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September 12, 1996

Mr. Tim Mulholland, Ph.D.
Waste Management Engineer
Hazardous Waste Management Section
Bureau of Solid and Hazardous Waste Management
Wisconsin Department of Natural Resources
P. O. Box 7921
Madison, Wisconsin 53707

Re: Corrective Measures Study (CMS) Summary
Cook Composites and Polymers
Saukville, Wisconsin
WCC Project No. 6E09062

Dear Mr. Mulholland:

The purpose of this letter is to summarize the key issues included in the Corrective Measures Study (CMS) prepared by Woodward-Clyde Consultants (WCC) and discussed in our September 12, 1996, meeting. The CMS was completed by WCC using the data and interpretations contained in the RCRA Facility Investigation (RFI) Additional Studies Report, (RMT, Inc., October 1995). The CMS evaluated three corrective measure strategies based on risk-based corrective action objectives, technical merit, feasibility, and cost. The summary of key corrective action elements of the strategies is included in Table 1.

Based on review of the RFI, WCC concluded that extensive remediation of impacted soils is impractical due to site constraints and would not significantly improve groundwater quality due to high level impacts currently in the saturated zone. In addition, the existing extensive groundwater extraction system coupled with the site pavement barrier as an engineering control provides a suitable corrective action strategy to address the corrective action objectives for soil and groundwater. This corrective measure strategy is consistent with WDNR regulations (NR 700) and WDNR guidance regarding implementing a risk-based and performance standard approach to site corrective action.

Corrective Action Objectives

The site conditions described in the RFI indicate that residual contaminants are present in soil and groundwater at Areas 1, 2, and 3. Corrective action objectives were established by evaluating the risk these residual contaminants present to the public health and the

environment, as well as the concentration of contaminants in the context of applicable soil and groundwater standards.

Groundwater

The ongoing groundwater extraction system has been demonstrated to be successful at containing contaminant migration. There are currently no users of the contaminated groundwater. Therefore, there is not a completed human health risk exposure pathway for groundwater, and no risk to the public via the potable water supply. Concentrations of contaminants in groundwater on site exceed WDNR Protective Action Limits and Enforcement Standards. The corrective action objectives for groundwater are to:

- Continue removal of contaminants from the groundwater using the existing groundwater extraction wells and Ranney collector system
- Maintain hydraulic control to prevent the potential for a completed human health risk exposure pathway to potable water users, and
- Improve groundwater quality to the extent practicable by implementing corrective measures which restore and/or reduce further degradation of groundwater.

Soils

The continued restricted industrial use of the property and the existing pavement surface barrier eliminate on-site complete human health risk exposure pathways (e.g., direct contact, inhalation, ingestion). In addition, the presence of the impermeable barrier minimizes the downward migration of precipitation through the zone of soil contamination. There is no excess human health risk in areas of the site where residual constituents remain.

Soil concentrations of site-related constituents exceed WDNR generic numerical standards for soil. Many of these locations are in highly congested utility corridors or near or adjacent to critical production buildings. The high concentrations and inaccessible locations make it impractical to remediate soil locations to WDNR numerical standards for soils.

The WDNR numerical standards for soil are partially based on an assessment of the potential impact of the contaminated soils on groundwater. An alternate method is available under s. NR 720.19(2) to develop performance based standards, in place of generic or site specific numerical standards. The alternate method is particularly useful in industrial situations with restricted access for remediation. The site pavement forms an impermeable barrier to surface water infiltration and eliminates human health risk exposure pathways on site. Thus, the corrective action objective for soils (at all three AOCs) is to:

- Develop performance standards in place of WDNR generic or site specific numerical standards as allowed by s. NR 720.19(2) to address soil media contamination.

- Maintain engineered controls, including paved surfaces to reduce infiltration and eliminate human health risk exposure.

- Reduce the potential for future constituent migration from soil to groundwater by dewatering soils using the existing Ranney collector system. Continue site-wide hydraulic control using the existing groundwater extraction system.

- Allow intrinsic bioremediation of soil contamination by avoiding excavation or other intrusive activity which could disrupt microbial activity.

Recommended Corrective Measures

Based on the screening and evaluation of the corrective measure strategies summarized in Table 1 with respect to the defined corrective action objectives, the recommended corrective measure strategy involves the following elements:

Groundwater Hydraulic Control

- Continued operation of the existing Ranney collector system to dewater unconsolidated soil and maintain hydraulic control of the shallow groundwater system.

- Continued operation of the shallow dolomite wells to maintain hydraulic control of the shallow groundwater system and prevent contamination to the deep dolomite aquifer.

- Continued operation of the deep dolomite pumping well to maintain the effective site-wide hydraulic control and provide an inward gradient for capture and recovery of off-site impacted groundwater.

Engineering Controls

- Maintain the existing three acre pavement system as an engineered barrier to eliminate surface water infiltration and eliminate the human health risk exposure pathways for impacted soil involving direct contact, ingestion, and inhalation. This measure satisfies the criteria of performance standard for soil remediation as described in s. NR 720.19 (2).

- Maintain and operate the poly-drain system on site to divert and collect surface water runoff from the concrete surface pavement. The collection of this surface water improves the effectiveness of the pavement as an impermeable barrier and assists site dewatering by reducing near-site infiltration.

- Avoid any changes in site operations that would negatively impact intrinsic bioremediation activity.

Institutional Controls

- Minimize potential for human health risk exposure by maintaining the facility security fence and the facility policy which limits site access.

- Implement a property deed restriction which prohibits installation of a water supply well for potable use.

- Implement a property deed restriction which establishes necessary protective measures including worker health and safety procedures and specifications for maintenance or repair of the pavement if subsurface construction activities are required on site.

As a result of the flexibility available with the NR 720 soil standards, including the option to use performance standards in place of traditional numerical standards, we believe the strategy we recommend for corrective action at the Saukville facility is appropriate.

We conceived this strategy based on project experience in Wisconsin and other states which utilized similar concepts. The following elements describe the strengths and basis of our strategy:

- The strategy is supported by WDNR corrective action guidance which states that in cases of widespread soil or source contamination, engineering controls (caps, membranes, or pavement) with hydraulic control is an appropriate corrective measure.

- Attainment of NR 720 generic or site specific soil media numerical standards (referred to as residual contaminant levels (RCLs)) by active remediation or soil removal is not appropriate since some contaminated soils in inaccessible areas will remain. We believe that soil remediation would have limited, if any, benefit of reducing the necessary operating life of the groundwater extraction system since impacts at or below the water table will remain.

- The primary potential human health exposure pathway related to this site is groundwater consumption. The existing hydraulic control system and ongoing site and public well monitoring renders that exposure pathway incomplete.

- The "performance standards" approach to defining cleanup objectives described in s. NR 720.19(2) allows for the implementation of engineering controls or performance standards in place of numerical generic or site-specific soil standards. The use of the existing impermeable pavement barrier at this site satisfies the criteria of a performance standard in s. NR 720.19(2) and is supported in recent draft WDNR guidance on soil performance standards.

- Corrective action guidance and NR 722.09 states that all media must be addressed by the corrective measures. The strategy addresses both soil and groundwater by explicitly defining engineering controls and hydraulic control.

We hope that this summary document concisely describes the CMS strategy for your use. We are available to discuss our proposed corrective measure strategy at your convenience and welcome additional suggestions and feedback.

Sincerely,

COOK COMPOSITES & POLYMERS

Craig R. Bostwick
Director, Environmental Regulatory and Safety

CRB:MAG:kjs
Attachments: As Stated

TABLE 1
SUMMARY OF CORRECTIVE MEASURE STRATEGIES
COOK COMPOSITES AND POLYMERS

Corrective Measure Alternatives	Area 1 - Former Urethane Laboratory/Former Liquids Incinerator	Area 2 - Former Dry Well	Area 3 Former Tank Farm Storage Area
Strategy #1 - Hydraulic Control/ Engineering Controls	- Hydraulic Control - Engineering Controls	- Hydraulic Control - Engineering Controls	- Hydraulic Control - Engineering Controls
Strategy #2 - Enhanced Passive Bioremediation of Groundwater	- Hydraulic Control - Engineering Controls - Passive Bioremediation	- Hydraulic Control - Engineering Controls - Passive Bioremediation	- Hydraulic Control - Engineering Controls - Passive Bioremediation
Strategy #3 - Limited Soil Removal and Treatment	- Hydraulic Control - Engineering Controls - Soil Removal/Treatment	- Hydraulic Control - Engineering Controls	- Hydraulic Control - Engineering Controls - Soil Removal/Treatment