



Camp Dresser & McKee Inc.

consulting
engineering
construction
operations

One Cambridge Place
50 Hampshire Street
Cambridge, Massachusetts 02139
Tel: 617 452-8000 Fax: 617 452-8000

April 12, 2000

close to
closing

DRAFT

Mr. Jeff Ritter
Executive Secretary
Wayland Town Offices
41 Cochituate Road
Wayland, MA 01778

Subject: Due Diligence Investigation and Report to the Board of Selectmen of the
Town of Wayland

Dear Mr. Ritter:

CDM is pleased to submit this letter report to the Town of Wayland regarding the Dow property known as the former Dow Chemical Facility located at 412 Commonwealth Road and assigned DEP release tracking number 3-3866. This report is presented in two parts. The first part details our history with the property inclusive of our development of a Phase I Report in 1998 as well as a chronology of document consideration and review in the intervening period of time. The second part is our review of the final or nearly final documents recently submitted by Ransom Environmental.

Part 1. History of CDM Involvement.

Our history at the site started with an independent review of material in 1998. This review culminated in production of a Phase I report outlining our understanding of the site and recommending that the site proceed to the Phase II Comprehensive Site Assessment prior to any land taking or receipt of the site by the Town. In essence, this report recommended that Dow continue at the site through the Phase II comprehensive site assessment process including a risk characterization. Such completion of the risk characterization then clearly demonstrates current and future risks at the site relative to site reuse and allows the Town to consider the site in a completely characterized mode. This approach is much safer than that of an ordinary due diligence report at the Phase I level of site assessment but was certainly warranted in this case given the past use of the site by Dow. From the point of that recommendation, our history of review has consisted of the receipt and reading of the Phase II and RAM documents by our LSP, Mr. William Swanson. In addition to the pertinent documents provided by Dow's consultant, Ransom Environmental and attendance at the public meeting where the draft risk assessment was presented, Mr. Swanson also was provided the comments by the two senior LSP's employed by the site neighbors (NED/Dow Neighbors, Inc.). At key points in the process CDM provided written comments on the documents and copies of these letters are attached to this letter report.

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Furthermore, our LSP, Mr. Swanson, walked over the site with the neighbors and other interested parties in autumn of 1999 (October 30) to select likely or suspect locations for additional due diligence sampling and analysis. It was determined that this work should be undertaken to provide a reasonable degree of assurance that the site had been fully remediated.

Part 2. Final Report Review.

The key document reviewed is the final Method 3 Risk Assessment Report for the site. The Method 3 approach utilized is the most detailed of the available approaches and uses site specific data and detailed information about the chemicals detected to arrive at an assessment of risk.

One way to view the results of the risk assessment is to go directly to the numbers computed for the cancer and noncancer risks. For cancer risks a total of 14 different possible scenarios were evaluated by Gradient Corp., a team subcontractor to Ransom. The acceptable level of risk according to DEP protocol is 1 additional risk of cancer in a population of 100,000. For conservation land uses the highest risk computed is 1 additional risk of cancer in a population of 1,000,000, ten times lower than or 10% of the allowable or acceptable level for the anticipated uses. Stated another way, the total cancer risk is 1/10 of the allowable risk. For residential scenarios in specific areas of the site where former Dow activities occurred, the highest risk is 6 additional cancer risks in a population of 1,000,000, somewhat lower than the allowable or acceptable level. Stated another way, the total cancer risk is 6/10 or 60% of the allowable risk. For noncancer risks, a total of 16 different possible scenarios were evaluated. The acceptable risk value is 1 and the highest computed value is 0.1, ten times lower than the allowable or 1/10 or 10% of the acceptable level. The numbers utilized in the computations are generally conservative, that is the computations are designed to overestimate risk due to uncertainties in the fundamental research and derivation of the numbers. So, the conclusion is that the site is safe for general use.

In addition, direct physical evidence of healthy biota at the site coupled with the chemical evidence indicate there is no adverse impact from the site to resident biota. These risk calculations were further reduced by the recent release abatement measure (RAM) activities.

In the risk assessment, Gradient dealt with background concentrations of contaminants for polynuclear aromatic hydrocarbons, dioxin and metals. Determination of background levels of dioxin in the Boston metropolitan area is problematic and the data that can be used to establish background is limited. Nevertheless, CDM views the dioxin concentrations at the site as residing on the low end of the concentration range of urban sites we have studied or are otherwise familiar with. For polynuclear aromatic hydrocarbons and metals, the concentrations appear to be above background and were

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thus subjected to detailed risk characterization to determine if they indeed resulted in a significant risk. As noted above, there was a determination of "no significant risk".

Our detailed comments appear below regarding review of the Method 3 Risk Characterization Former Dow Chemical Facility (Final) Dated February 25, 2000:

The Method 3 Human Health Risk Characterization was given a complete final review by CDM. Overall, the risk characterization was thorough and complete. The analytical data used to support the risk characterization was representative of site conditions and of sufficient quality to characterize site risks. MADEP protocols were generally followed regarding the development of exposure scenarios, exposure calculations, and the development of exposure point concentrations.

One exception to following MADEP guidance was the use of USEPA soil/skin adherence factors associated with dermal risk. While the use of the EPA values is acceptable, they are less conservative than the MADEP default factors. While the risk characterization may not be as conservative as if the default factors was used, the overall conclusion of "no significant" risk is consistent with the low levels of residual contaminants remaining on-site. The following are comments and observations that do not change the conclusions of the risk characterization:

Section 4.2.3

The fraction of surface soil from contaminated source parameter listed in Table 4-2 should be included in the ingestion equation (4-9).

Section 4.3.1

The sentence "Therefore this scenario assumes that a house is placed directly on the site and no mixing or regarding of the site occurs" is misleading since the subsurface soils are used to calculate EPCs.

Section 4.3.3

The landscaper exposure frequency extending from April through October should be stated as seven months rather than six months.

Table 4-2 Summary of Exposure Input Factors

The Soil/Skin Adherence Factors used in this table are cited as USEPA, 1999, which is Dermal Risk Assessment Interim Guidance. According to the USEPA, this document is not to be cited or quoted at this time, as it has not officially been released to the public. However, according to the USEPA, it is acceptable to cite the original study or studies

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contained within the document. Hence, while the procedure may not be conservative, the conclusions are not affected.

Appendix A Exposure Point Concentrations

The sample depths should have been included on either the A-1 series of tables or Table A-7.

Level of Completeness of the Assessment.

The assessment of the site is rated by CDM as exhibiting a high level of completeness. In addition to DEP oversight when the site was listed as a Tier 1A site, three independent LSP's have had opportunity to review and comment on the scopes of work as well as the work products. These work products were all provided by Dow and their consultant team led by Ransom Environmental Consultants Inc. There is always opportunity to find fault with such a complex set of procedures as was required to comprehensively assess this site. However, as noted in our remaining final comments, the site has been thoroughly characterized by current standards set for a comprehensive site assessment on a location of this nature.

One key aspect of the site assessment is the "uncertainty analysis" of the risk assessment which appears as Section 7. In most such documents, this portion of the assessment is perfunctory and is given little notice. However, because of the more unusual nature of prior site uses, this section takes on a higher degree of importance at this site. While CDM concurs that the assessment is "likely to overpredict actual site risks" as stated on page 40, we summarize as follows:

In response to the more exotic or unusual nature of the site, the analytical laboratory also provided a list of tentatively identified compounds (TIC's). Usually these compounds are not considered, however, to be more thorough they were included in the assessment. Stated another way, these compounds are those which may appear on the analytical instrument output but are not normally positively identified due to their understood or assumed insignificance in the risk assessment process. In order to quantitatively account for the risk associated with the presence, the compounds were assigned a health impact numerical value based on the known impact of a more commonly identified yet chemically similar compound. This approach is reasonable for dealing with the TIC's and is the only logical way to quantitate the risk. Furthermore, the approach provides an additional degree of conservatism in the overall risk calculations.

A similar likelihood of overestimation is described for the ecological risk assessment in that uncertainty analysis.

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With respect to Ransom's Completion Report Release Abatement Measure No. 3 dated March 30, 2000, CDM concurs that a class A-2 response action outcome statement (RAO) may be filed for the site.

Summary.

It is CDM's opinion that the site has been adequately characterized and remediated under the Massachusetts Contingency Plan process. CDM is not aware of any significant impediments or environmental encumbrances on the property and recommends that from an environmental management point of view the Town may proceed with the purchase of the property.

Very truly yours,

CAMP DRESSER & MCKEE INC.

William R. Swanson, P.E., LSP
Vice President

cc: Bruce Haskell