	SW846 8260B
2-Hexanone	<	500	500	ug/L		11/17/2001	SW846 8260B
4-Methyl-2-pentanone	<	500	500	ug/L		11/17/2001	SW846 8260B
Acetone		9900	500	ug/L		11/17/2001	SW846 8260B
Acetonitrile	<	1000	1000	ug/L		11/17/2001	SW846 8260B
Acrolein	<	2000	2000	ug/L		11/17/2001	SW846 8260B
Acrylonitrile	<	500	500	ug/L		11/17/2001	SW846 8260B
Allyl Chloride	<	100	100	ug/L		11/17/2001	SW846 8260B
Benzene	<	100	100	ug/L		11/17/2001	SW846 8260B
Bromodichloromethane	<	100	100	ug/L		11/17/2001	SW846 8260B
Bromoform	<	100	100	ug/L		11/17/2001	SW846 8260B
Bromomethane	<	200	200	ug/L		11/17/2001	SW846 8260B
Carbon disulfide	<	100	100	ug/L		11/17/2001	SW846 8260B
Carbon tetrachloride	<	100	100	ug/L		11/17/2001	SW846 8260B
Chlorobenzene	<	100	100	ug/L		11/17/2001	SW846 8260B
Chlorodibromomethane	<	100	100	ug/L		11/17/2001	SW846 8260B
Chloroethane	<	200	200	ug/L		11/17/2001	SW846 8260B
Chloroform	<	100	100	ug/L		11/17/2001	SW846 8260B
Chloromethane	<	200	200	ug/L		11/17/2001	SW846 8260B
Chloroprene	<	1000	1000	ug/L		11/17/2001	SW846 8260B
cis-1,3-Dichloropropene	<	100	100	ug/L		11/17/2001	SW846 8260B
Dibromomethane	<	100	100	ug/L		11/17/2001	SW846 8260B
Dichlorodifluoromethane	<	200	200	ug/L		11/17/2001	SW846 8260B
Ethyl methacrylate	<	500	500	ug/L		11/17/2001	SW846 8260B
Ethylbenzene	<	100	100	ug/L		11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MOR
Project Number : R05705 18
Field ID : UAW11-10
Lab Sample Number : 913975-006
Lab Project Number : 913975

Submitter : TECHLAW INC
Report Date : 12/10/2001
Collection Date : 11/10/2001
Matrix Type : WATER
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	200	200	ug/L	*	11/17/2001	SW846 8260B
Iodomethane	<	500	500	ug/L		11/17/2001	SW846 8260B
Isobutanol	<	10000	10000	ug/L		11/17/2001	SW846 8260B
Methacrylonitrile	<	1000	1000	ug/L		11/17/2001	SW846 8260B
Methylene chloride	<	100	100	ug/L		11/17/2001	SW846 8260B
Propionitrile	<	2000	2000	ug/L		11/17/2001	SW846 8260B
Styrene	<	100	100	ug/L		11/17/2001	SW846 8260B
Tetrachloroethene	<	100	100	ug/L		11/17/2001	SW846 8260B
Toluene	<	100	100	ug/L		11/17/2001	SW846 8260B
trans-1,2-Dichloroethene	<	100	100	ug/L		11/17/2001	SW846 8260B
trans-1,3-Dichloropropene	<	100	100	ug/L		11/17/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	500	500	ug/L		11/17/2001	SW846 8260B
Trichloroethene	<	100	100	ug/L		11/17/2001	SW846 8260B
Vinyl acetate	<	500	500	ug/L	N	11/17/2001	SW846 8260B
Vinyl chloride	<	200	200	ug/L	*	11/17/2001	SW846 8260B
Xylene, o-	<	100	100	ug/L		11/17/2001	SW846 8260B
Xylene, total	<	300	300	ug/L		11/17/2001	SW846 8260B
Xylenes, m-, p-	<	200	200	ug/L	*	11/17/2001	SW846 8260B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Volatile Organic Results

SPECIAL VOLATILE LIST - SOIL Prep Method: SW846 5035 10/22/01

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,1,1-Trichloroethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,1,2,2-Tetrachloroethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,1,2-Trichloroethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,1-Dichloroethene	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,2,3-Trichloropropane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,2-Dibromo-3-chloropropane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,2-Dibromoethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
1,2-Dichloroethane	<	4.2	4.2	ug/kg	&	10/22/01	SW846 8260B
1,2-Dichloropropane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
2-Butanone	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
2-Hexanone	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
4-Methyl-2-pentanone	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
Acetone		14	8.5	ug/kg	&	10/22/01	SW846 8260B
Acrolein	<	17	17	ug/kg		10/22/01	SW846 8260B
Acrylonitrile	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Allyl Chloride	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Benzene	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Bromodichloromethane	<	4.2	4.2	ug/kg	&	10/22/01	SW846 8260B
Bromoform	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Bromomethane	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
Carbon disulfide	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Carbon tetrachloride	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Chlorobenzene		13	4.2	ug/kg		10/22/01	SW846 8260B
Chlorodibromomethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Chloroethane	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
Chloroform	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Chloromethane	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
cis-1,3-Dichloropropene	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Dibromomethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Dichlorodifluoromethane	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
Ethyl methacrylate	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Ethylbenzene	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Fluorotrichloromethane	<	8.5	8.5	ug/kg		10/22/01	SW846 8260B
Iodomethane	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B
Methylene chloride	<	4.2	4.2	ug/kg		10/22/01	SW846 8260B

- Analytical Report -

Project Name : MORTON INTERNATIONAL
Project Number : 03007.005.005.1
Field ID : SED-1
Lab Sample Number : 913561-007
Lab Project Number : 913561

Submitter : TECHLAW INC
Report Date : 12/7/01
Collection Date : 10/11/01
Matrix Type : SOIL
WI DNR LAB ID : 113172950

Styrene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
Tetrachloroethene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
Toluene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
trans-1,2-Dichloroethene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
trans-1,3-Dichloropropene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
trans-1,4-Dichloro-2-butene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
Trichloroethene	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
Vinyl acetate	<	4.2	4.2	ug/kg	10/22/01	SW846 8260B
Vinyl chloride	<	8.5	8.5	ug/kg	10/22/01	SW846 8260B
Xylene, total	<	13	13	ug/kg	10/22/01	SW846 8260B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SED-1

Lab Name: EN CHEM Contract: MORTON

Lab Code: ENCHEM Case No.: SAS No.: SDG No.: 913561

Matrix: (soil/water) SOIL Lab Sample ID: 913561-007

Sample wt/vol: 6.8 (g/mL) G Lab File ID: C5011

Level: (low/med) LOW Date Received: 10/12/01

% Moisture: not dec. 12.9 Date Analyzed: 10/22/01

GC Column: RTX-624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC

Enchem

TLI Project: **55849B**
Client Sample: **913968-001**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **VT01800**
Matrix: WATER

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.1
Total PeCDD	ND	0.2
Total HxCDD	ND	0.1
Total TCDF	ND	0.09
Total PeCDF	ND	0.1
Total HxCDF	ND	0.09

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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Printed: 15:22 11/21/2001

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TLI Project: 55849B — Method 8280-A PCDD/PCDF Analysis (b)

Client Sample: 913968-001 — Analysis File: VT01800

Client Project:	MOR				
Sample Matrix:	WATER	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-4A	Date Extracted:	11/19/2001	ICal:	V85N20A
		Date Analyzed:	11/21/2001	ConCal:	VT01500
Sample Size:	1.030 L	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	VT01700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	n/a

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.1				—

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		19.8	—
Total PeCDD	ND	0	0.2		—
Total HxCDD	ND	0	0.1		—
Total TCDF		0		0.54	—
Total PeCDF	ND	0	0.1		—
Total HxCDF	ND	0	0.09		—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	33.3	68.5	25%-150%	0.79	23:28	—
$^{13}C_{12}$-2,3,7,8-TCDD	34.3	70.7	25%-150%	0.78	24:09	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	44.9	92.5	25%-150%	1.27	31:07	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	85.3	87.8	25%-150%	1.06	32:56	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	16.2	66.6	25%-150%	24:10	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	31:23	—

Data Reviewer: KW 11/21/2001

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TLI Project: **55849B**
Client Sample: **913968-002**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **VT01900**
Matrix: WATER

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.1
Total PeCDD	ND	0.2
Total HxCDD	ND	0.1
Total TCDF	ND	0.1
Total PeCDF	ND	0.1
Total HxCDF	ND	0.1

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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TLI Project: 55849B
Client Sample: 913968-002

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VT01900

Client Project:	MOR				
Sample Matrix:	WATER	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-5A	Date Extracted:	11/19/2001	ICal:	V85N20A
		Date Analyzed:	11/21/2001	ConCal:	VT01500
Sample Size:	1.040 L	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	VT01700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	n/a

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.1				—

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		19.3	—
Total PeCDD	ND	0	0.2		—
Total HxCDD	ND	0	0.1		—
Total TCDF		0		0.60	—
Total PeCDF	ND	0	0.1		—
Total HxCDF	ND	0	0.1		—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	31.8	66.2	25%-150%	0.79	23:27	—
$^{13}C_{12}$-2,3,7,8-TCDD	33.4	69.5	25%-150%	0.79	24:09	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	44.5	92.6	25%-150%	1.24	31:07	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	84.0	87.4	25%-150%	1.03	32:55	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	16.3	68.0	25%-150%	24:10	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	23:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.25	31:23	—

Data Reviewer: PAB 11/21/2001

828A_PSR v1.03, LARS 6.25.01

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Printed: 15:22 11/21/2001

Enchem

TLI Project: **55849B** Method 8280-A PCDD/PCDF Analysis (b)
ient Sample: **913975-006** Analysis File: **VT02000**
Client Project: **MOR** Matrix: WATER

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.1
Total PeCDD	ND	0.2
Total HxCDD	ND	0.1
Total TCDF	ND	0.1
Total PeCDF	ND	0.1
Total HxCDF	ND	0.09

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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TLI Project: 55849B
Client Sample: 913975-006

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VT02000

Client Project:	MOR				
Sample Matrix:	WATER	Date Received:	11/14/2001	Spike File:	SP828A50
TLI ID:	310-33-1A	Date Extracted:	11/19/2001	ICal:	V85N20A
		Date Analyzed:	11/21/2001	ConCal:	VT01500
Sample Size:	1.000 L	Dilution Factor:	n/a	% Moisture:	n/a
Dry Weight:	n/a	Blank File:	VT01700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	n/a

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.1				—

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		21.4	—
Total PeCDD	ND	0	0.2		—
Total HxCDD	ND	0	0.1		—
Total TCDF		0		0.55	—
Total PeCDF	ND	0	0.1		—
Total HxCDF	ND	0	0.09		—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	34.4	68.8	25%-150%	0.80	23:27	—
$^{13}C_{12}$-2,3,7,8-TCDD	33.4	66.8	25%-150%	0.78	24:09	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	46.6	93.2	25%-150%	1.24	31:07	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	85.7	85.7	25%-150%	1.06	32:55	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	15.9	63.6	25%-150%	24:10	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.23	31:23	—

Data Reviewer: Khw 11/21/2001

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TLI Project: **55849A**
Client Sample: **913975-004**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **ZV47000**
Matrix: SOIL

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.005	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.005
Total PeCDD	ND	0.007
Total HxCDD	ND	0.005
Total TCDF	0.03	0.004
Total PeCDF	0.04	0.005
Total HxCDF	0.49	0.003

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55849A
Client Sample: 913975-004

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZV47000

Client Project:	MOR				
Sample Matrix:	SOIL	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-8	Date Extracted:	11/14/2001	ICal:	Z85829A
		Date Analyzed:	11/17/2001	ConCal:	ZV46200
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	13.3
Dry Weight:	8.670 g	Blank File:	ZV46400	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JWL	% Solids:	86.7

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.005				—

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		2.2	—
Total PeCDD	ND	0	0.007		—
Total HxCDD	ND	0	0.005		—
Total TCDF	0.03	2		0.08	—
Total PeCDF	0.04	1			—
Total HxCDF	0.49	3			—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.3	74.5	25%-150%	0.78	21:39	—
$^{13}C_{12}$-2,3,7,8-TCDD	4.4	75.6	25%-150%	0.83	22:28	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.3	91.6	25%-150%	1.29	29:58	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	10.5	91.0	25%-150%	1.06	31:50	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	1.9	66.1	25%-150%	22:29	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	22:16	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	30:15	—

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TLI Project: **55849A**
Client Sample: **913975-003**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **ZV46900**
Matrix: SOIL

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.004	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.004
Total PeCDD	ND	0.006
Total HxCDD	0.02	0.004
Total TCDF	ND	0.004
Total PeCDF	0.09	0.004
Total HxCDF	1.1	0.003

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55849A
Client Sample: 913975-003

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZV46900

Client Project:	MOR				
Sample Matrix:	SOIL	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-7	Date Extracted:	11/14/2001	ICal:	Z85829A
		Date Analyzed:	11/17/2001	ConCal:	ZV46200
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	12.7
Dry Weight:	8.730 g	Blank File:	ZV46400	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JWL	% Solids:	87.3

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.004				—

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		2.2	—
Total PeCDD	ND	0	0.006		—
Total HxCDD	0.02	1		0.05	—
Total TCDF		0		0.04	—
Total PeCDF	0.09	1		0.11	—
Total HxCDF	1.1	6			—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	5.2	91.5	25%-150%	0.78	21:39	—
$^{13}C_{12}$-2,3,7,8-TCDD	5.3	92.5	25%-150%	0.85	22:28	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	6.1	107	25%-150%	1.29	29:58	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	12.4	108	25%-150%	1.08	31:50	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	2.1	72.4	25%-150%	22:29	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	22:16	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.29	30:15	—

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TLI Project: **55849A**
Client Sample: **913975-002**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **ZV46800**
Matrix: SOIL

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.006	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.006
Total PeCDD	ND	0.008
Total HxCDD	ND	0.005
Total TCDF	0.02	0.005
Total PeCDF	0.02	0.006
Total HxCDF	0.12	0.003

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55849A
Client Sample: 913975-002

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZV46800

Client Project:	MOR				
Sample Matrix:	SOIL	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-6	Date Extracted:	11/14/2001	ICal:	Z85829A
		Date Analyzed:	11/17/2001	ConCal:	ZV46200
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	15.2
Dry Weight:	8.480 g	Blank File:	ZV46400	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JWL	% Solids:	84.8

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.006				___

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		2.2	___
Total PeCDD	ND	0	0.008		___
Total HxCDD	ND	0	0.005		___
Total TCDF	0.02	1		0.11	___
Total PeCDF	0.02	1			___
Total HxCDF	0.12	2		0.14	___

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.7	79.9	25%-150%	0.79	21:39	___
$^{13}C_{12}$-2,3,7,8-TCDD	4.8	81.8	25%-150%	0.85	22:28	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.9	100	25%-150%	1.29	29:58	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	12.1	103	25%-150%	1.07	31:50	___

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	2.0	67.3	25%-150%	22:29	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	22:16	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	30:15	___

Data Reviewer: WJY 11/19/2001

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TLI Project: **55849A**
Client Sample: **913-967-006**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **ZV46700**
Matrix: SOIL

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.005	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.005
Total PeCDD	ND	0.008
Total HxCDD	ND	0.005
Total TCDF	ND	0.005
Total PeCDF	ND	0.006
Total HxCDF	ND	0.003

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55849A — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: 913-967-006 — Analysis File: ZV46700

Client Project:	MOR				
Sample Matrix:	SOIL	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-3	Date Extracted:	11/14/2001	ICal:	Z85829A
		Date Analyzed:	11/17/2001	ConCal:	ZV46200
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	14.0
Dry Weight:	8.600 g	Blank File:	ZV46400	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JWL	% Solids:	86.0

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.005				___

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		2.2	___
Total PeCDD	ND	0	0.008		___
Total HxCDD	ND	0	0.005		___
Total TCDF		0		0.06	___
Total PeCDF	ND	0	0.006		___
Total HxCDF	ND	0	0.003		___

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.6	79.9	25%-150%	0.78	21:40	___
$^{13}C_{12}$-2,3,7,8-TCDD	4.7	80.8	25%-150%	0.85	22:28	___
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.7	98.1	25%-150%	1.27	29:58	___
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	11.6	100.0	25%-150%	1.07	31:50	___

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	1.9	66.1	25%-150%	22:29	___

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	22:16	___
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	30:15	___

Data Reviewer: UBJ 11/19/2001

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TLI Project: **55849A**
ient Sample: **913-967-005**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **ZV46600**
Matrix: SOIL

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.005	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.005
Total PeCDD	ND	0.008
Total HxCDD	ND	0.005
Total TCDF	ND	0.004
Total PeCDF	ND	0.005
Total HxCDF	ND	0.003

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55849A
Client Sample: 913-967-005

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZV46600

Client Project:	MOR				
Sample Matrix:	SOIL	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-2	Date Extracted:	11/14/2001	ICal:	Z85829A
		Date Analyzed:	11/17/2001	ConCal:	ZV46200
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	9.3
Dry Weight:	9.070 g	Blank File:	ZV46400	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JWL	% Solids:	90.7

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.005				—

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD		0		2.1	—
Total PeCDD	ND	0	0.008		—
Total HxCDD	ND	0	0.005		—
Total TCDF		0		0.06	—
Total PeCDF	ND	0	0.005		—
Total HxCDF	ND	0	0.003		—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.1	74.2	25%-150%	0.78	21:40	—
$^{13}C_{12}$-2,3,7,8-TCDD	4.2	76.6	25%-150%	0.84	22:28	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.5	99.1	25%-150%	1.28	29:58	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	11.1	101	25%-150%	1.07	31:50	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	1.7	61.9	25%-150%	22:29	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	22:16	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.29	30:15	—

Data Reviewer: _____ 11/19/2001

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TLI Project: **55849A**
Client Sample: **913-967-004**
Client Project: **MOR**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **ZV46500**
Matrix: SOIL

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.006	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.006
Total PeCDD	ND	0.008
Total HxCDD	ND	0.005
Total TCDF	ND	0.005
Total PeCDF	ND	0.005
Total HxCDF	ND	0.003

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55849A
Client Sample: 913-967-004

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZV46500

Client Project:	MOR				
Sample Matrix:	SOIL	Date Received:	11/13/2001	Spike File:	SP828A50
TLI ID:	310-17-1	Date Extracted:	11/14/2001	ICal:	Z85829A
		Date Analyzed:	11/17/2001	ConCal:	ZV46200
Sample Size:	10.000 g	Dilution Factor:	n/a	% Moisture:	11.8
Dry Weight:	8.820 g	Blank File:	ZV46400	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JWL	% Solids:	88.2

Analytes	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.006				—

Totals	Conc. (ppt)	Number	DL	EMPC		Flags
Total TCDD		0		2.0		—
Total PeCDD	ND	0	0.008			—
Total HxCDD	ND	0	0.005			—
Total TCDF		0		0.06		—
Total PeCDF	ND	0	0.005			—
Total HxCDF	ND	0	0.003			—

Internal Standards	Conc. (ppt)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.1	72.1	25%-150%	0.78	21:40	—
$^{13}C_{12}$-2,3,7,8-TCDD	4.5	80.1	25%-150%	0.83	22:28	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.7	101	25%-150%	1.27	29:58	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	11.6	102	25%-150%	1.06	31:50	—

Clean-Up Standard	Conc. (ppt)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	1.8	63.1	25%-150%	22:29	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	22:17	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	30:15	—

Data Reviewer: Cby 11/19/2001

828A_PSR v1.03, LARS 6.25.011

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Enchem

TLI Project: **55615**
Client Sample: **913561-002**
Client Project: **913561/Apx IX analysis**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **VS81000**
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)
Total TCDD	ND	0.04
Total PeCDD	ND	0.05
Total HxCDD	ND	0.03
Total TCDF	ND	0.03
Total PeCDF	ND	0.03
Total HxCDF	ND	0.06

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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Enchem

TLI Project: 55615
Client Sample: 913561-002

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VS81000

Client Project:	913561/Apx IX analysis				
Sample Matrix:	SEDIMENT	Date Received:	10/18/2001	Spike File:	SP828A50
TLI ID:	307-81-1	Date Extracted:	10/21/2001	ICal:	V85103A
		Date Analyzed:	10/25/2001	ConCal:	VS80600
Sample Size:	10.130 g	Dilution Factor:	n/a	% Moisture:	15.4
Dry Weight:	8.570 g	Blank File:	VS79700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	84.6

Analytes	Conc. (ppb)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.04				—

Totals	Conc. (ppb)	Number	DL	EMPC	Flags
Total TCDD		0		2.5	—
Total PeCDD	ND	0	0.05		—
Total HxCDD	ND	0	0.03		—
Total TCDF		0		0.07	—
Total PeCDF	ND	0	0.03		—
Total HxCDF	ND	0	0.06		—

Internal Standards	Conc. (ppb)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.0	69.1	25%-150%	0.79	22:25	—
$^{13}C_{12}$-2,3,7,8-TCDD	3.9	67.4	25%-150%	0.76	23:10	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	4.7	81.2	25%-150%	1.29	30:25	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	3.7	32.0	25%-150%	1.13	32:14	—

Clean-Up Standard	Conc. (ppb)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	2.0	69.1	25%-150%	23:11	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	22:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	30:40	—

Data Reviewer: PaB 10/25/2001

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TLI Project: **55615**
Client Sample: **913561-008**
Client Project: **913561/Apx IX analysis**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **VS81200**
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)
Total TCDD	ND	0.04
Total PeCDD	ND	0.06
Total HxCDD	ND	0.04
Total TCDF	ND	0.04
Total PeCDF	ND	0.04
Total HxCDF	ND	0.07

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Enchem

TLI Project: 55615
Client Sample: 913561-008

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VS81200

Client Project:	913561/Apx IX analysis				
Sample Matrix:	SEDIMENT	Date Received:	10/18/2001	Spike File:	SP828A50
TLI ID:	307-81-4	Date Extracted:	10/21/2001	ICal:	V85103A
		Date Analyzed:	10/25/2001	ConCal:	VS80600
Sample Size:	10.122 g	Dilution Factor:	n/a	% Moisture:	16.8
Dry Weight:	8.422 g	Blank File:	VS79700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	83.2

Analytes	Conc. (ppb)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.04				—

Totals	Conc. (ppb)	Number	DL	EMPC	Flags
Total TCDD		0		2.4	—
Total PeCDD	ND	0	0.06		—
Total HxCDD	ND	0	0.04		—
Total TCDF		0		0.07	—
Total PeCDF	ND	0	0.04		—
Total HxCDF	ND	0	0.07		—

Internal Standards	Conc. (ppb)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.4	74.5	25%-150%	0.76	22:25	—
$^{13}C_{12}$-2,3,7,8-TCDD	4.4	74.9	25%-150%	0.78	23:10	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.0	85.1	25%-150%	1.25	30:24	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	3.2	27.2	25%-150%	1.09	32:14	—

Clean-Up Standard	Conc. (ppb)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	2.4	80.0	25%-150%	23:11	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	22:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.24	30:40	—

Data Reviewer: PaB 10/25/2001

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TLI Project: **55615**
Client Sample: **913561-007**
Client Project: **913561/Apx IX analysis**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **VS81100**
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)
Total TCDD	ND	0.04
Total PeCDD	ND	0.06
Total HxCDD	ND	0.04
Total TCDF	ND	0.03
Total PeCDF	ND	0.03
Total HxCDF	ND	0.07

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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TLI Project: 55615
Client Sample: 913561-007

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VS81100

Client Project:	913561/Apx IX analysis				
Sample Matrix:	SEDIMENT	Date Received:	10/18/2001	Spike File:	SP828A50
TLI ID:	307-81-3	Date Extracted:	10/21/2001	ICal:	V85103A
		Date Analyzed:	10/25/2001	ConCal:	VS80600
Sample Size:	10.338 g	Dilution Factor:	n/a	% Moisture:	16.0
Dry Weight:	8.684 g	Blank File:	VS79700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	84.0

Analytes	Conc. (ppb)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.04				—

Totals	Conc. (ppb)	Number	DL	EMPC	Flags
Total TCDD		0		2.4	—
Total PeCDD	ND	0	0.06		—
Total HxCDD	ND	0	0.04		—
Total TCDF		0		0.07	—
Total PeCDF	ND	0	0.03		—
Total HxCDF	ND	0	0.07		—

Internal Standards	Conc. (ppb)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	4.0	69.9	25%-150%	0.81	22:25	—
$^{13}C_{12}$-2,3,7,8-TCDD	4.0	69.3	25%-150%	0.77	23:10	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	4.9	84.3	25%-150%	1.32	30:24	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	3.1	27.3	25%-150%	1.00	32:14	—

Clean-Up Standard	Conc. (ppb)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	2.0	68.7	25%-150%	23:11	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	22:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.21	30:40	—

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TLI Project: **55615**
Client Sample: **913561-009**
Client Project: **913561/Apx IX analysis**

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: **VS81300**
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)
Total TCDD	ND	0.04
Total PeCDD	ND	0.06
Total HxCDD	ND	0.03
Total TCDF	ND	0.03
Total PeCDF	ND	0.03
Total HxCDF	ND	0.06

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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TLI Project: 55615 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: 913561-009 — Analysis File: VS81300

Client Project:	913561/Apx IX analysis				
Sample Matrix:	SEDIMENT	Date Received:	10/18/2001	Spike File:	SP828A50
TLI ID:	307-81-5	Date Extracted:	10/21/2001	ICal:	V85103A
		Date Analyzed:	10/25/2001	ConCal:	VS80600
Sample Size:	10.191 g	Dilution Factor:	n/a	% Moisture:	26.0
Dry Weight:	7.541 g	Blank File:	VS79700	% Lipid:	n/a
GC Column:	DB-5	Analyst:	LAG	% Solids:	74.0

Analytes	Conc. (ppb)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.04				—

Totals	Conc. (ppb)	Number	DL	EMPC	Flags
Total TCDD		0		2.7	—
Total PeCDD	ND	0	0.06		—
Total HxCDD	ND	0	0.03		—
Total TCDF		0		0.07	—
Total PeCDF	ND	0	0.03		—
Total HxCDF	ND	0	0.06		—

Internal Standards	Conc. (ppb)	% Recovery		Ratio	RT	Flags
$^{13}C_{12}$-2,3,7,8-TCDF	5.5	83.5	25%-150%	0.79	22:25	—
$^{13}C_{12}$-2,3,7,8-TCDD	5.6	84.3	25%-150%	0.76	23:10	—
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	5.9	89.2	25%-150%	1.28	30:25	—
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	4.8	35.9	25%-150%	1.02	32:14	—

Clean-Up Standard	Conc. (ppb)	% Recovery		RT	Flags
$^{37}Cl_4$-2,3,7,8-TCDD	2.7	80.0	25%-150%	23:11	—

Recovery Standards	Ratio	RT	Flags
$^{13}C_{12}$-1,2,3,4-TCDD	0.77	22:59	—
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.21	30:41	—

Data Reviewer: PAB 10/25/2001

828A_PSR v1.03, LARS 6.25.01

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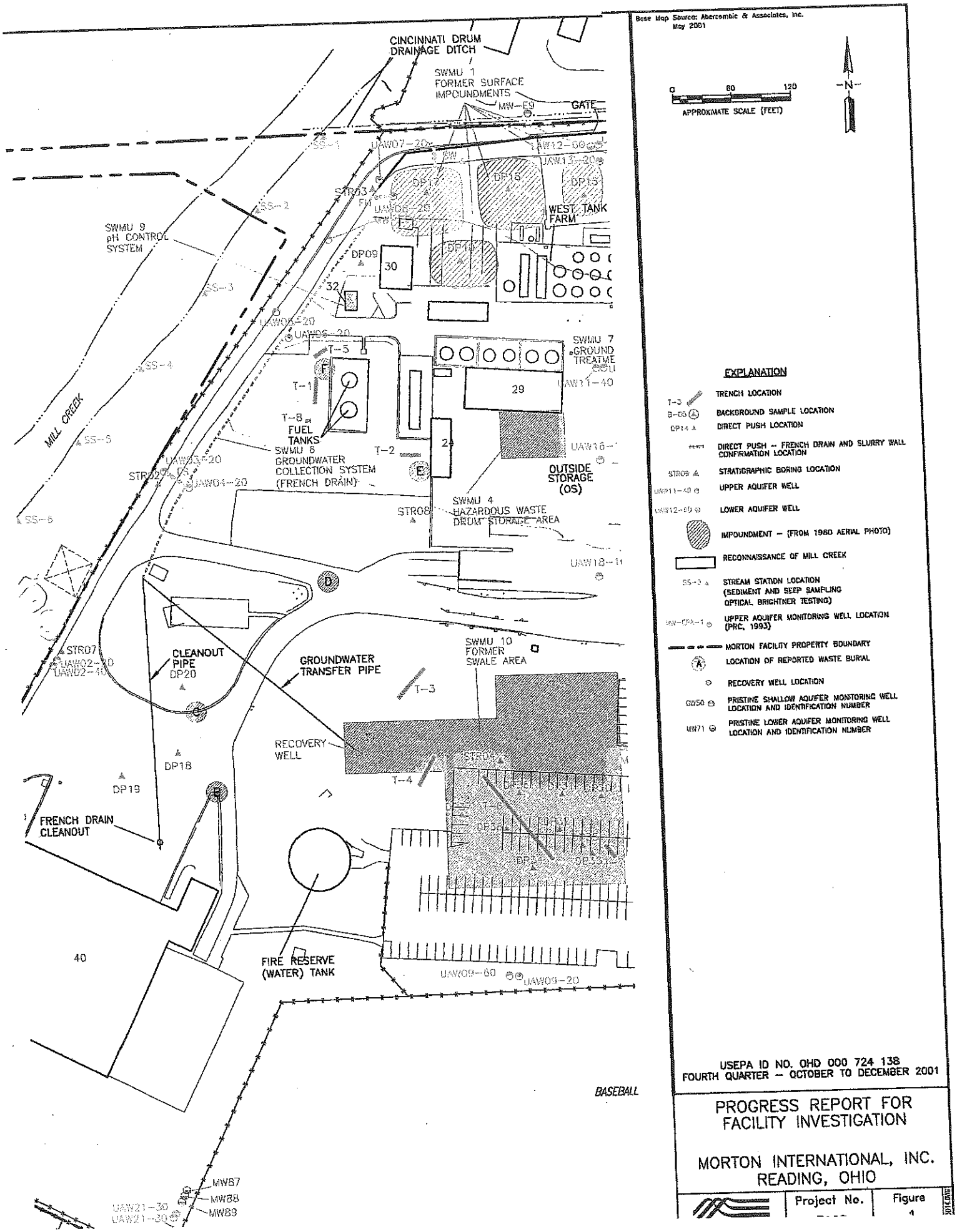
APPENDIX E

SITE FIGURE


Base Map Source: Abercombie & Associates, Inc.
May 2001
0 60 120
APPROXIMATE SCALE (FEET)
N
CINCINNATI DRUM DRAINAGE DITCH
SWMU 1 FORMER SURFACE IMPOUNDMENTS
MW-E9
GATE
WEST TANK FARM
SWMU 9 pH CONTROL SYSTEM
MILL CREEK
SWMU 7 GROUND TREATME
T-1
T-8 FUEL TANKS
SWMU 6 GROUNDWATER COLLECTION SYSTEM (FRENCH DRAIN)
T-2
OUTSIDE STORAGE (OS)
SWMU 4 HAZARDOUS WASTE DRUM STORAGE AREA
CLEANOUT PIPE DP20
GROUNDWATER TRANSFER PIPE
SWMU 10 FORMER SWALE AREA
T-3
RECOVERY WELL
T-4
DP18
DP19
FRENCH DRAIN CLEANOUT
FIRE RESERVE (WATER) TANK
BASEBALL
MW87
MW88
MW89
EXPLANATION
TRENCH LOCATION
BACKGROUND SAMPLE LOCATION
DIRECT PUSH LOCATION
DIRECT PUSH -- FRENCH DRAIN AND SLURRY WALL CONFIRMATION LOCATION
STRATIGRAPHIC BORING LOCATION
UPPER AQUIFER WELL
LOWER AQUIFER WELL
IMPOUNDMENT -- (FROM 1960 AERIAL PHOTO)
RECONNAISSANCE OF MILL CREEK
STREAM STATION LOCATION (SEDIMENT AND SEEP SAMPLING OPTICAL BRIGHTNER TESTING)
UPPER AQUIFER MONITORING WELL LOCATION (PRC, 1993)
MORTON FACILITY PROPERTY BOUNDARY
LOCATION OF REPORTED WASTE BURIAL
RECOVERY WELL LOCATION
PRISTINE SHALLOW AQUIFER MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
PRISTINE LOWER AQUIFER MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
USEPA ID NO. OHD 000 724 138
FOURTH QUARTER -- OCTOBER TO DECEMBER 2001
PROGRESS REPORT FOR FACILITY INVESTIGATION
MORTON INTERNATIONAL, INC.
READING, OHIO
Project No.
Figure
1

FIELD OVERSIGHT AND SPLIT SAMPLING TRIP REPORT

MORTON INTERNATIONAL, INC.
READING, OHIO
EPA ID No. OHD000724138

Submitted to:

Mr. Brian Freeman
Work Assignment Manager
U.S. Environmental Protection Agency
Region 5 DW-9J
77 W. Jackson
Chicago, Illinois 60604

Submitted by:

TechLaw, Inc.
20 North Wacker Drive
Suite 1260
Chicago, Illinois 60606

U.S. EPA Work Assignment No.	R05705
Contract No.	68-W-99-017
U.S. EPA WAM	Brian Freeman
Telephone No.	312/353-2720
TechLaw WAM	Terry Uecker
Telephone No.	312/345-8974

July 27, 2001

M. Capiro

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PHONE: (312) 578-8900
FAX: (312) 578-8904

RZ2.R05705.01.ID.169

July 27, 2001

Mr. Brian Freeman
Work Assignment Manager
U.S. EPA Region 5, DRP-8J
77 W. Jackson Boulevard
Chicago, IL 60604

Reference: U.S. EPA Contract No. 68-W-99-017; EPA Work Assignment No. R05705; Multi-Site Sampling and Analysis Support; Morton, International, Inc., Reading, Ohio; EPA ID No. OHD000724138; Field Oversight and Split Sampling Trip Report; Task 03 Deliverable

Dear Mr. Freeman:

Enclosed please find TechLaw's Field Oversight and Split Sampling Trip Report for the field activities conducted at the above referenced facility on March 22-23, 2001 and May 6-8, 2001. For your convenience, this deliverable was also E-mailed directly to you and the U.S. EPA Technical Advisor (TA) for this work assignment, Ms. Mirtha Capiro, in WordPerfect for Windows format.

The work described in this Trip Report was conducted jointly under Work Assignments R05703, Field Oversight, and R05705, Multi-Site Sampling and Analysis Support under the Technical Direction Memorandums (TDM) dated March 13, 2001 and March 14, 2001, respectively.

If you have any questions, or wish to further discuss this review, please feel free to contact me at (312) 345-8938.

Sincerely,

John Koehnen for
Regional Manager

cc: F. Norling, U.S. EPA Region 5 Project Officer
M. Capiro, U.S. EPA Region 5
T. Uecker
T. Manning, U.S. EPA Region 5
W. Jordan/Central Files
Chicago Central Files

FIELD OVERSIGHT AND SPLIT SAMPLING TRIP REPORT

MORTON INTERNATIONAL, INC.
READING, OHIO
EPA ID No. OHD000724138

Introduction

Mr. Michael Welly of TechLaw, Inc. (TechLaw) performed field oversight of monitoring well installations conducted on March 22-23, 2001 at the Morton International (Morton) facility in Reading, Ohio. Mr. Todd Quillen of TechLaw performed field oversight and split sampling of monitoring well sampling activities conducted on May 6-8, 2001. The monitoring wells were installed, developed, and sampled under the direction of Geomatrix Consultants, Inc. (Geomatrix), the contractor for Rohm and Haas Co. (Rohm and Haas), the present owner of the Morton facility. Procedures for the placement and installation, development, and sampling of the monitoring wells are provided in the Facility Investigation Work Plan (Work Plan) approved by EPA during the Spring of 2001.

This report summarizes observations made during TechLaw's oversight and split sampling activities in March and May, 2001. A photographic log is provided in Appendix A which documents the activities that were observed in the field.

TechLaw Oversight Observations - Well Installation

On March 22, 2001, Mr. Welly at arrived at the Morton facility at approximately 0840. Prior to accessing the facility to observe field activities, Mr. Welly briefly met with Mr. Mark Hemmingway of Geomatrix who took Mr. Welly to meet with Rohm and Haas' EHS Engineer, Mr. Eric Walker, who conducted a plant specific Health and Safety orientation. After attending Rohm and Haas' Health and Safety orientation, Mr. Welly went to Geomatrix's field trailer and met with Mr. Jim Eidem of Geomatrix, Mr. Peter Palena of Rohm and Haas, and Mr. Ron Lantzy of Rohm and Haas. Mr. Eidem reviewed Geomatrix's Health and Safety Plan and requirements with Mr. Welly prior to Mr. Welly observing field activities.

Mr. Welly observed the partial installation of upper aquifer monitoring well UAW-02-40 which is located in the southern portion of the facility along the western fence. A Rotasonic drill rig operated by the drilling contractor Bowser Morner was used for the collection of soil cores and well installation. Soil cores were continuously collected to a depth of approximately 49 feet below ground surface (bgs). A clay confining layer was present at a depth of approximately 48 feet bgs. A 4-inch diameter 15 foot stainless steel well screen and schedule 40 PVC riser were used to construct UAW-02-40 The screened interval of UAW-02-40 was approximately 34-49 feet bgs. Sand was added to UAW-02-40 to create a sand pack from the bottom of the well to

After the completion of UAW-03-20, Mr. Welly then observed the installation of monitoring well UAW-05-20. Soil cores were visually examined for contamination and a PID was utilized to screen the soil cores for organics. Soil sample 032301046 (UAW05-1.5) was collected from a 6 inch section of the soil core at the depth of 1.5 feet bgs for Contract Laboratory Program (CLP) Target Analyze List (TAL) analysis. Soil sample 032301047 (UAW05-13) was collected from a 6 inch section of the soil core at the depth of 13 feet bgs. Black stained sand and gravel was present at approximately 13 feet bgs. A clay confining layer was present at approximately 13-14 feet bgs and UAW-05-20 was completed at a depth of 17 feet bgs. A 4-inch diameter, 10 foot stainless steel well screen and schedule 40 PVC riser were used to construct UAW-05-20 The screened interval of UAW-05-20 was from approximately 7-17 feet bgs. Sand was added to UAW-05-20 to create a sand pack from the bottom of the well to approximately 2 feet above the well screen. Approximately 2 feet of bentonite chips were added above the sand pack and a bentonite/cement slurry was added above the bentonite chips to approximately 1-2 feet bgs.

Drilling equipment was decontaminated after the installation of each monitoring well. The decontamination pad was constructed out of wood and a pool liner (see Photo 6). The decontamination water was collected in a holding tank for later analysis and disposal.

TechLaw Oversight Observations - Groundwater Sampling

Mr. Quillen arrived on site May 6, 2001 at 15:15. Charles Young from Geomatrix met Mr. Quillen at the Rohm and Haas front-gate security building where Mr. Quillen was introduced to Eric Walker, Rohm and Haas' EHS Engineer. Mr. Walker provided Mr. Quillen with a security briefing and then Mr. Quillen went to Monitoring Well UAW13-20, located in the northwest corner of the site, near the surface impoundments and inside the slurry wall. Mr. Tim Jennings, field team leader for Geomatrix' groundwater sampling, and Mr. Eric Mansell were present at UAW13-20 and in the process of purging the well prior to sampling. An odor was in the air, apparently related to either hydrogen sulfide in the groundwater in this location or site manufacturing operations. Geomatrix had a hydrogen sulfide detector at the site and it did not indicate hydrogen sulfide in the well. However, based on the odor in the air, the performance of the instrument was questioned. The flow-through cell and other equipment that contacted the purge water became coated with a black film which Mr. Jennings hypothesized might be related to hydrogen sulfide in the groundwater. Based on the location of this well inside the slurry wall, near the surface former impoundments, and near Mill Creek, Mr. Quillen decided to collect a split sample from this well.

The intake of the pump at UAW13-20 was set at 13.5 feet. The well was being purged and sampled at a flow-rate of approximately 800 milliliters (ml) per minute. The water level in the well prior to sampling was 10.85 feet below the top of well casing, the total depth of the well was 16.1 feet below the top of well casing. Drawdown in the well through purging and sampling was apparently less than four inches. Notes regarding water quality parameters are included in the logbook pages included in Appendix B.

After sampling UAW03-20, Mark Hemmingway from Geomatrix offered to drive Mr. Quillen, along with Mr. Richard Frappa from Geomatrix, through the neighborhood near the facility to an access area on the western bank of Mill Creek. Rohm and Haas owns a small strip of land that extends across Mill Creek to the west, from the northwest corner of the site. The access area Mr. Hemmingway drove to was on Rohm and Haas property. From the western shore of Mill Creek, the east bank of Mill Creek was clearly visible. Generally the bank appeared to be approximately 25 feet high and quite steep. Apparently this portion of Mill Creek was "straightened" by the U.S. Army Corps of Engineers in the 1950s. Mr. Quillen was not able to see any seeps along the western bank of Mill Creek, or any seeps along the eastern bank of Mill Creek adjacent to the Rohm and Haas facility. The east bank of the creek, adjacent to Rohm and Haas, appeared as if it had been disturbed in the past and was overgrown during this site visit. The dense vegetation and angle of repose of the east bank adjacent to Rohm and Haas stood in contrast to the east bank of Mill Creek adjacent to the Cincinnati Drum facility located immediately north of Rohm and Haas and directly across Mill Creek from the access area.

The east bank of Mill Creek, adjacent to Cincinnati Drum, was steeper than the bank adjacent to Rohm and Haas and it was undercut approximately one foot back in a zone approximately one to four feet above the Mill Creek water level. Groundwater seeps were apparent in the undercut area, as may be seen in photograph R1P5 in Appendix A. Each seep occurred in a localized area generally less than one foot wide and spaced more than a foot apart. Some dark staining was visible under the seeps adjacent to Cincinnati Drum, yet from the access point across the creek it could not be determined whether the staining was biological, chemical, or geological. The seep discharge appeared sufficient to wet the rock face yet no obvious flowing of groundwater was visible. It seems unlikely that any similar seeps would be present under the dense foliage adjacent to the Rohm and Haas facility. This determination is primarily based on the slightly more gradual slope of the bank next to Rohm and Haas, the lack of a similar undercut, and the abundant vegetation covering the bank, suggesting the different character of the bank. Mr. Hemmingway hypothesized that the effectiveness of the French Drain at Rohm and Haas may be responsible for the absence of obvious seeps adjacent to their facility. Additional photographs of Mill Creek will be taken during TechLaw's oversight of the Mill Creek sediment sampling activities in August 2001.

On May 8, 2001, Geomatrix initiated sampling activities at UAW07-20. While sampling UAW07-20, Mr. Young developed well EPA-MW-1, located south of UAW07-20. Mr. Jennings and Mr. Mansell sampled well EPA-MW-1 while Mr. Young went to develop EPA-MW-2. While sampling EPA-MW-1, Mr. Peter Palena and Mr. Ron Lancy from Rohm and Haas arrived at the site.

One interesting anecdotal story related to Mr. Quillen by Mr. Mansell while sampling UAW07-20 related to Rohm and Haas monitoring well UAW11 (not sure whether -10 or -40). Mr. Mansell mentioned that purge water collected from this well during development had a purple

APPENDIX A

PHOTOGRAPH LOG

Photograph No.: R1P1
Date: 03/22/01

Time: 1026
Direction: South/Southwest

Description: View of the Rotasonic drill rig and Geomatrix geologist viewing soil cores for stratigraphic logging at UAW-02-40.

Photograph No.: R1P2
Date: 03/22/01

Time: 1255
Direction: South

Description: View of the installation of MW-02-40.

Photograph No.: R1P3
Date: 03/22/01

Time: 1418
Direction: North

Description: View of Mill Creek from bridge at Columbia Road.

Photograph No.: R1P4
Date: 03/22/01

Time: 1426
Direction: East

Description: View of the east side Mill Creek bank adjacent to the Morton facility.

Photograph No.: R1P5 Time: 1430
Date: 03/22/01 Direction: East

Description: View of the east side Mill Creek bank upstream (north) of the Morton facility (note: orange staining).

Photograph No.: R1P6
Date: 03/22/01

Time: 1506
Direction: Southwest

Description: View of the decontamination pad used to clean drilling equipment.

Photograph No.: R1P7
Date: 03/22/01

Time: 1742
Direction: East

Description: View of reported waste burial area "E".

Photograph No.: R1P8
Date: 03/22/01

Time:1750
Direction: Northeast

Description: View of geophysical survey conducted at waste burial area "E".

Photograph No.: R1P9 Time: 0745
Date: 03/23/01 Direction: East

Description: View of waste burial area "E" (note: disturbed soils in background and soil piles in foreground).

Photograph No.: R1P10
Date: 03/23/01

Time: 0828
Direction: N/A

Description: View of the 10-14 feet bgs section of soil core from UAW-04. Section contains black stained sand and gravel.

Photograph No.: R1P11
Date: 03/23/01

Time: 0850
Direction: North

Description: View of the installation of monitoring well UAW-04-20.

Photograph No.: R1P12
Date: 03/23/01

Time: 1240
Direction: Northwest

Description: View of the installation of UAW-03-20.

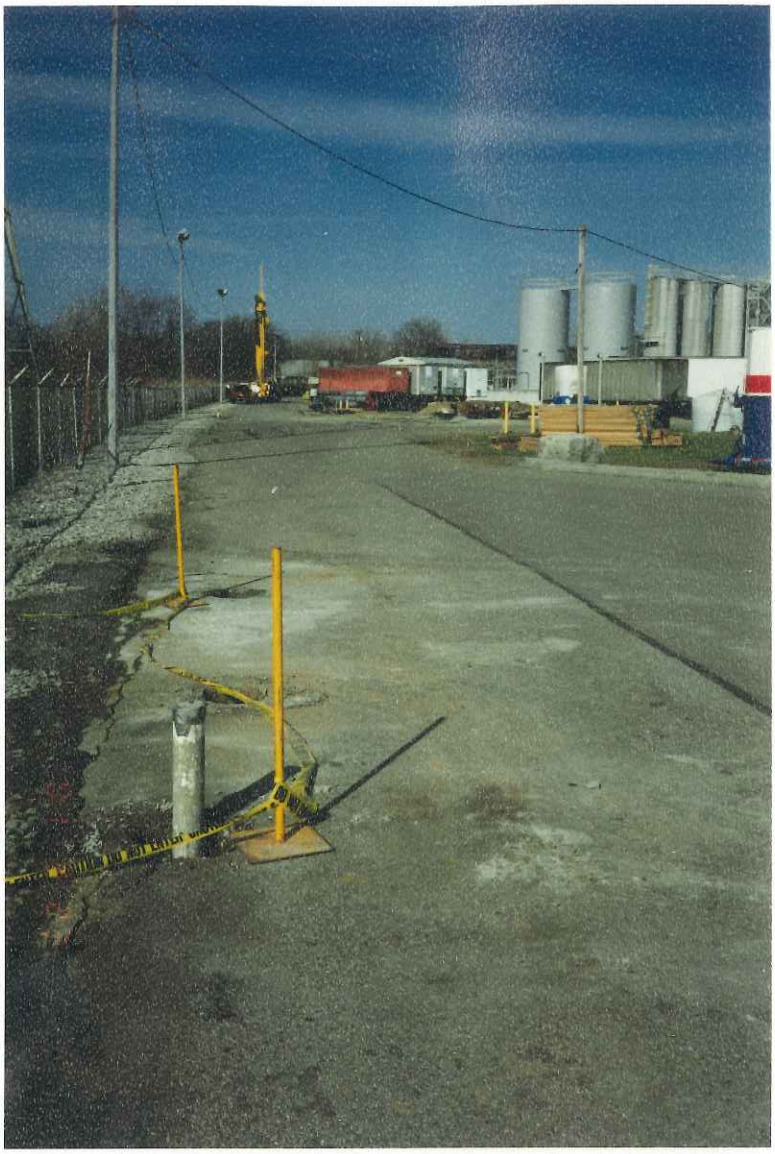
Photograph No.: R1P13 Time: 1410
Date: 03/23/01 Direction: East

Description: View of the northern perimeter of facility. Paved area is the location of SWMU 1 - Former Surface Impoundments.

Photograph No.: R1P14
Date: 03/23/01

Time: 1549
Direction: North

Description: View of the installation of UAW-05-20.



Photograph No.: R1P15
Date: 03/23/01

Time: 1603
Direction: North

Description: View of UAW-02-40, UAW-02-20, and STR-07 (from south to north).

Photograph No.: R2P1
Date: 05/07/01

Time: 0823
Direction: West/Southwest

Description: Geomatrix personnel lowering pump into monitoring well UAW20-60.

Photograph No.: R2P2 Time: 0903
Date: 05/7/01 Direction: Northwest

Description: View of Geomatrix personnel filling a sample container at UAW20-60. Pristine Superfund Site property is on the north side of the fence visible in the background of the photograph. The Pristine groundwater treatment building is approximately 200 feet northeast of this sampling location.

Photograph No.: R2P3
Date: 05/7/01

Time: 1039
Direction: South

Description: On location at UAW02-40, purging well. UAW02-20 may be seen in foreground of photograph.

Photograph No.: R2P4
Date: 05/7/01

Time: 1100
Direction: Down

Description: Filling VOC vials at UAW02-40.

Photograph No.: R2P5
Date: 05/7/01

Time: 1145
Direction: Northwest

Description: Collecting aliquot for turbidity measurement at UAW02-20.

Photograph No.: R2P6
Date: 05/7/01

Time: 1455
Direction: West

Description: Sampling UAW04-20.

Photograph No.: R2P7
Date: 05/7/01

Time: 1530
Direction: South

Description: Purging UAW03-20.

Photograph No.: R2P8
Date: 05/8/01

Time: 0838
Direction: Down

Description: Some corrosion was present in the vault of EPA monitoring well EPA-MW-1.

Photograph No.: R2P9
Date: 05/8/01

Time: 0922
Direction: South

Description: On station at well UAW07-20, EPA well EPA-MW-1 in background of photograph is being purged.

Photograph No.: R2P10
Date: 05/8/01

Time: 1044
Direction: Down

Description: Filling VOC equipment blank off of pump exterior and screen using certified volatile-free water.

Photograph No.: R2P11
Date: 05/8/01

Time: 1155
Direction: Northwest

Description: Filling sample containers at well MW-EPA-1.

APPENDIX B

FIELD LOGBOOK

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CONTENTS

PAGE	REFERENCE	DATE

3/22/01 Morton Int., Reading, OH
TechLawStaff - M Welly
Sunny
Temp 55-60°F

0840 Arrive onsite

Sign-in

Mark Hemingway meets at Gate (Geomatrix)

0900 Eric Walker (Rohm + Haas) EHS Eng.
Provides Plant specific Health & Safety training
- No Cellphone usage in plant
930 Complete R+H Health + Safety Training

940 Go to field trailer
Jim Eidem (Geomatrix) goes over Geomatrix H/S Plan and requirements

J. Eidem takes me to drilling location UAW-02-40
UAW-02-40 Already in progress

According to Geomatrix
UAW - 02 - 40
upper aquifer well — well # — approximate depth in feet (rounded to nearest 10')

R+H Reps (corporate) Ron Lansy Peter
said it was OK to take pictures w/o any equipment and/or processes in the picture. * They would like a copy of the pictures taken.

Installation of ~~MW~~ MW UAW-02-40 w/ RotaSonic Drill Rig
- Drilling Subcontractor is Bowser Morner

UAW-02-40 installed ~10-20' South of UAW-02-20

Soil collection core for Rotasonic rig is 4" Dia.

Photo 1 Dir. South/SW
1026 View of Rotasonic Drill
Rig and Geomatrix viewing
soil Core for logging Stratigraphy
UAW-02-40

UAW-02-40 being installed
4" Dia PVC Riser Schedule 40 PVC
Stainless Steel Screen

1113 Boring completed at 49' bgs

1120 Break for Lunch

1137 Left Message w/Mirtha
1155 Return from Lunch
Installation of ~~MW~~ UAW-02-40

1255 Photo 2 Dir. South
Installation of MW-02-40
(St. Steel well screen)
~~MW~~ UAW-0240 Screened interval
31.5-46.5' bgs
MW MW

Impermeable clay @ 48-49' bgs
- well installed ~1-1.5' into
clay - includes 6" well cap.
- PVC ~~ris~~ MW risers

Drillers add sand in annulus
and measure w/tape after each
bag of sand added. Crew vibrates
outer casing to help sand fill
to bottom.

27.5-29.5' bentonite

1415 Go to Mill Creek

Bridge over Mill Creek
@ Columbia Road

1418 Photo 3 dir- N
View of Mill Creek from
Bridge @ Columbia Rd.

1426 Photo 4 DIR E
View of Morton Side
Mill Creek Bank From
MW

opposite side of
N. boundary

1430 Photo 5 Dir E
View upstream of
Morton side of Mill Creek
bank (note staining)

1441 Return to MW-02-40
Above bentonite chips—
cement bentonit grout added.

Approx.
1450 MW-02-40 Completed

1506 Dir. SW Photo 6
View of Drill Crew's
decon pad
Wood w/ pool liner
at bottom
water collected & stored in
tank

MW

1517 Observe grid layout of
E West of SWMU 4
Haz. ~~Dr~~ Waste Storage Area

50 x 39' Area
Data Collected
From 3' line spacing

EM-61 Geonics (Equipment)

EM-31 used in former swale
12' line spacing (collected earlier)

1742
Photo 7 Dir E
View of E Former/Suspected
Waste Disposal Area

1750 Photo 8 Dir NE
Geophysical Survey at
Former Waste disposal E

Equip is capable of Detecting
a 55gal drum at 10' depth,
According to Geomatrix

MW

1645 Set up for UAW-04
to start in morning

1700 Depart site

3/23/01
0645 Arrive Onsite
Cloudy Mid 40's°F
Per J. Eidem
Geomatrix will copy and/or
let me know ~10 days in advance
for upcoming field activities
- GW sampl
- Soil Sampl
- Trenching
- Seep/Sed Sampl
Jim said Phase I activities
should last until end of June

MW

0700 Geomatrix conducts H/S
Meeting with all contractors

0700 Mobilize to location of
UAW-04

Per a discussion w/ J. Eidem on
3/22/01 concerning soil piles
and apparently dug-up/disturbed
soil at Ⓔ suspected burial (waste)
area - Jim said that Geomatrix
did not disturb the soils in that
area & agreed that it looks like
they were disturbed and noted
that there are piles of soil present

0745 Photo 9 Dir E
View of Ⓔ note disturbed
soils in background and
soil piles in foreground

UAW-02-20 + UAW-02-40
were grouted the previous day
(day of installation) concrete will
be poured later according to Geomatrix
MW

Geomatrix segregate soil
cuttings ~~Upper~~ MW
from upper aquifer to surface
and lower aquifer to upper aquifer
Each is placed in seperate
roll-off for later characterization

754 Collection of Soil Samples
from UAW-04
Sample: 03230104~~4~~ 5
Depth: ~~2~~ UAW04-02 (2')
Analysis: CLP

Geomatrix periodically monitor
Air in vicinity of Drilling

Soils are visually inspected for
evidence of contamination
and sample collected from ~6"
Section from upper 0-3'
J. Eiden stated that PID
used to screen.
Did not observe Geomatrix use
PID on Sample from UAW04

MW

0828 Photo 10 Dir N/A
View of 10-14' section of soil
core from UAW-04 (black staining)
Sand Gravel

PID Screening 230ppm
from 10-14' UAW04

0830
Sample: 032301045
Depth: UAW04-10 (10')
Analysis CLP

Sample 032301045
was observed visually & screened
w/ PID before collected

0850 Photo 11 Dir: N
View of installing Monitoring Well
UAW04

UAW installed to total Depth
of 19' bgs
screened interval 9-19' bgs
St. Steel Screen PVC riser
Clay encountered @ 19' bgs

MW

Water from drilling activities is ~~water~~ MW collected from building 32 and has been sampled by Geomatrix for CLP analysis

8" diameter casing used for well installation

All screens will be 10-15' depending on sand (Aquifer).

Wells are being installed in ~~the~~ MW water bearing unit

Confining layer determines total depth of well due to stratigraphy

1000 Left message for Martha will call later today

According to Eric (Geomatrix) the drillers could provide a estimate on how much water was introduced in the formation by measuring the potable water tank Prior to well installation and subtract out the volume recovered by installation. The drillers will install a flow meter for more accurate measurement which will then be used to correlate volume for well development

1005 Take A walk to N. side of facility to view well locations - well locations correlate to Locations on Work Plan Map

According to Geomatrix STR-07 was an additional Strat. Boring to the original plan. All originals Strat Borings will be ~~put in~~ MW installed and due to consistency in stratigraphy, additional locations could be added

MW

MW

1015 Called Mirtha back
- Spill Methylene Chloride (Air)
- Asked when we wanted to come back I said I would check w/ Todd & discuss and see what Mirtha wanted to focus on.
- Mirtha was interested in when seep sampling was to occur.
- Mirtha said OK if today is last day of oversight this period

1045 Start Installation of UAW-03

Per J. Eidem ALL well Locations will be surveyed by an out side contractor Also, the geotechnical grids will be surveyed also.

UAW-03
Soil was collected for Strat Logging Although soil was not collected for Analysis

MW

UAW-03 is on west side of French drain apposite of UAW-02
- clay encountered ~14-15'
Black staining on UAW-03 at ~10-14' (Black Staining) approx. interval as UAW-02
Soils screened w/ PID <5ppm highest

1135 Break for Lunch

1200 Return From Lunch

1230 Commence installation of UAW-03
Depth - 19' bgs
Screened interval 9-19' bgs
- Clay encountered ~14-15' bgs

1240 Photo 12 D.R. NW
View of installation of UAW-03

* For Strat. borings 6" outer casing & 4" collection tube was used in previous boring

MW

UAW-02 construction
Sand - 7-19' bgs
Bentonite - 5-7 bgs
Bent/Concrete Slurry -

Slurry mixs tremmied down Hole due to water present.

According to E Walker he does not know of any excavation or activity present near (E) suspected burial waste area. He said that utility work could have potentially been done in that area.

1315 Completion of UAW-03
Drilling Crew decon equip.

1400 Setup UAW-05

1410 Photo 13 Dir E
View of Northern Perimeter of facility. Paved Area is location of Former Surface impoundments

1430
Observed Drill crew break Asphalt prior to Drilling UAW-05 "Drill bit" penetrates ~~≥12"~~ ≈12" prior to drilling. Drill bit is hollow and when removed from Sample Location ~12" or more is removed from Top of Asphalt to soil. It is difficult to determine if upper 6-12" are collected using this method. This is a limitation of rotasonic drill rig. After Asphalt is penetrated, a drill tub is placed over hole filled & hydrated bentonite. This seals the hole so water introduced in the hole will rise into drill tub.
* The boring logs and/or report should account for the upper 12" or so of the boring as not sampled, not just characterized as "fill."

Samples Collected @ UAW 05

Sample ID: 03230104
Depth: 1.5' bgs
Analysis: CLP

Sample ID: 03231047
Depth: 13' bgs
Analysis: CLP

lower impermeable clay encountered at ~13-14' bgs

Black stained sand & gravel at ~~14'~~ 13' bgs

* For ~~both~~ UAW03 ~~and UAW05~~ Screened interval (Bottom) is installed in ~3-4' of clay.

* Geoprobe having difficulty determining Soil/GW interface due to H_2O being introduced into well in all borings.

Also stained soil in ~~impermeable~~ strata which would likely be H_2O bearing unit.

~~2' of [redacted] added to bottom of well [redacted] bottom of well to 17' bgs.~~

- Well screened from 7-17' bgs

1549 Photo 14
Dir: North
View of installation of ~~MW~~ UAW-05

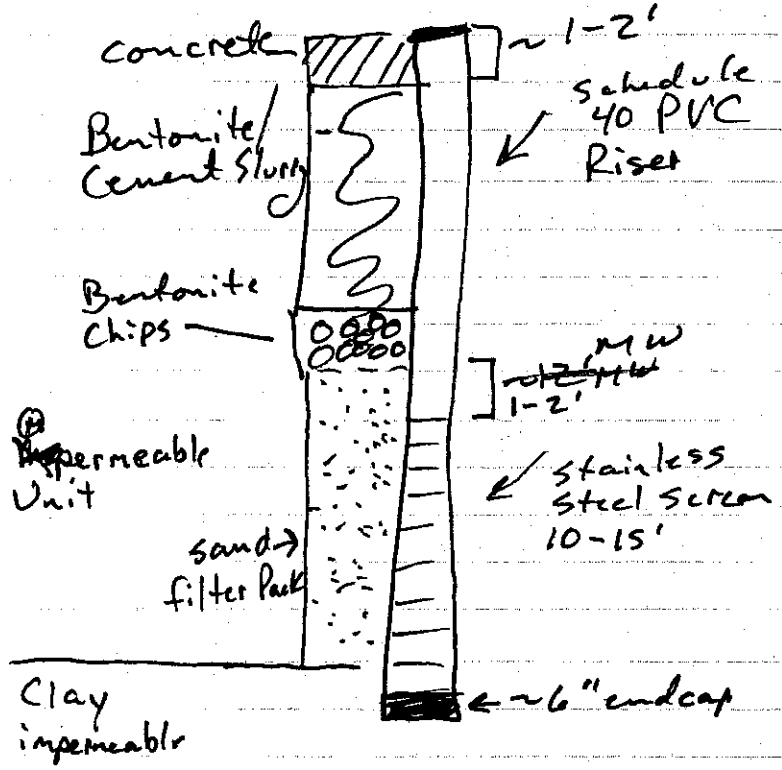
Sand added to annulus to ~6' bgs
- ~~Stone added~~ Bent. chips to ~~1.5~~ 2' bgs
- Grout to ~1' bgs

1603 Photo 15 Dir: N
View of ~~B~~ bottom top (from S → North)
UAW-02-40, UAW-02-20, & SHR-07

Borings filled w/grout but concrete and/cover not yet installed.

General Construction of Wells 1715 Depart Site

Flush Mounted in drive area



1627 VAW-05 Completed

Concrete → Pad to be added later.

MW

MW

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GE	REFERENCE	DATE

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7/6/01

1515 Arrived on site
H&S orientation by Eric
Charles from Geomatrix brought me to UAW13-20. Inside slurry wall by surface Impoundments
We discussed the wells that would be sampled over the next few days. This well seemed like it would be a good one to split b/c it is inside the slurry wall, near the surface impoundments, a good producer, and thought by Tim to have some contamination.
I collected a primary sample and a duplicate. Sample time 1545.
I will call the Dup UAW43 and assign it a sample time of 1210.
Tim Jennings was the field team leader, Charles Young and Erik Mansell were the other samplers. Eric was monitoring water quality parameters, Tim filled bottle

TI 16.1 Intake 13.5 feet
Initial depth 10.85'
Final depth 10.92'
during sampling 11.14
Flow rate 800 ml / minute

Temp 16.24 °C
pH 4.33
Cond 6930 µS/cm
DO -8.32 (erroneous)
Turb 4.6

Final readings before sample.

Model YSI 610D w/flow through cell
6 gallons purged before sampling

They finish filling bottles and deconing at 1620. Moved 25' North to UAW12-20.
Total Depth 16.4 feet
Initial depth to water 10.35 feet
pump rate adjusted until they were satisfied it was slow enough. 950 ml/min determined OK for now.
Weather warm Mid-80's, occasional light breeze, Mostly sunny
PPE hard hat, glasses, boots (steel toe), long sleeves.

1651 taking a water level measur
10.51 feet
remeasured flowrate - They're at 750 ml/min.
at 1658 Eric recorded the following
Temp 15.34 °C
pH 5.45
Cond 4907
DO 5.43
Turb 4.1
DO ~~meter~~ 5/6 meter seems to be working better
1700 started preparing to collec sample.
I will not split this one.
1730 finished sampling, packed up s
They didn't decon the equipment
They're bailing the next few wells
They will decon in the morning.

1738 on station at UAW08-2
inside slurry wall immediately west of UAW13-20.
Well was purged dry this morning
15.91 water level. 18.35 total depth

1800 about 1.5 feet of water in bailer - half way through filling bottles. Well does appear to be a poor recharger.

No water quality parameters were collected b/c well purged dry in a.m. and bailed in P.M.

1818 Finished filling bottleware
1824 On station at UAW05-20
1850 Finished sampling UAW05-20
1851 On station at UAW06-20

This well is inside the French drain trace that runs near the facility boundary in this area.

For UAW05-20 5 gallons were pumped out of it this morning when it was pumped dry.

At this well, UAW06-20, 8 gallons were pumped out this morning.

depth to water 12.95 feet
Total depth 16.2

at UAW05-20
depth to water 11.76
Total depth 19.02
at UAW06-20.

Started bailing/collecting samples at 1900.

Some of these wells seem to have a strong H_2S odor

They're using ~~a~~ the plastic tube on the bailer to get the sample out - ~~one~~ two of the VOA vials had the water come in too fast. Not necessarily good samples because volatiles may have been lost/reduced. They didn't redo them.

The filtered metals samples will be filtered in the lab so they are not adding Nitric acid.

1920 Finished sampling UAW06-20
1930 Signed out left site

At hotel I took care of some paperwork

I realized I didn't get a dioxin/Furan duplicate sample. I will collect the d/F duplicate from the well I collect tomorrow.

5/7/01

0710 Arrived on site, signed in at security, went to Geomatrix trailer
Participated in daily safety briefing led by Charles Young.
heard sampling plan for day.
left site from 0740 to 0800 to get camera.
0800 near EPA-MW-2 near Pristine remediation building. They are sampling UAW-20-60
Tim is deconning equipment.

---

depth to water (we're up on a hill) is 39.95 feet before any pumping.
Total depth 60.54

Charles did a complete round of water levels on April 30th.

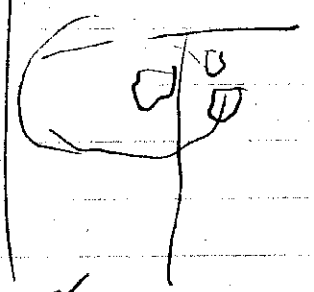
0820 Almost ready to lower pump into the well.
Pump set at 52.5 feet.

5/7/01

pumping at 750 ml/minute, still adjusting
They'll stay at 650 for now.
0852 pump had slowed a bit, water level rose in response, they adjusted the pump speed a bit
Water level 40.20.
The new flow rate is 500 ml/min
Adjusted again to 1000 ml/minute.
pump slowed a bit while filling bottles so they adjusted again.
0905 Rick ~~Khaffafa~~ Frappa 5/7 the Geomatrix QA officer, arrived with Charles Young.
The fluctuations in the discharge rate continued while filling bottles. Tim thought it was due to a kink in the hose at depth.
0925 Finished sampling UAW20-60.
Because the pump was behaving erratically they are going to take it apart to be sure its OK.

EPA-MW-2 depth to water 10.12

Photo	View	time	desc
-1	WSW	0823	lowering pump into UAW20-60
-2	NW	0903	Filling sample bottles at UAW20-60
-3	S	1039	purging at UAW02-40
-4	Down	1100	Filling VOC vials at UAW02-40.
-5	NW	1145	Collecting aliquot for Turbidity at UAW02-20
-6	W	1455	Sampling UAW04
-7	S	1530	purging UAW03



Total depth 17.12 but more than one foot of mud/silt in well. Rather than sample it the are going to redevelop the well by bailing a couple of well volumes out. They will sample it later.

1005 on station at UAW02-40

1020 Finished deconning equipment.

1025 lowered pump into well

PID = 0.0 ppm.

When they inspected the pump at the previous well they found everything was in order.

Initial depth to water 15.46 feet

The tubing they are using is Kuri Tec clear vinyl tubing from Granger. 3/8" x 1/2" x 100'.

At UAW20-40 - Final readings.

Temp	18.81	Turb	10.4
pH	6.42		
Cond	2957		
DO	6.92		

5/7/01

UAW02-40

Flow rate 950 at 1030

Flow rate not measured at 1050

Final readings

Temp	16.74	pump set at 38'
pH	6.52	
Cond	1189	total volume purged
DO	3.94	before sampling ~8.0
Turb	19	gallons.

1105-1120 Collected samples.

Decorned equipment

Depth to water at UAW02-20 is 13.10 feet.

pump set at 15.5 feet

Flow rate 700 ml/min

They collected sample and Dup at UAW0220, Sampling from 1200 to 1230 - actually 1240.

— Final readings before sampling

Temp	15.25	DO	3.05
pH	6.29	Turb	4.1
Cond	5356		

TA

5/7/01

1241 Collecting final Water Quality parameters

Did lunch, paperwork, decon on station at UAW04-20 at 1410

I will split This one.

Upon opening The well cap The PID read over 1000 ppm.

---

depth to water 13.91 feet

no sheen on probe

Total depth 18.23 feet

well set at 16.0 feet.

Flow rate 750 ml/min

Flow rate 500 ml/min at 1445

— Water level in Well keeps falling

Because water level has dropped so Much and The Flow rate is so low I agreed it doesn't make sense for me to get a split from This one. Flow rate appears to be significantly less Than 500 ml/min.

TA

1520 on station at UAWØ3-20
PID 0.0 ppm.
Still decanning pump.
Not sure whether I will split this one. Will wait to see if there is odor or sheen.
Total depth 18.5
depth to water 13.45 feet.
well pump set at 16.00 feet
well pump lowered at 1528
Pump rate 500 ml/min

I did decide to split this well. There was odor, it is outside (creekside) of french drain, and it was adjacent to UAWØ4 (30 feet west) which had strong odor and PID readings.

depth to water 14.53' after sampling

Sample time for UAWØ3 is 1600.
Duplicate of UAWØ3 for SVOC/Pest/PCB/dioxin/Furan, called UAW44 sample
Time 1030 on 5/7/01

1635 finished pumping at UAWØ3.
1700 Checked out at security parked up the street. Mark Hemingway arrived at the site around ~~3:30~~ 5/7 1530. Mark offered to show Rick and I Mill Creek from an overlook opposite the NW corner of the plant.
Mark and Rick picked me up. From the overlook, you could see the transition from the "natural" Mill creek to the "straightened" Mill creek adjacent to the site. Some seeps were visible on the bank north of the site but none were visible on Morton bank either because the bank was too disturbed or because the French drain was effective.
Finished tour at 1740, went to hotel to label bottles, do paperwork. Dropped off coolers at Fedex.

5/8/01

Arrived on site at 0715, checked in at security, went to trailer for safety briefing and signed briefing sheet.

Mark, Rick, Charles, Eric, and Tim were present.

They are going to purge EPA wells and manage some of their IDW while waiting for the rain to stop.

Weather - Rainy, light wind

0800 Still pumping drums of IDW water into Frac tank.

0815 On station at Monitoring well UAW07 in NW corner of site.

Eric told me UAW11 south of the surface impoundments had purple Groundwater when it was developed. They had a container that they kept in the trailer - They observed the purple material seperate into an LNAPL phase that would disappear upon being disturbed.

UAW11 will be the last well they sample.

5/8/01

at 0838 They finally opened the EPA well south of UAW7. (MW-EPA-1

This EPA well was in a low area on the site access road and the top was under water. They swept water away, bailed the vault above the vault cover, much corrosion in vault. PID 0.0 when they opened the cap.

Charles is developing the EPA well. Tim, Rick, Eric are setting up at UAW07.

0905 Mark came out to the wells for a visit.

0915 lowered pump into well pump set at 14.5 feet.

Total depth 17.15 Feet

depth to water 11.31 feet

pumping at 600 ml/minute.

Strong odor. PID was 66 ppm

Rain has stopped.

They are collecting a primary sample, MS/MSD, Duplicate, and equipment blank at following this well UAW07

photo	view	time	desc
-8	down	0838	corrosion in vault at EPA well on access road south of UAW07.
-9	S	0922	On station at UAW07. Purging. EPA well in background.
-10	down	1044	Filling VOC EQ blank off pump, using certified Volatile Free water
-11	NW	1155	Filling bottles at MW-EPA-1

1000 Still filling

1015 Finished filling bottles

They had to move because a truck was waiting to move into the area.

Their final reading after sampling were taken but DO didn't equilibrate (it was negative). They couldn't wait any more because of truck.

Equipment moved, well sealed, truck let through at 1020. Final readings prior to sampling were:

Temp	~~16.84~~	16.82
pH	~~6.79~~	6.96
Cond	~~4355~~ 5/8	4347
DO		2.66
Turb		3.9

1042 Started collecting equipment blank.

They are using laboratory supplied water - Certifie Volatile free for VOCs EQ blank and deionized for other parameters.

5/8/01

EQ blank collected in Northwest corner of site. Considering the chemical odor in the air this is a good field blank too.
Not clear if odor is from Cincinnati Drum or Morton.

1055 Finished EQ blank

I went up to EPA-MW-2 to see Charles developing it. Very muddy well. Bailed dry three times.

1140 Came back to MW-EPA-1

Sampling using their low flow procedure but still getting drawn down

depth to water	11.71
total depth	16.65
pump at	14.0

pumping at 400 ml/min
water is clear w/ black silty material

Final readings before 1150 sample time:

Temp	20.97	← high temp either due to
pH	6.55	pump heating at low flow
Cond	46.54	rate or Flow-Thru cell
DO	1.52	heating in sun due to.
Turb	17	low flow rate.

5/8/01

1204 still filling bottles at MW-EPA-1.

Mark arrived with Peter Paler and Ron Lancy, Ron is a Rohm Haas technical assistance person, he happens to be a geologist.

1225 Ron, Mark, Peter left. They finished sampling well and packed up. They were going to take care of IDW and eat lunch so I left at 1230, signed out at ~~the~~ guard shack.

EOL

APPENDIX C

DATA VALIDATION
AND
ANALYTICAL RESULTS

DATA VALIDATION REPORT

Report Date:	June 27, 2001
SDG No.:	911367
Site:	Morton International
Matrix:	1 Groundwater Sample
Laboratory:	EnChem Laboratories, Inc.
Collection Date(s):	5/7/01

This report provides the data validation review for 1 groundwater sample collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for Appendix IX Volatile Organic Compounds (VOCs) on May 14, 2001. The results for the associated aqueous trip blank sample were also reviewed.

PARAMETER	SAMPLE NUMBERS
Appendix IX Volatile Organic Compounds (SW-846 8260B)	UAW03 (911367-011)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III, " (June, 1999); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

Appendix IX Volatile Organic Compounds (VOCs)

- *● Data Completeness
- *● Holding Times
- *● GC/MS Instrument Performance Check
- ● Calibrations
- ● Laboratory and Trip Blank Analyses
- *● Surrogates
- ● Matrix Spike/Matrix Spike Duplicate Results
- *● Laboratory Control Sample Results
- *● Internal Standards
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Analytical holding times were ascertained by determining whether the holding time requirements were met by the laboratory. Holding times were met for Appendix IX VOCs.

GC/MS Instrument Performance Check

GC/MS tuning criteria were met.

Calibrations

Poor initial calibration (IC) and continuing calibration (CC) response factor (RF) results were associated with the following compounds:

Compound	IC	CC	RF	QC limit
2-butanone	X		RF100 .049	minimum 0.050
2-butanone		X	RF50 .048	minimum 0.050
isobutanol	X		RF1 .024, RF5 .022, RF10 .020, RF20 .019, RF50 .020, RF100 .019	minimum 0.050
isobutanol		X	RF50 .018	minimum 0.050

Results for isobutanol were qualified as unusable (R) due to the poor RF results. Results for 2-butanone were qualified as estimated (J) since the observed RFs were only slightly below the acceptance criteria

Laboratory and Trip Blank Analyses

Acetonitrile was reported in the associated trip blank (11 µg/L). This compound was not reported in sample UAW03. Therefore, no further action was necessary. All other blank results appeared acceptable.

Surrogates

All surrogate spike recoveries met specified QC parameters.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Sample Results

Poor MS/MSD percent recovery (%R) and/or relative percent difference (RPD) results were associated with the following compounds:

Compound	MS %R	MSD %R	RPD	QC Limits
iodomethane	38 %R			39 - 148 %R
acrolein			40	20 RPD
acetone			28	12 RPD
iodomethane			19	13 RPD
vinyl acetate			27	14 RPD
2-butanone			30	17 RPD
1,2-dichloroethane			14	13 RPD
dibromomethane			18	7 RPD
cis-1,3-dichloropropene			9	7 RPD
4-methyl-2-pentanone			30	9 RPD
trans-1,3-dichloropropene			9	5 RPD
2-hexanone			28	11 RPD
dibromochloromethane			11	8 RPD
1,2-dibromoethane			16	8 RPD
total xylenes			7	6 RPD
bromoform			19	8 RPD
1,1,2,2-tetrachloroethane			20	8 RPD
1,2,3-trichloropropane		66 %R	22	73 - 130 %R 6 RPD
trans-1,4-dichloro-2-butanone		60 %R	26	67 - 138 %R 14 RPD
1,2-dibromo-3-chloropropane			28	13 RPD

Since all surrogates, and laboratory control sample results met acceptance criteria, no qualifiers were issued due to MS/MSD results.

Laboratory Control Sample Results

All laboratory control sample and laboratory control sample duplicate results met specified QC parameters.

Internal Standards

All internal standard results met specified QC limits.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
VOC DATA SUMMARY TABLE
SW-846 METHOD 8260B

Sample ID Number	**UAW03**	**Q**
Sample Description	Down gradient of french drain	
Matrix	Groundwater	
Collection Date	5/7/01	
Analyte	µg/L	
Dichlorodifluoromethane	2.0	U
Chloromethane	2.0	U
Vinyl chloride	2.0	U
Bromomethane	2.0	U
Chloroethane	2.0	U
1,1-Dichloroethene	1.0	U
Methylene chloride	1.0	U
trans-1,2-Dichloroethene	1.0	U
1,1-Dichloroethane	1.0	U
Chloroform	1.0	U
1,1,1-Trichloroethane	1.0	U
Carbon tetrachloride	1.0	U
1,2-Dichloroethane	**13**	
Benzene	**1.0**	
Trichloroethene	1.0	U
Proprionitrile	20	U
Iodomethane	5.0	U
Isobutanol	100	**R**
1,2-Dichloropropane	1.0	U
Dibromomethane	1.0	U
Bromodichloromethane	1.0	U
cis-1,3-Dichloropropene	1.0	U
Toluene	**12**	
trans-1,3-Dichloropropene	1.0	U
1,1,2-Trichloroethane	1.0	U
Tetrachloroethene	1.0	U

Q - Qualifier
U - Undetected at reported value
R - Unusable/Unreliable value
µg/L - micrograms per liter

MORTON INTERNATIONAL
VOC DATA SUMMARY TABLE
SW-846 METHOD 8260B

Sample ID Number	**UAW03**	**Q**
Sample Description	Down gradient of french drain	
Matrix	Groundwater	
Collection Date	5/7/01	
Analyte	µg/L	
Methacrylonitrile	10	U
1,2-Dibromoethane	1.0	U
Chlorobenzene	**8.8**	
1,1,1,2-Tetrachloroethane	1.0	U
Ethylbenzene	1.0	U
Vinyl Acetate	5.0	U
Total Xylenes	3.0	U
Styrene	1.0	U
Bromoform	1.0	U
1,1,2,2-Tetrachloroethane	1.0	U
1,2,3-Trichloropropane	1.0	U
Chloroprene	10	U
1,2-Dibromo-3-chloropropane	2.0	U
Fluorotrichloromethane	2.0	U
2-Butanone	5.0	UJ
2-Hexanone	5.0	U
4-Methyl-2-pentanone	5.0	U
Acetone	5.0	U
Acetonitrile	10	U
Acrolein	20	U
Acrylonitrile	5.0	U
Allyl Chloride	5.0	U
Carbon Disulfide	**1.6**	
Chlorodibromomethane	1.0	U
Ethyl methacrylate	5.0	U
trans-1,4-Dichloro-2-butene	5.0	U

Q - Qualifier
U - Undetected at reported value
R - Unusable/Unreliable value
µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date: June 28, 2001
SDG No.: 911367
Site: Morton International
Matrix: 2 Groundwater Samples
Laboratory: EnChem Laboratories, Inc.
Collection Date(s): 5/7/01

This report provides the data validation review for 2 groundwater samples collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. Sample UAW44 was included as a blind duplicate of sample UAW03. The samples, which are listed below were analyzed for Appendix IX semi-volatile organic compounds (SVOCs) on May 10, 2001.

PARAMETER	SAMPLE NUMBERS
Appendix IX SVOCs (SW-846-8270C)	UAW03 (911367-011), UAW44 (911367-010)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III, " (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999 (Functional Guidelines).

Semi-Volatile Organic Compounds

- *● Data Completeness
- *● Holding Times
- *● Instrument Performance Check (DFTPP)
- ● Calibrations
- *● Laboratory Blank Analyses
- *● System Monitoring Compounds
- ● Laboratory Control Sample (LCS)
- ● Matrix Spike/Matrix Spike Duplicate
- *● Internal Standards
- *● Blind Duplicate Sample Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Analytical holding times were ascertained by determining whether the holding time requirements were met by the laboratory. Holding times were met for all analyzes in this data package. However, sample UAW03 was received by the laboratory at 13°C which is above the acceptable limit of 4±2°C. No qualifiers were issued due to this exceedence and results between the sample and the blind duplicate are comparable.

Instrument Performance Check

The DFTPP Instrument Performance check was within QC limits.

Calibrations

The initial calibration percent relative standard deviation (% RSD) results for a,a-dimethylphenethylamine and 2,4-dinitrophenol exceeded the criteria of 30% at 36.5 % and 33.1 %, respectively. These results were within the laboratory QC limits of 50 % RSD. The affected results for these compounds were qualified as estimated and flagged "UJ" for non-detected results.

The continuing calibration percent difference (%D) or relative response factor (RRF) results exceeded the criteria of 25 % D or .05 RRF in the following compounds:

COMPOUND	%D	RRF
a,a-dimethylphenethylamine	29.08/36.24	
kepone	28.4	
4-nitrophenol	32.4	
4-nitroquinalone-1-oxide	-35.2	.040
methapyrilene		0.009/0.007
hexachloropreny	-29.2	

The result for a,a-dimethylphenethylamine was previously qualified due to poor initial calibration %RSD results. The results for 4-nitroquinalone-1-oxide and methapyrilene were qualified as rejected and flagged "R" for non-detected results. The remaining results for these outliers were qualified as estimated and flagged "UJ" for non-detected results.

Laboratory Blank Analyses

There were no detected compounds in the laboratory blanks.

System Monitoring Compounds

All of the surrogate recoveries met the required QC limits.

Laboratory Control Sample (LCS) Analyses

Laboratory control sample percent recovery (% R) results exceeded the control limits for 2,4-dinitrophenol (120 %R). No qualification is required since the recovery was above acceptance criteria and the analyte was not detected in the samples.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

MS/MSD percent recovery (%R) results exceeded the control limits for 2,4-dinitrophenol (both 140 %R. No qualification was required since the recovery was above acceptance criteria and the analyte was not detected in the samples.

Internal Standards

All of the internal standard recoveries met the required QC limits.

Sample Result Verification

Sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C

Sample ID Number	UAW03	Q	UAW44	Q
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
bis(2-Chloroethyl)ether	10	U	10	U
Phenol	10	U	10	U
2-Chlorophenol	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U
1,2-Dichlorobenzene	**21**		**20**	
2-Methylphenol	10	U	10	U
4-Methylphenol	**10**		10	U
Hexachloroethane	10	U	10	U
N-Nitroso-di-n-propylamine	10	U	10	U
Nitrobenzene	10	U	10	U
Isophorone	10	U	10	U
2-Nitrophenol	10	U	10	U
2,4-Dimethylphenol	10	U	10	U
bis(2-Chloroethoxy)methane	10	U	10	U
2,4-Dichlorophenol	10	U	10	U
1,2,4-Trichlorobenzene	10	U	10	U
Naphthalene	10	U	10	U
4-Chloroaniline	10	U	10	U
Hexachlorobutadiene	10	U	10	U
4-Chloro-3-methylphenol	10	U	10	U
2-Methylnaphthalene	10	U	10	U
Hexachlorocyclopentadiene	10	U	10	U
2,4,6-Trichlorophenol	10	U	10	U
2,4,5-Trichlorophenol	25	U	25	U
2-Chloronapthalene	10	U	10	U
2-Nitroaniline	25	U	25	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Reported value is unusable/unreliable

MORTON INTERNATIONAL
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C

Sample ID Number	UAW03	Q	UAW44	Q
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
Acenaphthylene	10	U	10	U
Dimethylphthalate	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U
Acenaphthene	10	U	10	U
3-Nitroaniline	25	U	25	U
2,4-Dinitrophenol	25	UJ	25	UJ
Dibenzofuran	10	U	10	U
2,4-Dinitrotoluene	10	U	10	U
4-Nitrophenol	25	UJ	25	UJ
Fluorene	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U
Diethylphthalate	10	U	10	U
4-Nitroaniline	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	25	U
n-Nitrosodiphenylamine	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U
Hexachlorobenzene	10	U	10	U
Pentachlorophenol	25	U	25	U
Phenanthrene	10	U	10	U
Anthracene	10	U	10	U
Di-n-butylphthalate	10	U	10	U
Fluoranthene	10	U	10	U
Pyrene	10	U	10	U
Butylbenzylphthalate	10	U	10	U
3,3'-Dichlorobenzidine	10	U	10	U
Benzo[a]anthracene	10	U	10	U
Chrysene	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U
Di-n-octylphthalate	10	U	10	U
Benzo[b]fluoranthene	10	U	10	U
Benzo[k]fluoranthene	10	U	10	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Reported value is unusable/unreliable

MORTON INTERNATIONAL
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C

Sample ID Number	UAW03	Q	UAW44	Q
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
Benzo[a]pyrene	10	U	10	U
Indeno[1,2,3-cd]pyrene	10	U	10	U
Dibenzo[a,h]anthracene	10	U	10	U
Benzo[g,h,i]perylene	10	U	10	U
1,2,4,5-Tetrachlorobenzene	10	U	10	U
1,3,5-Trinitrobenzene	10	U	10	U
1,3-Dinitrobenzene	10	U	10	U
1,4-Dioxane	10	U	10	U
1,4-Naphthoquinone	10	U	10	U
1-Naphthylamine	10	U	10	U
2,2-oxybis(1-Chloropropane)	10	U	10	U
2,3,4,6-Tetrachlorophenol	10	U	10	U
2,6-Dichlorophenol	10	U	10	U
2-Acetylaminofluorene	10	U	10	U
2-Naphthylamine	10	U	10	U
2-Picoline	10	U	10	U
3,3-Dimethylbenzidine	10	U	10	U
Pentachlorobenzene	10	U	10	U
Methyl Parathion	10	U	10	U
Parathion	10	U	10	U
p-Phenylenediamine	1000	U	1000	U
Ethyl methanesulfonate	10	U	10	U
Famphur	10	U	10	U
Hexachloroethane	10	U	10	U
Hexachloroprene	500	UJ	500	UJ
Hexachloropropene	20	U	20	U
Isodrin	10	U	10	U
Isosafrole	10	U	10	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Reported value is unusable/unreliable

MORTON INTERNATIONAL
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C

Sample ID Number	UAW03	Q	UAW44	Q
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
3-Methylcholanthrene	10	U	10	U
3-Methylphenol	10	U	10	U
4-Aminobiphenyl	10	U	10	U
4-Nitroquinoline-1-oxide	10	R	10	R
5-Nitro-o-toluidine	10	U	10	U
7,12-Dimethylbenz(a)anthracene	10	U	10	U
a,a-Dimethylphenethylamine	20	UJ	20	UJ
Acetophenone	10	U	10	U
Aniline	**15**		**12**	
Aramite	20	U	20	U
Benzyl Alcohol	10	U	10	U
Chlorobenzilate	10	U	10	U
Diallate	10	U	10	U
Dimethoate	10	U	10	U
Dinoseb	10	U	10	U
Diphenylamine	10	U	10	U
Disulfoton	10	U	10	U
Ethyl Methacrylate	10	U	10	U
Phenol	10	U	10	U
Phorate	10	U	10	U
Pronamide	10	U	10	U
Pyridine	10	U	10	U
Safrole	10	U	10	U
Sulfotep	10	U	10	U
Thionazine	10	U	10	U
Phenacetin	10	U	10	U
Pentachloronitrobenzene	10	U	10	U
Pentachloroethane	10	U	10	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Reported value is unusable/unreliable

MORTON INTERNATIONAL
SVOCs DATA SUMMARY TABLE
SW-846 Method 8270C

Sample ID Number	**UAW03**	**Q**	**UAW44**	**Q**
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
Kepone	50	UJ	50	UJ
Methapyrilene	20	R	20	R
Methyl methacrylate	10	U	10	U
Methyl methanesulfonate	10	U	10	U
N-nitrosodi-n-butylamine	10	U	10	U
N-Nitrosodiethylamine	10	U	10	U
N-Nitrosodimethylamine	10	U	10	U
N-Nitrosomethylethylamine	10	U	10	U
N-Nitrosomorpholine	10	U	10	U
N-Nitrosopiperidine	10	U	10	U
N-Nitrosopyrrolidine	10	U	10	U
o,o,o-Triethylphosphorothioate	10	U	10	U
o-Toluidine	10	U	10	U
p-(Dimethylamino)azobenzene	10	U	10	U

Q: Qualifier, U: Undetected at the reported value, UJ: Estimated reporting limit, R: Reported value is unusable/unreliable

DATA VALIDATION REPORT

Report Date: June 27, 2001
SDG No.: 911367
Site: Morton International
Matrix: 2 Groundwater Samples
Laboratory: EnChem Laboratories, Inc.
Collection Date(s): 5/7/01

This report provides the data validation review for 2 groundwater samples collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. Sample UAW44 was included as a blind duplicate of sample UAW03. The samples, which are listed below were analyzed for pesticides on May 17, 2001 and May 30, 2001.

PARAMETER	SAMPLE NUMBERS
Pesticides (SW-846 8081)	UAW03 (911367-011), UAW44 (911367-010)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III, " (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

Pesticides

- *● Data Completeness
- *● Holding Times
- *● Calibration
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate Results
- *● Surrogate Spike Sample Results
- *● Laboratory Control Sample Results
- *● Blind Duplicate Sample Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Analytical holding times were ascertained by determining whether the holding time requirements were met by the laboratory. Holding times were met for all pesticide compounds. However, sample UAW03 was received by the laboratory at 13°C which exceeds the acceptance criteria of 4±2°C. No qualifiers were issued based on this exceedence and the sample and duplicate results appear comparable.

Calibrations

All initial calibration and continuing calibration sample results were within quality control (QC) limits. Analytical sequences were acceptable. 4,4'-DDT/Endrin breakdown results were acceptable.

Laboratory Blank Analyses

All laboratory blank analyses met specified QC requirements.

Matrix Spike/Duplicate Results

All matrix spike and duplicate sample results met specified QC requirements.

Surrogate Spike Sample Results

All surrogate spike sample results met specified QC requirements.

Laboratory Control Sample Results

All laboratory control sample (LCS) results were within QC limits.

Blind Duplicate Sample Results

Sample UAW44 was included as a blind duplicate of sample UAW03. Pesticide compounds were not reported in either sample. Therefore, reporting the relative percent difference (RPD) results was not necessary.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
PESTICIDE DATA SUMMARY TABLE
SW-846 METHOD 8081

Sample ID Number	**UAW03**	**Q**	**UAW44**	**Q**
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
4,4'-DDD	0.10	U	0.10	U
4,4'-DDE	0.10	U	0.10	U
4,4'-DDT	0.10	U	0.10	U
Aldrin	0.050	U	0.050	U
alpha-BHC	0.050	U	0.050	U
alpha-Chlordane	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U
Chlordane (technical)	1.0	U	1.0	U
delta-BHC	0.050	U	0.050	U
Dieldrin	0.10	U	0.10	U
Endosulfan I	0.050	U	0.050	U
Endosulfan II	0.10	U	0.10	U
Endosulfan Sulfate	0.10	U	0.10	U
Endrin	0.10	U	0.10	U
Endrin Aldehyde	0.10	U	0.10	U
gamma-BHC (Lindane)	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U
Heptachlor	0.050	U	0.050	U
Heptachlor Epoxide	0.050	U	0.050	U
Isodrin	0.10	U	0.10	U
Methoxychlor	0.50	U	0.50	U
Toxaphene	5.0	U	5.0	U

U - Undetected at reported value

Q - Qualifier

µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date: June 27, 2001
SDG No.: 911367
Site: Morton International
Matrix: 2 Groundwater Samples
Laboratory: EnChem Laboratories, Inc.
Collection Date(s): 5/7/01

This report provides the data validation review for 2 groundwater samples collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. Sample UAW44 was included as a blind duplicate of sample UAW03. The samples, which are listed below were analyzed for polychlorinated biphenyl compounds (PCBs) on May 18, 2001.

PARAMETER	SAMPLE NUMBERS
PCBs (SW-846 8082)	UAW03 (911367-011), UAW44 (911367-010)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III, " (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

PCBs

- *● Data Completeness
- *● Holding Times
- ● Calibration
- *● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate Results
- *● Surrogate Spike Sample Results
- *● Laboratory Control Sample Results
- *● Blind Duplicate Sample Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Analytical holding times were ascertained by determining whether the holding time requirements were met by the laboratory. Holding times were met for all PCB compounds. However, sample UAW03 was received by the laboratory at 13°C which exceeds the acceptance criteria of 4±2°C. No qualifiers were issued due to this exceedance and the sample results are comparable to the blind duplicate results.

Calibrations

All initial calibration sample results were within quality control (QC) limits. Analytical sequences were acceptable. Two continuing calibration percent difference (%D) results for aroclor-1260 were outside of the quality control limits (15 %D). Specifically, the fifth peak of aroclor-1260 for the continuing calibration run dated May 17, 2001 at 2202 hours (22.64 %D and 16.45 %D). No qualifiers were applied since the average of all peaks was less than 15 %D.

Laboratory Blank Analyses

All laboratory blank analyses met specified QC requirements.

Matrix Spike/Matrix Spike Duplicate Results

All matrix spike and matrix spike duplicate sample results met specified QC requirements.

Surrogate Spike Sample Results

All surrogate spike sample results met specified QC requirements.

Laboratory Control Sample Results

All laboratory control sample (LCS) results were within QC limits.

Blind Duplicate Sample Results

Sample UAW44 was included as a blind duplicate of sample UAW03. PCBs were not reported in either sample. Therefore, reporting the relative percent difference (RPD) results was not necessary.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
PCBs DATA SUMMARY TABLE
SW-846 METHOD 8082

Sample ID Number	**UAW03**	**Q**	**UAW44**	**Q**
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	µg/L		µg/L	
Aroclor-1016	1.0	U	1.0	U
Aroclor-1221	1.0	U	1.0	U
Aroclor-1232	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U
Aroclor-1260	1.0	U	1.0	U

U - Undetected at reported value
Q - Qualifier
µg/L - micrograms per liter

DATA VALIDATION REPORT

Report Date: June 27, 2001
SDG No.: 911367
Site: Morton International
Matrix: 1 Groundwater Sample
Laboratory: EnChem Laboratories, Inc.
Collection Date(s): 5/7/01

This report provides the data validation review for 1 groundwater sample collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for general chemistry parameters (total cyanide and sulfide) May 11 - 14, 2001.

PARAMETER	SAMPLE NUMBER
Total Cyanide and Sulfide (EPA Methods 335.4 & 376.1)	UAW03 (911367-011)

Data validation was conducted in accordance with the documents "EPA Methods for the Chemical Analysis of Water and Waste" "(March 1983); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February, 1994 (Functional Guidelines).

Total Cyanide and Sulfide

- *● Data Completeness
- *● Holding Times
- *● Calibrations
- ● Laboratory Blank Analyses
- *● Laboratory Control Sample
- *● Matrix Spike/Duplicate Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Holding times were met for all general chemistry parameters.

Calibrations

All initial calibration verification and continuing calibration verification (ICV/CCV) sample results for total cyanide were within quality control (QC) limits.

Laboratory Blank Analyses

All laboratory blank analyses met specified QC requirements for total cyanide analysis.

Sulfide was reported in the associated initial calibration blank (0.67 mg/L). Therefore, the reported result in the client sample (3.2 mg/L) was qualified as 3.2 U and considered not detected at the reported value.

Laboratory Control Sample

The sulfide and cyanide laboratory control samples met QC criteria.

Matrix Spike/ Duplicate Results

All matrix spike and duplicate sample results met specified QC requirements.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
GENERAL CHEMISTRY DATA SUMMARY TABLE
EPA METHODS 335.4 & 376.1

Sample ID Number	**UAW03**	**Q**
Sample Description	Down gradient of french drain	
Matrix	Groundwater	
Collection Date	5/7/01	
Analyte	mg/L	
Total Cyanide	0.010	U
Sulfide	3.2	U

U - Undetected at reported value
Q - Qualifier
mg/L - milligrams per liter

DATA VALIDATION REPORT

Report Date:	July 18, 2001
SDG No.:	53948
Site:	Morton International
Matrix:	2 Groundwater Samples
Laboratory:	Triangle Laboratories, Inc.
Collection Date(s):	5/7/01

This report provides the data validation review for 2 groundwater samples collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. Sample UAW44 was included as a blind duplicate of sample UAW03. The samples were analyzed by Triangle Laboratories, Inc. for polychlorinated dibenzo-*p*-dioxins and dibenzofurans (PCDDs/PCDFs). The samples were received by Triangle Laboratories, Inc. on May 11, 2001 and analyzed for PCDD/PCDF compounds on May 17, 2001.

PARAMETER	SAMPLE NUMBERS
PCDDs/PCDFs (SW-846 8280A)	UAW03 (911367-007), UAW44 (911367-010)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III, " (June, 1997); and U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 (Functional Guidelines).

PCDDs/PCDFs

- *● Data Completeness
- *● Holding Times
- *● Calibrations
- ● Laboratory Blank Analyses
- *● Matrix Spike/Matrix Spike Duplicate Results
- *● Internal Standard Sample Results
- *● Clean-Up Standard Sample Results
- *● Laboratory Control Sample Results
- *● Blind Duplicate Sample Results
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Analytical holding times were ascertained by determining whether the holding time requirements were met by the laboratory. Holding times were met for all PCDD/PCDF compounds.

Calibrations

All calibration sample results were within quality control (QC) limits. Analytical sequences were acceptable.

Laboratory Blank Analyses

No definitive analyzes were reported in the associated laboratory blank. However, estimated maximum reported concentrations (EMPCs) were reported in the laboratory blank. By definition, EMPCs do not meet the criteria necessary to make a specific identification of the compound. The presence of these EMPCs in the laboratory blank are considered blank contaminants but cannot be utilized to qualify client sample results due to their vagueness. Therefore, no qualifiers were applied to the sample results.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

According to the laboratory, the MSD was enriched with a doubled amount of spiking solution. The summary report for the MS/MSD results was corrected to account for the double-spiking. All matrix spike and matrix spike duplicate sample results met specified QC requirements.

Internal Standard Sample Results

All internal standard sample results met specified QC requirements.

Clean-Up Standard Sample Results

All clean-up standard sample results met specified QC requirements.

Laboratory Control Sample Results

According to the laboratory, of the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) pair, only the LCS was enriched with the spiking solution. Therefore, the laboratory only reported the LCS results. All laboratory control sample (LCS) results were within QC limits.

Blind Duplicate Sample Results

Sample UAW44 was included as a blind duplicate of sample UAW03. PCDD/PCDF compounds (other than EMPCs) were not reported in either sample. Therefore, reporting the relative percent difference (RPD) results was not necessary.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
PCDDs/PCDFs DATA SUMMARY TABLE
SW-846 METHOD 8280A

Sample ID Number	**UAW03**	**Q**	**UAW44**	**Q**
Sample Description	Down gradient of french drain		Blind Duplicate of UAW03	
Matrix	Groundwater		Groundwater	
Collection Date	5/7/01		5/7/01	
Analyte	ppt		ppt	
2,3,7,8-TCDD	0.06	U	0.06	U
Total TCDD	0.06	U	0.06	U
Total PeCDD	0.1	U	0.10	U
Total HxCDD	0.06	U	0.06	U
Total TCDF	0.04	U	0.04	U
Total PeCDF	0.04	U	0.04	U
Total HxCDF	0.03	U	0.03	U

U - Undetected at reported value

Q - Qualifier

ppt - parts per trillion

EMPC - Estimated maximum possible concentrations

DATA VALIDATION REPORT

Report Date: June 27, 2001
SDG No.: 911367
Site: Morton International
Matrix: 1 Groundwater Sample
Laboratory: EnChem Laboratories, Inc.
Collection Date(s): 5/7/01

This report provides the data validation review for 1 groundwater sample collected on May 7, 2001 from the Morton International facility located in Reading, Ohio. The sample, which is listed below was analyzed for Appendix IX metals on May 14, 2001.

PARAMETER	SAMPLE NUMBER
Appendix IX Metals (SW-846 6010B, 7470A)	UAW03 (911367-011)

Data validation was conducted in accordance with the documents "Test Methods for Evaluating Solid Wastes, SW-846, Final Update III, " (June, 1997); and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, February, 1994 (Functional Guidelines).

Appendix IX Metals

- *● Data Completeness
- *● Holding Times
- *● Calibrations
- *● Blanks
- *● ICP Interference Check Sample
- *● Laboratory Control Sample
- *● Duplicate Sample Analysis
- *● Matrix Spike Results
- *● Serial Dilution
- *● Sample Result Verification

*All criteria met for this parameter

Data Completeness

This data package was complete and legible. All data was usable as reported.

Holding Times

Analytical holding times were ascertained by determining whether the holding time requirements were met by the laboratory. Holding times were met for all Appendix IX metals.

Calibrations

All calibrations, initial calibration verification and continuing calibration verification (ICV/CCV) results were within quality control (QC) limits.

Blanks

All laboratory blank analyses met specified QC requirements.

ICP Interference Check Sample

All interference check sample results were within QC limits.

Laboratory Control Sample

All laboratory control sample (LCS) and results were within QC limits.

Duplicate Sample Analysis

All duplicate sample results were within QC limits.

Matrix Spike Results

All matrix spike results met specified QC requirements. Additionally, post-digestion spike sample results met specified QC requirements.

Serial Dilution

All serial dilution results were within QC limits.

Sample Result Verification

The sample results were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. The reported quantitations were found to be acceptable.

MORTON INTERNATIONAL
APPENDIX IX METALS DATA SUMMARY TABLE
SW-846 METHOD 6010B, 7470A

Sample ID Number	**UAW03**	**Q**
Sample Description	Down gradient of french drain	
Matrix	Groundwater	
Collection Date	5/7/01	
Analyte	µg/L	
Antimony	**12**	
Arsenic	10	U
Barium	**370**	
Beryllium	1.0	U
Cadmium	1.0	U
Chromium	**3.6**	
Cobalt	3.0	U
Copper	10	U
Lead	5.0	U
Mercury	0.20	U
Nickel	**29**	
Selenium	10	U
Silver	5.0	U
Thallium	10	U
Tin	**1000**	
Vanadium	**140**	
Zinc	20	U

U - Undetected at reported value
Q - Qualifier
µg/L - micrograms per liter

TECHLAW, INC.

Chain of Custody Record

№ 20004

Project Code: R05705.18	Samples Shipped To: En Chem, Inc. 525 Science Drive Madison, WI 53711	Samplers Names: Todd W. Quillen	1) Sample description (Enter in column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify)
Project (site) Name: Mort			2) Preservatives (Enter in column B) 1. HCl 2. HNO_3 3. Na HSO_4 4. H_2SO_4 5. Na OH 6. Other (specify) 7. Ice only N. Not preserved
City, State, Zip Code: Ohio	Carrier: FedEx	Samplers Signatures: Todd W. Quillen	
Date Shipped: 5/7/01	Air Bill Number: 8256 6402 2453		

Sample Identification Numbers	A. Matrix enter from Box 1	B. Preser. enter from Box 2	Grab or Comp	Number of Sample Containers	MM/DD/YY Time sample collection	App IX Metals	Sulfide	Cyanide	App IX VOC	App IX SVOC	PCB	Pest	dioxin/furans		Remarks/ Tag Numbers
911367															
001 UAW43	2	1,2,5 2nAc	G	3	5/6/01 1210				X						176044
002 UAW13	2	1,2,5	G	10	5/6/01 1545	X	X	X	X	X	X	X	X		176036-176043
003 UAW03	2	1	G	8	5/7/01 1600				X						176028, 176029, 176166
004 Trip	Trip	1	Trip	2	Lab				X						176167

Relinquished By	Time	Date	Received By	Time	Date	Received By	Time	Date	Received By	Time	Date
Todd W. Quillen	2130	5/7/01	Fed Ex								
Relinquished By: Fed Ex	Time: 1030	Date: 5/8/01	Received By: [signature]	Time: 1080	Date: 5/8/01	Received By	Time	Date	Received By	Time	Date

Remarks

Split Samples — Accepted — Declined (Signature)

Distribution: Original — TECHLAW, INC.
Carbon copies — Laboratory, work assignment manager, client (as appropriate) Rec @ 4°C on Ice

TECHLAW, INC.

Chain of Custody Record

No 20007

Project Code: R05705.18	Samples Shipped To: EnChem, Inc 525 Science Drive Madison, WI 53711	Samplers Names: Todd W. Quillen	1) Sample description (Enter in column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify)
Project (site) Name: Mort			2) Preservatives (Enter in column B): 1. HCl 2. HNO_3 3. Na HSO_4 4. H_2SO_4 5. Na OH 6. Other (specify) 7. Ice only N. Not preserved
City, State, Zip Code: Ohio	Carrier: FedEx	Samplers Signatures: Todd W. Quillen	
Date Shipped: 5/7/01	Air Bill Number: 8256 6402 2453		

Sample Identification Numbers	A. Matrix enter from Box 1	B. Preser. enter from Box 2	Grab or Comp	Number of Sample Containers	MM/DD/YY Time sample collection	App IX SVOC	PCB	Pest	Dioxin/Furan						Remarks/ Tag Numbers
911367 UAW03	2	7	G	12	5/7/01 1600	X	X	X	X						176065-176076 please do MS/MSD on This sample

Relinquished By	Time	Date	Received By	Time	Date	Received By	Time	Date	Received By	Time	Date
Todd W. Quillen	2130	5/7/01	Fed Ex								
Relinquished By: Fed Ex	Time: 1030	Date: 5/8/01	Received By: [illegible]	Time: 1030	Date: 5/8/01	Received By	Time	Date	Received By	Time	Date

Remarks: MS/MSD

Split Samples — Accepted — Declined (Signature)

Distribution: Original — TECHLAW, INC.
Carbon copies — Laboratory, work assignment manager, client (as appropriate)

Rec @ 13°c on Ice

TECHLAW, INC.

Chain of Custody Record

№ 20006

Project Code: R05705.18	Samples Shipped To: En Chem, Inc. 525 Science Drive Madison, WI 53711	Samplers Names: Todd W. Quillen	1) Sample description (Enter in column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil 7. Waste 8. Other (specify)
Project (site) Name: Mort			2) Preservatives (Enter in column B): 1. HCl 2. HNO_3 3. $NaHSO_4$ 4. H_2SO_4 5. NaOH 6. Other (specify) 7. Ice only N. Not preserved
City, State, Zip Code: Ohio	Carrier: Fed Ex	Samplers Signatures: Todd W. Quillen	
Date Shipped: 5/7/01	Air Bill Number: 8256 6402 2453		

Sample Identification Numbers	A. Matrix enter from Box 1	B. Preser. enter from Box 2	Grab or Comp	Number of Sample Containers	MM/DD/YY Time sample collection	Analysis: App IX Metals	Cyanide	Sulfide	App IX SVOC	PCB	Pest	dioxin/Furan			Remarks/ Tag Numbers
911367															
010 UAW44	2	7	G	4	5/7/01 1030				X	X	X	X			176101-176104
-011 UAW03	2	2,5,6 ZnAc	G	9	5/7/01 1600	X	X	X							176077-176085*
012 013 ~~UAW43~~ Td 5/7															* MS/MSD
014 UAW43	2	2,5,6 ZnAc	G	3	5/6/01 1210	X	X	X							176045-176047

Relinquished By	Time	Date	Received By	Time	Date	Received By	Time	Date	Received By	Time	Date
Todd W. Quillen	2130	5/7/01	Fed Ex								
Fed Ex	1030	5/8/01	[signature]	1030	5/8/9						

Remarks

Split Samples — Accepted — Declined (Signature)

Distribution: Original — TECHLAW, INC.
Carbon copies — Laboratory, work assignment manager, client (as appropriate) Rec @ 4°c on Fce

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : TRIP BLANK
Lab Sample Number : 911367-006
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/23/2001
Collection Date : 5/6/2001
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS

Prep Method: SW846 5030B

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,2-Dichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Acetone	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Acetonitrile	11	10	ug/L		5/10/2001	SW846 8260B
Acrolein	< 20	20	ug/L		5/10/2001	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Benzene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Bromoform	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Carbon disulfide	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Chlorobenzene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloroprene	< 10	10	ug/L		5/10/2001	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : TRIP BLANK
Lab Sample Number : 911367-006
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/23/2001
Collection Date : 5/6/2001
Matrix Type : BLANK
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Iodomethane	<	5.0	5.0	ug/L	5/10/2001	SW846 8260B
Isobutanol	<	100	100	ug/L	5/10/2001	SW846 8260B
Methacrylonitrile	<	10	10	ug/L	5/10/2001	SW846 8260B
Methylene chloride	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
Propionitrile	<	20	20	ug/L	5/10/2001	SW846 8260B
Styrene	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
Toluene	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L	5/10/2001	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L	5/10/2001	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/L	5/10/2001	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L	5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW43
Lab Sample Number : 911367-001
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/23/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS

Prep Method: SW846 5030B

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1,1-Trichloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1,2-Trichloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethane	4.4	2.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethene	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2,3-Trichloropropane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
1,2-Dibromoethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dichloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dichloropropane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
2-Butanone	16	10	ug/L		5/10/2001	SW846 8260B
2-Hexanone	< 10	10	ug/L		5/10/2001	SW846 8260B
4-Methyl-2-pentanone	13	10	ug/L		5/10/2001	SW846 8260B
Acetone	280	10	ug/L		5/10/2001	SW846 8260B
Acetonitrile	< 20	20	ug/L		5/10/2001	SW846 8260B
Acrolein	< 40	40	ug/L		5/10/2001	SW846 8260B
Acrylonitrile	< 10	10	ug/L		5/10/2001	SW846 8260B
Allyl Chloride	< 10	10	ug/L		5/10/2001	SW846 8260B
Benzene	19	2.0	ug/L		5/10/2001	SW846 8260B
Bromodichloromethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Bromoform	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Bromomethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Carbon disulfide	150	2.0	ug/L		5/10/2001	SW846 8260B
Carbon tetrachloride	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chlorobenzene	22	2.0	ug/L		5/10/2001	SW846 8260B
Chlorodibromomethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloroethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Chloroform	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloromethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Chloroprene	< 20	20	ug/L		5/10/2001	SW846 8260B
cis-1,3-Dichloropropene	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Dibromomethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Dichlorodifluoromethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Ethyl methacrylate	< 10	10	ug/L		5/10/2001	SW846 8260B
Ethylbenzene	3.0	2.0	ug/L		5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW43
Lab Sample Number : 911367-001
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/23/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	4.0	4.0	ug/L	5/10/2001	SW846 8260B
Iodomethane	<	10	10	ug/L	5/10/2001	SW846 8260B
Isobutanol	<	200	200	ug/L	5/10/2001	SW846 8260B
Methacrylonitrile	<	20	20	ug/L	5/10/2001	SW846 8260B
Methylene chloride	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Propionitrile	<	40	40	ug/L	5/10/2001	SW846 8260B
Styrene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Tetrachloroethene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Toluene		280	2.0	ug/L	5/10/2001	SW846 8260B
trans-1,2-Dichloroethene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
trans-1,3-Dichloropropene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	10	10	ug/L	5/10/2001	SW846 8260B
Trichloroethene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Vinyl acetate	<	10	10	ug/L	5/10/2001	SW846 8260B
Vinyl chloride	<	4.0	4.0	ug/L	5/10/2001	SW846 8260B
Xylene, total	<	6.0	6.0	ug/L	5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/23/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS

Prep Method: SW846 5030B

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1,1-Trichloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1,2-Trichloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethane	4.2	2.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethene	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2,3-Trichloropropane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
1,2-Dibromoethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dichloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
1,2-Dichloropropane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
2-Butanone	13	10	ug/L		5/10/2001	SW846 8260B
2-Hexanone	< 10	10	ug/L		5/10/2001	SW846 8260B
4-Methyl-2-pentanone	11	10	ug/L		5/10/2001	SW846 8260B
Acetone	240	10	ug/L		5/10/2001	SW846 8260B
Acetonitrile	< 20	20	ug/L		5/10/2001	SW846 8260B
Acrolein	< 40	40	ug/L		5/10/2001	SW846 8260B
Acrylonitrile	< 10	10	ug/L		5/10/2001	SW846 8260B
Allyl Chloride	< 10	10	ug/L		5/10/2001	SW846 8260B
Benzene	19	2.0	ug/L		5/10/2001	SW846 8260B
Bromodichloromethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Bromoform	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Bromomethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Carbon disulfide	140	2.0	ug/L		5/10/2001	SW846 8260B
Carbon tetrachloride	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chlorobenzene	22	2.0	ug/L		5/10/2001	SW846 8260B
Chlorodibromomethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloroethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Chloroform	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloromethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Chloroprene	< 20	20	ug/L		5/10/2001	SW846 8260B
cis-1,3-Dichloropropene	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Dibromomethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Dichlorodifluoromethane	< 4.0	4.0	ug/L		5/10/2001	SW846 8260B
Ethyl methacrylate	< 10	10	ug/L		5/10/2001	SW846 8260B
Ethylbenzene	2.9	2.0	ug/L		5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/23/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	4.0	4.0	ug/L	5/10/2001	SW846 8260B
Iodomethane	<	10	10	ug/L	5/10/2001	SW846 8260B
Isobutanol	<	200	200	ug/L	5/10/2001	SW846 8260B
Methacrylonitrile	<	20	20	ug/L	5/10/2001	SW846 8260B
Methylene chloride	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Propionitrile	<	40	40	ug/L	5/10/2001	SW846 8260B
Styrene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Tetrachloroethene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Toluene		320	2.0	ug/L	5/10/2001	SW846 8260B
trans-1,2-Dichloroethene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
trans-1,3-Dichloropropene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	10	10	ug/L	5/10/2001	SW846 8260B
Trichloroethene	<	2.0	2.0	ug/L	5/10/2001	SW846 8260B
Vinyl acetate	<	10	10	ug/L	5/10/2001	SW846 8260B
Vinyl chloride	<	4.0	4.0	ug/L	5/10/2001	SW846 8260B
Xylene, total	<	6.0	6.0	ug/L	5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-003
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/25/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Volatile Organic Results

VOLATILES APPENDIX NINE WATERS

Prep Method: SW846 5030B

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,1,1,2-Tetrachloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1,1-Trichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1,2,2-Tetrachloroethane	< 1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
1,1,2-Trichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,1-Dichloroethene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
1,2,3-Trichloropropane	< 1.0	1.0	ug/L	N*	5/10/2001	SW846 8260B
1,2-Dibromo-3-chloropropane	< 2.0	2.0	ug/L	*	5/10/2001	SW846 8260B
1,2-Dibromoethane	< 1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
1,2-Dichloroethane	13	1.0	ug/L	*	5/10/2001	SW846 8260B
1,2-Dichloropropane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
2-Butanone	< 5.0	5.0	ug/L	*	5/10/2001	SW846 8260B
2-Hexanone	< 5.0	5.0	ug/L	*	5/10/2001	SW846 8260B
4-Methyl-2-pentanone	< 5.0	5.0	ug/L	*	5/10/2001	SW846 8260B
Acetone	< 5.0	5.0	ug/L	*	5/10/2001	SW846 8260B
Acetonitrile	< 10	10	ug/L		5/10/2001	SW846 8260B
Acrolein	< 20	20	ug/L	*	5/10/2001	SW846 8260B
Acrylonitrile	< 5.0	5.0	ug/L	*	5/10/2001	SW846 8260B
Allyl Chloride	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Benzene	1.0	1.0	ug/L		5/10/2001	SW846 8260B
Bromodichloromethane	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Bromoform	< 1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
Bromomethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Carbon disulfide	1.6	1.0	ug/L		5/10/2001	SW846 8260B
Carbon tetrachloride	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Chlorobenzene	8.8	1.0	ug/L		5/10/2001	SW846 8260B
Chlorodibromomethane	< 1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
Chloroethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloroform	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B
Chloromethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Chloroprene	< 10	10	ug/L		5/10/2001	SW846 8260B
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
Dibromomethane	< 1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
Dichlorodifluoromethane	< 2.0	2.0	ug/L		5/10/2001	SW846 8260B
Ethyl methacrylate	< 5.0	5.0	ug/L		5/10/2001	SW846 8260B
Ethylbenzene	< 1.0	1.0	ug/L		5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-003
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/25/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Fluorotrichloromethane	<	2.0	2.0	ug/L		5/10/2001	SW846 8260B
Iodomethane	<	5.0	5.0	ug/L	N*	5/10/2001	SW846 8260B
Isobutanol	<	100	100	ug/L		5/10/2001	SW846 8260B
Methacrylonitrile	<	10	10	ug/L		5/10/2001	SW846 8260B
Methylene chloride	<	1.0	1.0	ug/L		5/10/2001	SW846 8260B
Propionitrile	<	20	20	ug/L		5/10/2001	SW846 8260B
Styrene	<	1.0	1.0	ug/L		5/10/2001	SW846 8260B
Tetrachloroethene	<	1.0	1.0	ug/L		5/10/2001	SW846 8260B
Toluene		12	1.0	ug/L		5/10/2001	SW846 8260B
trans-1,2-Dichloroethene	<	1.0	1.0	ug/L		5/10/2001	SW846 8260B
trans-1,3-Dichloropropene	<	1.0	1.0	ug/L	*	5/10/2001	SW846 8260B
trans-1,4-Dichloro-2-butene	<	5.0	5.0	ug/L	N*	5/10/2001	SW846 8260B
Trichloroethene	<	1.0	1.0	ug/L		5/10/2001	SW846 8260B
Vinyl acetate	<	5.0	5.0	ug/L	*	5/10/2001	SW846 8260B
Vinyl chloride	<	2.0	2.0	ug/L		5/10/2001	SW846 8260B
Xylene, total	<	3.0	3.0	ug/L	*	5/10/2001	SW846 8260B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,2,4-Trichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,2-Dichlorobenzene	30	10	ug/L		5/10/2001	SW846 8270
1,3,5-Trinitrobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,3-Dichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,3-Dinitrobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Dichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Dioxane	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Naphthoquinone	< 10	10	ug/L		5/10/2001	SW846 8270
1-Naphthylamine	< 10	10	ug/L		5/10/2001	SW846 8270
2,2'-oxybis(1-Chloropropane)	< 10	10	ug/L		5/10/2001	SW846 8270
2,3,4,6-Tetrachlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4,5-Trichlorophenol	< 25	25	ug/L		5/10/2001	SW846 8270
2,4,6-Trichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dimethylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dinitrophenol	< 25	25	ug/L	&	5/10/2001	SW846 8270
2,4-Dinitrotoluene	< 10	10	ug/L		5/10/2001	SW846 8270
2,6-Dichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,6-Dinitrotoluene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Acetylaminofluorene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Chloronaphthalene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Chlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Methylnaphthalene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Methylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Naphthylamine	< 10	10	ug/L		5/10/2001	SW846 8270
2-Nitroaniline	< 25	25	ug/L		5/10/2001	SW846 8270
2-Nitrophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Picoline	< 10	10	ug/L		5/10/2001	SW846 8270
3,3-Dichlorobenzidine	< 10	10	ug/L		5/10/2001	SW846 8270
3,3-Dimethylbenzidine	< 10	10	ug/L		5/10/2001	SW846 8270
3-Methylcholanthrene	< 10	10	ug/L		5/10/2001	SW846 8270
3-Methylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
3-Nitroaniline	< 25	25	ug/L		5/10/2001	SW846 8270
4,6-Dinitro-2-methylphenol	< 25	25	ug/L		5/10/2001	SW846 8270
4-Aminobiphenyl	< 10	10	ug/L		5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	10	10	ug/L		5/10/2001	SW846 8270
4-Chloro-3-methylphenol	<	10	10	ug/L		5/10/2001	SW846 8270
4-Chloroaniline	<	10	10	ug/L		5/10/2001	SW846 8270
4-Chlorophenyl phenyl ether	<	10	10	ug/L		5/10/2001	SW846 8270
4-Methylphenol	<	10	10	ug/L		5/10/2001	SW846 8270
4-Nitroaniline	<	25	25	ug/L		5/10/2001	SW846 8270
4-Nitrophenol	<	25	25	ug/L		5/10/2001	SW846 8270
4-Nitroquinoline-1-oxide	<	10	10	ug/L		5/10/2001	SW846 8270
5-Nitro-o-toluidine	<	10	10	ug/L		5/10/2001	SW846 8270
7,12-Dimethylbenz(a)anthracene	<	10	10	ug/L		5/10/2001	SW846 8270
a,a-Dimethylphenethylamine	<	20	20	ug/L		5/10/2001	SW846 8270
Acenaphthene	<	10	10	ug/L		5/10/2001	SW846 8270
Acenaphthylene	<	10	10	ug/L		5/10/2001	SW846 8270
Acetophenone	<	10	10	ug/L		5/10/2001	SW846 8270
Aniline		580	40	ug/L	D	5/11/2001	SW846 8270
Anthracene	<	10	10	ug/L		5/10/2001	SW846 8270
Aramite	<	20	20	ug/L		5/10/2001	SW846 8270
Benzo(a)anthracene	<	10	10	ug/L		5/10/2001	SW846 8270
Benzo(a)pyrene	<	10	10	ug/L		5/10/2001	SW846 8270
Benzo(b)fluoranthene	<	10	10	ug/L		5/10/2001	SW846 8270
Benzo(g,h,i)perylene	<	10	10	ug/L		5/10/2001	SW846 8270
Benzo(k)fluoranthene	<	10	10	ug/L		5/10/2001	SW846 8270
Benzyl alcohol	<	10	10	ug/L		5/10/2001	SW846 8270
bis(2-Chloroethoxy)methane	<	10	10	ug/L		5/10/2001	SW846 8270
bis(2-Chloroethyl)ether	<	10	10	ug/L		5/10/2001	SW846 8270
bis(2-Ethylhexyl)phthalate	<	10	10	ug/L		5/10/2001	SW846 8270
Butylbenzylphthalate	<	10	10	ug/L		5/10/2001	SW846 8270
Chlorobenzilate	<	10	10	ug/L		5/10/2001	SW846 8270
Chrysene	<	10	10	ug/L		5/10/2001	SW846 8270
Di-n-butylphthalate	<	10	10	ug/L		5/10/2001	SW846 8270
Di-n-octylphthalate	<	10	10	ug/L		5/10/2001	SW846 8270
Diallate	<	10	10	ug/L		5/10/2001	SW846 8270
Dibenzo(a,h)anthracene	<	10	10	ug/L		5/10/2001	SW846 8270
Dibenzofuran	<	10	10	ug/L		5/10/2001	SW846 8270
Diethylphthalate	<	10	10	ug/L		5/10/2001	SW846 8270
Dimethoate	<	10	10	ug/L		5/10/2001	SW846 8270
Dimethylphthalate	<	10	10	ug/L		5/10/2001	SW846 8270
Dinoseb	<	10	10	ug/L		5/10/2001	SW846 8270
Diphenylamine	<	10	10	ug/L		5/10/2001	SW846 8270
Disulfoton	<	10	10	ug/L		5/10/2001	SW846 8270
Ethyl methacrylate	<	10	10	ug/L		5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	10	10	ug/L	5/10/2001	SW846 8270
Famphur	<	10	10	ug/L	5/10/2001	SW846 8270
Fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Fluorene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorobutadiene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorocyclopentadiene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachloroethane	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorophene	<	500	500	ug/L	5/10/2001	SW846 8270
Hexachloropropene	<	20	20	ug/L	5/10/2001	SW846 8270
Indeno(1,2,3-cd)pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Isodrin	<	10	10	ug/L	5/10/2001	SW846 8270
Isophorone	<	10	10	ug/L	5/10/2001	SW846 8270
Isosafrole	<	10	10	ug/L	5/10/2001	SW846 8270
Kepone	<	50	50	ug/L	5/10/2001	SW846 8270
Methapyrilene	<	20	20	ug/L	5/10/2001	SW846 8270
Methyl methacrylate	<	10	10	ug/L	5/10/2001	SW846 8270
Methyl methanesulfonate	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitroso-di-n-propylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodi-n-butylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodiethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodimethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodiphenylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosomethylethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosomorpholine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosopiperidine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosopyrrolidine	<	10	10	ug/L	5/10/2001	SW846 8270
Naphthalene	<	10	10	ug/L	5/10/2001	SW846 8270
Nitrobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
o,o,o-Triethylphosphorothioate	<	10	10	ug/L	5/10/2001	SW846 8270
o-Toluidine	<	10	10	ug/L	5/10/2001	SW846 8270
p-(Dimethylamino)azobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
p-Phenylenediamine	<	1000	1000	ug/L	5/10/2001	SW846 8270
Parathion	<	10	10	ug/L	5/10/2001	SW846 8270
Parathion, Methyl	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachlorobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachloroethane	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachloronitrobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachlorophenol	<	25	25	ug/L	5/10/2001	SW846 8270
Phenacetin	<	10	10	ug/L	5/10/2001	SW846 8270
Phenanthrene	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Phenol	<	10	10	ug/L	5/10/2001	SW846 8270
Phorate	<	10	10	ug/L	5/10/2001	SW846 8270
Pronamide	<	10	10	ug/L	5/10/2001	SW846 8270
Pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Pyridine	<	10	10	ug/L	5/10/2001	SW846 8270
Safrole	<	10	10	ug/L	5/10/2001	SW846 8270
Sulfotep	<	10	10	ug/L	5/10/2001	SW846 8270
Thionazin	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-007
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,2,4-Trichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,2-Dichlorobenzene	21	10	ug/L		5/10/2001	SW846 8270
1,3,5-Trinitrobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,3-Dichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,3-Dinitrobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Dichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Dioxane	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Naphthoquinone	< 10	10	ug/L		5/10/2001	SW846 8270
1-Naphthylamine	< 10	10	ug/L		5/10/2001	SW846 8270
2,2'-oxybis(1-Chloropropane)	< 10	10	ug/L		5/10/2001	SW846 8270
2,3,4,6-Tetrachlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4,5-Trichlorophenol	< 25	25	ug/L		5/10/2001	SW846 8270
2,4,6-Trichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dimethylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dinitrophenol	< 25	25	ug/L	&N	5/10/2001	SW846 8270
2,4-Dinitrotoluene	< 10	10	ug/L		5/10/2001	SW846 8270
2,6-Dichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,6-Dinitrotoluene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Acetylaminofluorene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Chloronaphthalene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Chlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Methylnaphthalene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Methylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Naphthylamine	< 10	10	ug/L		5/10/2001	SW846 8270
2-Nitroaniline	< 25	25	ug/L		5/10/2001	SW846 8270
2-Nitrophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Picoline	< 10	10	ug/L		5/10/2001	SW846 8270
3,3-Dichlorobenzidine	< 10	10	ug/L		5/10/2001	SW846 8270
3,3-Dimethylbenzidine	< 10	10	ug/L		5/10/2001	SW846 8270
3-Methylcholanthrene	< 10	10	ug/L		5/10/2001	SW846 8270
3-Methylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
3-Nitroaniline	< 25	25	ug/L		5/10/2001	SW846 8270
4,6-Dinitro-2-methylphenol	< 25	25	ug/L		5/10/2001	SW846 8270
4-Aminobiphenyl	< 10	10	ug/L		5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-007
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	10	10	ug/L	5/10/2001	SW846 8270
4-Chloro-3-methylphenol	<	10	10	ug/L	5/10/2001	SW846 8270
4-Chloroaniline	<	10	10	ug/L	5/10/2001	SW846 8270
4-Chlorophenyl phenyl ether	<	10	10	ug/L	5/10/2001	SW846 8270
4-Methylphenol		10	10	ug/L	5/10/2001	SW846 8270
4-Nitroaniline	<	25	25	ug/L	5/10/2001	SW846 8270
4-Nitrophenol	<	25	25	ug/L	5/10/2001	SW846 8270
4-Nitroquinoline-1-oxide	<	10	10	ug/L	5/10/2001	SW846 8270
5-Nitro-o-toluidine	<	10	10	ug/L	5/10/2001	SW846 8270
7,12-Dimethylbenz(a)anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
a,a-Dimethylphenethylamine	<	20	20	ug/L	5/10/2001	SW846 8270
Acenaphthene	<	10	10	ug/L	5/10/2001	SW846 8270
Acenaphthylene	<	10	10	ug/L	5/10/2001	SW846 8270
Acetophenone	<	10	10	ug/L	5/10/2001	SW846 8270
Aniline		15	10	ug/L	5/10/2001	SW846 8270
nthracene	<	10	10	ug/L	5/10/2001	SW846 8270
Aramite	<	20	20	ug/L	5/10/2001	SW846 8270
Benzo(a)anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(a)pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(b)fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(g,h,i)perylene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(k)fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzyl alcohol	<	10	10	ug/L	5/10/2001	SW846 8270
bis(2-Chloroethoxy)methane	<	10	10	ug/L	5/10/2001	SW846 8270
bis(2-Chloroethyl)ether	<	10	10	ug/L	5/10/2001	SW846 8270
bis(2-Ethylhexyl)phthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Butylbenzylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Chlorobenzilate	<	10	10	ug/L	5/10/2001	SW846 8270
Chrysene	<	10	10	ug/L	5/10/2001	SW846 8270
Di-n-butylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Di-n-octylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Diallate	<	10	10	ug/L	5/10/2001	SW846 8270
Dibenzo(a,h)anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
Dibenzofuran	<	10	10	ug/L	5/10/2001	SW846 8270
Diethylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Dimethoate	<	10	10	ug/L	5/10/2001	SW846 8270
Dimethylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Dinoseb	<	10	10	ug/L	5/10/2001	SW846 8270
Diphenylamine	<	10	10	ug/L	5/10/2001	SW846 8270
sulfoton	<	10	10	ug/L	5/10/2001	SW846 8270
Ethyl methacrylate	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-007
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	10	10	ug/L	5/10/2001	SW846 8270
Famphur	<	10	10	ug/L	5/10/2001	SW846 8270
Fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Fluorene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorobutadiene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorocyclopentadiene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachloroethane	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorophene	<	500	500	ug/L	5/10/2001	SW846 8270
Hexachloropropene	<	20	20	ug/L	5/10/2001	SW846 8270
Indeno(1,2,3-cd)pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Isodrin	<	10	10	ug/L	5/10/2001	SW846 8270
Isophorone	<	10	10	ug/L	5/10/2001	SW846 8270
Isosafrole	<	10	10	ug/L	5/10/2001	SW846 8270
Kepone	<	50	50	ug/L	5/10/2001	SW846 8270
Methapyrilene	<	20	20	ug/L	5/10/2001	SW846 8270
Methyl methacrylate	<	10	10	ug/L	5/10/2001	SW846 8270
Methyl methanesulfonate	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitroso-di-n-propylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodi-n-butylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodiethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodimethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodiphenylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosomethylethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosomorpholine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosopiperidine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosopyrrolidine	<	10	10	ug/L	5/10/2001	SW846 8270
Naphthalene	<	10	10	ug/L	5/10/2001	SW846 8270
Nitrobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
o,o,o-Triethylphosphorothioate	<	10	10	ug/L	5/10/2001	SW846 8270
o-Toluidine	<	10	10	ug/L	5/10/2001	SW846 8270
p-(Dimethylamino)azobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
p-Phenylenediamine	<	1000	1000	ug/L	5/10/2001	SW846 8270
Parathion	<	10	10	ug/L	5/10/2001	SW846 8270
Parathion, Methyl	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachlorobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachloroethane	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachloronitrobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachlorophenol	<	25	25	ug/L	5/10/2001	SW846 8270
Phenacetin	<	10	10	ug/L	5/10/2001	SW846 8270
Phenanthrene	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-007
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Phenol	<	10	10	ug/L	5/10/2001	SW846 8270
Phorate	<	10	10	ug/L	5/10/2001	SW846 8270
Pronamide	<	10	10	ug/L	5/10/2001	SW846 8270
Pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Pyridine	<	10	10	ug/L	5/10/2001	SW846 8270
Safrole	<	10	10	ug/L	5/10/2001	SW846 8270
Sulfotep	<	10	10	ug/L	5/10/2001	SW846 8270
Thionazin	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW44
Lab Sample Number : 911367-010
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL SEMI-VOLATILE LIST Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
1,2,4,5-Tetrachlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,2,4-Trichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,2-Dichlorobenzene	20	10	ug/L		5/10/2001	SW846 8270
1,3,5-Trinitrobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,3-Dichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,3-Dinitrobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Dichlorobenzene	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Dioxane	< 10	10	ug/L		5/10/2001	SW846 8270
1,4-Naphthoquinone	< 10	10	ug/L		5/10/2001	SW846 8270
1-Naphthylamine	< 10	10	ug/L		5/10/2001	SW846 8270
2,2'-oxybis(1-Chloropropane)	< 10	10	ug/L		5/10/2001	SW846 8270
2,3,4,6-Tetrachlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4,5-Trichlorophenol	< 25	25	ug/L		5/10/2001	SW846 8270
2,4,6-Trichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dimethylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,4-Dinitrophenol	< 25	25	ug/L	&	5/10/2001	SW846 8270
2,4-Dinitrotoluene	< 10	10	ug/L		5/10/2001	SW846 8270
2,6-Dichlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2,6-Dinitrotoluene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Acetylaminofluorene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Chloronaphthalene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Chlorophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Methylnaphthalene	< 10	10	ug/L		5/10/2001	SW846 8270
2-Methylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Naphthylamine	< 10	10	ug/L		5/10/2001	SW846 8270
2-Nitroaniline	< 25	25	ug/L		5/10/2001	SW846 8270
2-Nitrophenol	< 10	10	ug/L		5/10/2001	SW846 8270
2-Picoline	< 10	10	ug/L		5/10/2001	SW846 8270
3,3-Dichlorobenzidine	< 10	10	ug/L		5/10/2001	SW846 8270
3,3-Dimethylbenzidine	< 10	10	ug/L		5/10/2001	SW846 8270
3-Methylcholanthrene	< 10	10	ug/L		5/10/2001	SW846 8270
3-Methylphenol	< 10	10	ug/L		5/10/2001	SW846 8270
3-Nitroaniline	< 25	25	ug/L		5/10/2001	SW846 8270
4,6-Dinitro-2-methylphenol	< 25	25	ug/L		5/10/2001	SW846 8270
4-Aminobiphenyl	< 10	10	ug/L		5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW44
Lab Sample Number : 911367-010
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

4-Bromophenyl phenyl ether	<	10	10	ug/L	5/10/2001	SW846 8270
4-Chloro-3-methylphenol	<	10	10	ug/L	5/10/2001	SW846 8270
4-Chloroaniline	<	10	10	ug/L	5/10/2001	SW846 8270
4-Chlorophenyl phenyl ether	<	10	10	ug/L	5/10/2001	SW846 8270
4-Methylphenol	<	10	10	ug/L	5/10/2001	SW846 8270
4-Nitroaniline	<	25	25	ug/L	5/10/2001	SW846 8270
4-Nitrophenol	<	25	25	ug/L	5/10/2001	SW846 8270
4-Nitroquinoline-1-oxide	<	10	10	ug/L	5/10/2001	SW846 8270
5-Nitro-o-toluidine	<	10	10	ug/L	5/10/2001	SW846 8270
7,12-Dimethylbenz(a)anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
a,a-Dimethylphenethylamine	<	20	20	ug/L	5/10/2001	SW846 8270
Acenaphthene	<	10	10	ug/L	5/10/2001	SW846 8270
Acenaphthylene	<	10	10	ug/L	5/10/2001	SW846 8270
Acetophenone	<	10	10	ug/L	5/10/2001	SW846 8270
Aniline		12	10	ug/L	5/10/2001	SW846 8270
Anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
Aramite	<	20	20	ug/L	5/10/2001	SW846 8270
Benzo(a)anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(a)pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(b)fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(g,h,i)perylene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzo(k)fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Benzyl alcohol	<	10	10	ug/L	5/10/2001	SW846 8270
bis(2-Chloroethoxy)methane	<	10	10	ug/L	5/10/2001	SW846 8270
bis(2-Chloroethyl)ether	<	10	10	ug/L	5/10/2001	SW846 8270
bis(2-Ethylhexyl)phthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Butylbenzylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Chlorobenzilate	<	10	10	ug/L	5/10/2001	SW846 8270
Chrysene	<	10	10	ug/L	5/10/2001	SW846 8270
Di-n-butylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Di-n-octylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Diallate	<	10	10	ug/L	5/10/2001	SW846 8270
Dibenzo(a,h)anthracene	<	10	10	ug/L	5/10/2001	SW846 8270
Dibenzofuran	<	10	10	ug/L	5/10/2001	SW846 8270
Diethylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Dimethoate	<	10	10	ug/L	5/10/2001	SW846 8270
Dimethylphthalate	<	10	10	ug/L	5/10/2001	SW846 8270
Dinoseb	<	10	10	ug/L	5/10/2001	SW846 8270
Diphenylamine	<	10	10	ug/L	5/10/2001	SW846 8270
Disulfoton	<	10	10	ug/L	5/10/2001	SW846 8270
Ethyl methacrylate	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW44
Lab Sample Number : 911367-010
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Ethyl methanesulfonate	<	10	10	ug/L	5/10/2001	SW846 8270
Famphur	<	10	10	ug/L	5/10/2001	SW846 8270
Fluoranthene	<	10	10	ug/L	5/10/2001	SW846 8270
Fluorene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorobutadiene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorocyclopentadiene	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachloroethane	<	10	10	ug/L	5/10/2001	SW846 8270
Hexachlorophene	<	500	500	ug/L	5/10/2001	SW846 8270
Hexachloropropene	<	20	20	ug/L	5/10/2001	SW846 8270
Indeno(1,2,3-cd)pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Isodrin	<	10	10	ug/L	5/10/2001	SW846 8270
Isophorone	<	10	10	ug/L	5/10/2001	SW846 8270
Isosafrole	<	10	10	ug/L	5/10/2001	SW846 8270
Kepone	<	50	50	ug/L	5/10/2001	SW846 8270
Methapyrilene	<	20	20	ug/L	5/10/2001	SW846 8270
Methyl methacrylate	<	10	10	ug/L	5/10/2001	SW846 8270
Methyl methanesulfonate	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitroso-di-n-propylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodi-n-butylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodiethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodimethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosodiphenylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosomethylethylamine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosomorpholine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosopiperidine	<	10	10	ug/L	5/10/2001	SW846 8270
N-Nitrosopyrrolidine	<	10	10	ug/L	5/10/2001	SW846 8270
Naphthalene	<	10	10	ug/L	5/10/2001	SW846 8270
Nitrobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
o,o,o-Triethylphosphorothioate	<	10	10	ug/L	5/10/2001	SW846 8270
o-Toluidine	<	10	10	ug/L	5/10/2001	SW846 8270
p-(Dimethylamino)azobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
p-Phenylenediamine	<	1000	1000	ug/L	5/10/2001	SW846 8270
Parathion	<	10	10	ug/L	5/10/2001	SW846 8270
Parathion, Methyl	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachlorobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachloroethane	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachloronitrobenzene	<	10	10	ug/L	5/10/2001	SW846 8270
Pentachlorophenol	<	25	25	ug/L	5/10/2001	SW846 8270
Phenacetin	<	10	10	ug/L	5/10/2001	SW846 8270
Phenanthrene	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW44
Lab Sample Number : 911367-010
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Phenol	<	10	10	ug/L	5/10/2001	SW846 8270
Phorate	<	10	10	ug/L	5/10/2001	SW846 8270
Pronamide	<	10	10	ug/L	5/10/2001	SW846 8270
Pyrene	<	10	10	ug/L	5/10/2001	SW846 8270
Pyridine	<	10	10	ug/L	5/10/2001	SW846 8270
Safrole	<	10	10	ug/L	5/10/2001	SW846 8270
Sulfotep	<	10	10	ug/L	5/10/2001	SW846 8270
Thionazin	<	10	10	ug/L	5/10/2001	SW846 8270

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW44
Lab Sample Number : 911367-010
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 6/4/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST

Prep Method: SW846 3510 Prep Date:

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
4,4'-DDE	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
4,4'-DDT	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Aldrin	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
alpha-BHC	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
alpha-Chlordane	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
beta-BHC	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Chlordane, technical	< 1.0	1.0	ug/L		5/30/2001	SW846 8081
delta-BHC	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Dieldrin	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endosulfan I	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Endosulfan II	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endosulfan sulfate	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endrin	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endrin aldehyde	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
gamma-BHC (Lindane)	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
gamma-Chlordane	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Heptachlor	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Heptachlor epoxide	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Isodrin	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Methoxychlor	< 0.50	0.50	ug/L		5/17/2001	SW846 8081
Toxaphene	< 5.0	5.0	ug/L		5/17/2001	SW846 8081

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-007
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 6/4/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST Prep Method: SW846 3510 Prep Date:

Analyte		Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
4,4'-DDE	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
4,4'-DDT	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
Aldrin	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
alpha-BHC	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
alpha-Chlordane	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
beta-BHC	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
Chlordane, technical	<	1.0	1.0	ug/L		5/30/2001	SW846 8081
delta-BHC	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
Dieldrin	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
Endosulfan I	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
Endosulfan II	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
Endosulfan sulfate	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
Endrin	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
Endrin aldehyde	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
gamma-BHC (Lindane)	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
gamma-Chlordane	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
Heptachlor	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
Heptachlor epoxide	<	0.050	0.050	ug/L		5/17/2001	SW846 8081
Isodrin	<	0.10	0.10	ug/L		5/17/2001	SW846 8081
Methoxychlor	<	0.50	0.50	ug/L		5/17/2001	SW846 8081
Toxaphene	<	5.0	5.0	ug/L		5/17/2001	SW846 8081

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 6/6/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

SPECIAL PESTICIDE LIST

Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
4,4'-DDD	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
4,4'-DDE	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
4,4'-DDT	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Aldrin	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
alpha-BHC	0.16	0.050	ug/L	P	5/17/2001	SW846 8081
alpha-Chlordane	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
beta-BHC	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Chlordane, technical	< 1.0	1.0	ug/L		5/30/2001	SW846 8081
delta-BHC	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Dieldrin	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endosulfan I	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Endosulfan II	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endosulfan sulfate	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endrin	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Endrin aldehyde	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
gamma-BHC (Lindane)	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
gamma-Chlordane	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Heptachlor	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Heptachlor epoxide	< 0.050	0.050	ug/L		5/17/2001	SW846 8081
Isodrin	< 0.10	0.10	ug/L		5/17/2001	SW846 8081
Methoxychlor	< 0.50	0.50	ug/L		5/17/2001	SW846 8081
Toxaphene	< 5.0	5.0	ug/L		5/17/2001	SW846 8081

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW13
Lab Sample Number : 911367-002
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/6/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 1.0	1.0	ug/L		5/17/2001	SW846 8082
Aroclor 1221	< 1.0	1.0	ug/L		5/17/2001	SW846 8082
Aroclor 1232	< 1.0	1.0	ug/L		5/17/2001	SW846 8082
Aroclor 1242	< 1.0	1.0	ug/L		5/17/2001	SW846 8082
Aroclor 1248	< 1.0	1.0	ug/L		5/17/2001	SW846 8082
Aroclor 1254	< 1.0	1.0	ug/L		5/17/2001	SW846 8082
Aroclor 1260	< 1.0	1.0	ug/L		5/17/2001	SW846 8082

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-007
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1221	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1232	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1242	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1248	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1254	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1260	< 1.0	1.0	ug/L		5/18/2001	SW846 8082

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW44
Lab Sample Number : 911367-010
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/24/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Semivolatile Organic Results

PCB LIST

Prep Method: SW846 3510 Prep Date: 5/9/2001

Analyte	Result	EQL	Units	Code	Analysis Date	Analysis Method
Aroclor 1016	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1221	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1232	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1242	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1248	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1254	< 1.0	1.0	ug/L		5/18/2001	SW846 8082
Aroclor 1260	< 1.0	1.0	ug/L		5/18/2001	SW846 8082

- Analytical Report -

Project Name :	MORT	Submitter :	TECHLAW INC
Project Number :	R05705.18	Report Date :	05/26/2001
Field ID :	UAW13	Collection Date :	05/06/2001
Lab Sample Number :	911367-002	Matrix Type :	GROUNDWATER
Lab Project Number :	911367	WI DNR LAB ID :	113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Cyanide, total	0.032	0.010	mg/L		05/14/2001	EPA 335.4	EPA 335.4
Sulfide	51	1.0	mg/L		05/11/2001	EPA 376.1	EPA 376.1

- Analytical Report -

Project Name :	MORT	Submitter :	TECHLAW INC
Project Number :	R05705.18	Report Date :	05/26/2001
Field ID :	UAW03	Collection Date :	05/07/2001
Lab Sample Number :	911367-011	Matrix Type :	GROUNDWATER
Lab Project Number :	911367	WI DNR LAB ID :	113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Cyanide, total	< 0.010	0.010	mg/L		05/14/2001	EPA 335.4	EPA 335.4
Sulfide	3.2	1.0	mg/L		05/11/2001	EPA 376.1	EPA 376.1

- Analytical Report -

Project Name :	MORT	Submitter :	TECHLAW INC
Project Number :	R05705.18	Report Date :	05/26/2001
Field ID :	UAW43	Collection Date :	05/06/2001
Lab Sample Number :	911367-014	Matrix Type :	GROUNDWATER
Lab Project Number :	911367	WI DNR LAB ID :	113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Cyanide, total	0.029	0.010	mg/L		05/14/2001	EPA 335.4	EPA 335.4
Sulfide	85	1.0	mg/L		05/11/2001	EPA 376.1	EPA 376.1

Enchem

TLI Project: 53948
Client Sample: 911367-007 (UAW03)
Client Project: 911367

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZU39300
Matrix: WATER

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.06
Total PeCDD	ND	0.1
Total HxCDD	ND	0.06
Total TCDF	ND	0.04
Total PeCDF	ND	0.04
Total HxCDF	ND	0.03

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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801 Capitola Drive • Durham, North Carolina 27713
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Printed: 14:33 05/22/2001

Enchem

TLI Project: 53948
Client Sample: 911367-002 (UAW13)
Client Project: 911367

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZU39200
Matrix: WATER

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.07
Total PeCDD	ND	0.1
Total HxCDD	ND	0.08
Total TCDF	ND	0.05
Total PeCDF	ND	0.05
Total HxCDF	ND	0.05

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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Printed: 14:33 05/22/2001

Enchem

TLI Project: 53948
Client Sample: 911367-010 (UAW44)
Client Project: 911367

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: ZU39400
Matrix: WATER

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppt)	DL (ppt)	Blank (ppt)
2,3,7,8-TCDD	ND	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppt)	DL (ppt)
Total TCDD	ND	0.06
Total PeCDD	ND	0.10
Total HxCDD	ND	0.06
Total TCDF	ND	0.04
Total PeCDF	ND	0.04
Total HxCDF	ND	0.03

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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- Analytical Report -

Project Name :	MORT	Submitter :	TECHLAW INC
Project Number :	R05705.18	Report Date :	5/29/2001
Field ID :	UAW43	Collection Date :	5/6/2001
Lab Sample Number :	911367-014	Matrix Type :	GROUNDWATER
Lab Project Number :	911367	WI DNR LAB ID :	113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	15	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Arsenic	40	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Barium	27	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Beryllium	< 1.0	1.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Cadmium	< 1.0	1.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Chromium	< 3.0	3.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Cobalt	< 3.0	3.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Copper	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Lead	< 5.0	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
[illegible]cury	< 0.20	0.20	ug/L		5/17/2001	SW846 7470A	SW846 7470A
Nickel	14	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Selenium	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Silver	< 5.0	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Thallium	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Tin	1500	20	ug/L		5/14/2001	SW846 3015	SW846 6010B
Vanadium	18	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Zinc	< 20	20	ug/L		5/14/2001	SW846 3015	SW846 6010B

- Analytical Report -

Project Name : MORT
Project Number : R05705.18
Field ID : UAW03
Lab Sample Number : 911367-011
Lab Project Number : 911367

Submitter : TECHLAW INC
Report Date : 5/29/2001
Collection Date : 5/7/2001
Matrix Type : GROUNDWATER
WI DNR LAB ID : 113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	12	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Arsenic	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Barium	370	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Beryllium	< 1.0	1.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Cadmium	< 1.0	1.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Chromium	3.6	3.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Cobalt	< 3.0	3.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Copper	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Lead	< 5.0	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Mercury	< 0.20	0.20	ug/L		5/17/2001	SW846 7470A	SW846 7470A
Nickel	29	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Selenium	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Silver	< 5.0	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Thallium	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Tin	1000	20	ug/L		5/14/2001	SW846 3015	SW846 6010B
Vanadium	140	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Zinc	< 20	20	ug/L		5/14/2001	SW846 3015	SW846 6010B

- Analytical Report -

Project Name :	MORT	Submitter :	TECHLAW INC
Project Number :	R05705.18	Report Date :	5/29/2001
Field ID :	UAW13	Collection Date :	5/6/2001
Lab Sample Number :	911367-002	Matrix Type :	GROUNDWATER
Lab Project Number :	911367	WI DNR LAB ID :	113172950

Inorganic Results

Test	Result	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method
Antimony	16	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Arsenic	30	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Barium	26	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Beryllium	< 1.0	1.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Cadmium	< 1.0	1.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Chromium	3.7	3.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Cobalt	< 3.0	3.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Copper	12	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Lead	< 5.0	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Mercury	< 0.20	0.20	ug/L		5/17/2001	SW846 7470A	SW846 7470A
Nickel	14	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Selenium	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Silver	< 5.0	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Thallium	< 10	10	ug/L		5/14/2001	SW846 3015	SW846 6010B
Tin	1600	20	ug/L		5/14/2001	SW846 3015	SW846 6010B
Vanadium	17	5.0	ug/L		5/14/2001	SW846 3015	SW846 6010B
Zinc	20	20	ug/L		5/14/2001	SW846 3015	SW846 6010B

M. Capiro

20 NORTH WACKER DRIVE, SUITE 1260, CHICAGO, IL 60606

TECHLAW INC.

PHONE: (312) 578-8900
FAX: (312) 578-8904

RZ2.R05705.01.ID.141

May 4, 2001

Mr. Brian Freeman
U.S. Environmental Protection Agency
Region 5 DE-9J
77 West Jackson Boulevard
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W-99-017; Work Assignment No. R05705; Multi-Site Sampling and Analysis Support; Morton International, Inc., Reading, Ohio; EPA ID No. OHD000724138; Site-Specific Field Sampling and Analysis Plan; Task 02 Deliverable

Dear Mr. Freeman:

Please find enclosed, TechLaw's Site-Specific Field Sampling and Analysis Plan (SAP) for sampling activities proposed at Morton International Inc., Reading, Ohio. An electronic copy of this deliverable has also been E-mailed to both you and Ms. Mirtha Capiro in Word Perfect for Windows format. This document has been developed based on the technical direction memorandum (TDM) under Work Assignment R05705 dated March 14, 2001, discussions with Ms. Capiro and the Morton facility, as well as the TDM issued on March 13, 2001 for this facility under Work Assignment R05703 (Field Oversight).

If you have any questions, please contact me or Mr. Terry Uecker, the TechLaw Work Assignment Manager, at (312) 345-8974.

Sincerely,

John Koehnen

John Koehnen
Regional Manager

cc: F. Norling, U.S. EPA, Region 5 (w/o attachment)
Mirtha Capiro, U.S. EPA Region 5
W. Jordan, Central Files
Chicago Central Files
T. Uecker, TechLaw
T. Quillen, TechLaw

SITE-SPECIFIC FIELD SAMPLING AND ANALYSIS PLAN

MORTON INTERNATIONAL, INC.
READING, OHIO
EPA ID NO. OHD000724138

Submitted to:

Mr. Brian Freeman
Work Assignment Manager
U.S. Environmental Protection Agency
Region 5 DE-9J
77 West Jackson Boulevard
Chicago, IL 60604

Submitted by:

TechLaw, Inc.
20 North Wacker Drive
Suite 1260
Chicago, IL 60606

EPA Work Assignment No.:	R05705
Contract No.:	68-W-99-017
EPA WAM:	Brian Freeman
Telephone No.:	(312) 353-2720
EPA TA:	Mirtha Capiro
Telephone No.:	(312) 886-7567
TechLaw WAM:	Terry Uecker
Telephone No.:	(312) 345-8974

May 4, 2001

SITE-SPECIFIC FIELD SAMPLING AND ANALYSIS PLAN

MORTON INTERNATIONAL, INC.
READING, OHIO
EPA ID NO. OHD000724138

INTRODUCTION

The following constitutes the Site-Specific Field Sampling and Analysis Plan (SAP) for the sampling activities to be performed at Morton International, Inc. (Morton) in Reading, Ohio. It is currently anticipated that sampling activities will be conducted at various times throughout the 2001 calendar year. The sampling activities will be coordinated by Mr. Michael Welly of TechLaw.

This SAP will be used in conjunction with TechLaw's U.S. EPA-approved Region 5 Generic Quality Assurance Project Plan (QAPP) for Sampling Operations, dated July 1999, as well as TechLaw's Site-Specific Health and Safety Plan. The samples will be sent to ENCHEM laboratory in Madison, Wisconsin.

It is currently anticipated that samples collected by TechLaw from the Morton facility will be split samples and at this time no discrete sample collection activities are planned.

Purpose and Objective

This SAP has been prepared to allow for the collection and analysis of soil, sediment, seep, and groundwater split samples from the Morton facility. The split samples will be collected to assist U.S. EPA Region 5 in determining whether releases have occurred from the Morton facility, the potential extent of these releases to the environment, and to assess the performance of the laboratory used by Morton to analyze the split samples.

Background Information

The Morton facility is located at 2000 West Street, Reading, Hamilton County, Ohio, north of Cincinnati, Ohio. The facility is comprised of a total of 34 acres. The facility has produced chemical products such as synthetic waxes, asphalt additives, antioxidants, organophosphates (specifically for epoxy catalysts), and plastic stabilizers, since 1950. Chemical impacts to the soil and groundwater have been documented as a result of past operations at various locations at the facility. Facility operations may also have impacted Mill Creek, the stream that runs along the west side of the property.

Environmental Samples

The facility is taking a phased approach to the characterization of the Morton site, as discussed in the November 2000 *Draft Facility Investigation Work Plan, RCRA §3013 Administrative Order* (revisions pending). Split samples collected by TechLaw may be collected at any time during the three Phases (1, 2, or 3). Morton currently anticipates the completion of Phase 3 activities in December 2001. Therefore, TechLaw anticipates that the sampling activities described in this SAP may be ongoing through December 2001.

TechLaw will collect up to four (4) groundwater split samples from monitoring wells, seven (7) soil split samples, three (3) sediment split samples from Mill Creek, and two (2) seep split samples from the east bank of Mill Creek.

Table 1 provides a list of each sample area, the estimated sampling date, and the anticipated method of sampling to be used during the sampling event.

Decontamination

TechLaw currently anticipates that all samples collected under the SAP will be split samples collected by the facility in the same manner, and using the same equipment, as their environmental samples. Therefore, TechLaw does not expect that any sampling equipment will need to be decontaminated. However, if any non-split samples are collected by TechLaw, all samples will be collected using appropriate disposable (pre-cleaned) or decontaminated sampling equipment and following appropriate procedures outlined in TechLaw's U.S. EPA-approved Region 5 Generic QAPP.

Investigation Derived Waste

At this time, TechLaw does not expect to generate any investigation derived waste (IDW) during the split sampling. However, if applicable, any IDW generated will be properly managed. Purged groundwater will be containerized and all solid wastes (e.g. disposable sampling equipment, PPE, etc.) will be placed in plastic bags prior to disposal. TechLaw will coordinate with Morton on the disposal of these materials. If Morton does not have the capability or will not provide this service, TechLaw will ensure that all IDW is tested and managed accordingly.

Quality Control Samples

Appropriate quality control samples will be collected in accordance with TechLaw's U.S. EPA-approved Region 5 Generic QAPP. One field duplicate sample will be collected for every ten samples collected, per matrix. If determined necessary based on field conditions, equipment blanks will be collected at a frequency of one for every ten samples collected per matrix, or up to

one per sampling event. Trip blanks will be collected at the rate of one per cooler where aqueous matrix VOCs are to be analyzed. Matrix spike/matrix spike duplicate (MS/MSD) samples will be collected at a frequency of one per 20 investigative samples, or up to one per sampling event.

Sample Collection and Data Record

The samples collected by TechLaw will remain in the custody of TechLaw until relinquished for shipment to the analytical laboratory. Chemical preservatives will be used to preserve the samples. The sample bottles will be appropriately labeled (label affixed directly to the bottle), tagged and shipped in an iced cooler. A completed chain-of-custody (COC) form will be signed by the TechLaw field team leader, sealed in a plastic bag, and taped to the inside of the cooler lid. The cooler will be taped closed and two custody seals will be affixed to the outside of the cooler. The samples will be collected in appropriate containers as specified in TechLaw's U.S. EPA-approved Region 5 Generic QAPP. All samples will be collected in "certified-clean" sample containers which are obtained from the laboratory or an analytical supply vendor.

Analytical Requirements

Samples collected during this effort will be analyzed according to TechLaw's U.S. EPA-approved Region 5 Generic QAPP. The environmental samples will be analyzed for Appendix IX inorganics, volatile organic compounds (VOC), semivolatile organic compounds (SVOC), polychlorinated biphenyls (PCB), pesticides, and dioxin/furans. In addition, one soil sample will also be analyzed for herbicides.

All samples will be shipped via overnight carrier to ENCHEM laboratory in Madison, Wisconsin.

Data Validation

Analytical data will be generated by ENCHEM and available directly to U.S. EPA in CLP-like packages. The resulting data will undergo up to 100 percent data validation by a member of the TechLaw Team who is independent of the sampling team. The exact amount of data validation will be specified by the EWAM after analytical results are received. All validation will be performed in accordance with the Functional Guidelines for Organic and Inorganic Data Review and the appropriate U.S. EPA methods. Specific data package and data validation requirements are outlined in TechLaw's U.S. EPA-approved Region 5 Generic QAPP.

Project Schedule and Report Deliverables

Sampling is expected to be conducted at various times through the end of December 2001. Following completion of the analysis of the split samples, the analytical results will be validated by TechLaw. A data validation report will be generated within 30 days of receiving the laboratory data packages. Concurrent with the data validation activities, a photo log and copies

of the field log books, including expanded notes, will be prepared for submittal to the EWAM and the EPA TA. If acceptable to the U.S. EPA TA, one comprehensive trip report will be submitted upon completion of the sampling activities described in this SAP. Field logbook entries and any raw or validated data will be available to U.S. EPA at any time, upon request. Interim trip reports which include photographs, trip narrative, and validated data will also be submitted to U.S. EPA upon request.

Project Organization

Mr. Brian Freeman is the EWAM for this project. The EPA TA is Ms. Mirtha Capiro. The TechLaw Technical Lead and Field Team Leader for the project is Mr. Mike Welly, who will work with other TechLaw personnel in the completion of this project.

The laboratory for this project is the ENCHEM laboratory in Madison, Wisconsin.

T' 'e 1.
Morton International Sample Locations and Methods

Matrix	Anticipated Sampling Date	No. of Locations	Sample Collection Procedures and Depths	Field Parameters	Analytical Parameters	Equip. Blanks	Field Dups.	Trip Blanks	MS/MSDs
Soil	Summer 2001	7	TechLaw will evaluate geophysical information, historical site operations, and talk to the facility and the EPA TA to establish the soil sampling locations. The samples will be collected by the facility and placed into TechLaw-supplied containers. One soil sample from a former burial area or another appropriate location will be analyzed for herbicides, in addition.	None	Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans. One sample will be analyzed for herbicides.*	1 per 10 if non-disposable equipment is used.	1 per 10, or one per sampling event	None	1 per 20, or one per sampling event
Groundwater	Spring 2001	2	On-site monitoring wells according to the procedures specified in the FI Work Plan.	None	Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans.*	1 per 10 if non-disposable equipment is used.	1 per 10, or one per sampling event	1 per cooler	1 per 20, or one per sampling event
Groundwater	Fall 2001	2	On-site monitoring wells according to the procedures specified in the FI Work Plan.	None	Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans.*	1 per 10 if non-disposable equipment is used.	1 per 10, or one per sampling event	1 per cooler	1 per 20, or one per sampling event
Sediment	Summer 2001	3	Mill Creek sediment according to the procedures specified in the FI Work Plan.	None	Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans.*	1 per 10 if non-disposable equipment is used.	1 per 10, or one per sampling event	None	1 per 20, or one per sampling event
Seep	Summer 2001	2	Mill Creek seeps according to the procedures specified in the FI Work Plan	None	Appendix IX inorganics, VOCs, SVOCs, PCBs, pesticides, and dioxin/furans.*	1 per 10 if non-disposable equipment is used.	1 per 10, or one per sampling event	1 per cooler	1 per 20, or one per sampling event

* - If herbicides are detected at significant concentration in the soil sample that is analyzed for herbicides, additional samples (i.e., groundwater, sediment, or seep) may be analyzed for herbicides at EPA's request.