FINAL REPORT OF THE MODEL TOXICS CONTROL ACT POLICY ADVISORY COMMITTEE

Authority:

Engrossed Substitute House Bill 1810
54th Legislature
1995 Regular Session

Submitted to the:

House Agriculture and Ecology Committee
Senate Ecology and Parks Committee
Director, Department of Ecology

December 15, 1996

Publication No. 96-602

Model Toxics Control Act Policy Advisory Committee

December 15, 1996

The Honorable Karen Fraser
Chair, Ecology and Parks Committee
Washington State Senate
217 John A. Cherburg Building
Olympia, WA 98501

The Honorable Gary Chandler
Chair, Agriculture and Ecology Committee
House of Representatives
249 John L. O'Brien Building
Olympia, WA 98501

Mary Riveland, Director
Washington Department of Ecology
300 Desmond Drive
Olympia, WA 98504

Dear Senator Fraser, Representative Chandler, and Director Riveland:

On behalf of the Model Toxics Control Act Policy Advisory Committee (MTCA PAC) and in accordance with section 2(3) of Engrossed Substitute House Bill 1810, I submit our final report. I urge you to carefully consider our recommendations, which reflect a year and a half of concerted effort to make the Model Toxics Control Act more effective. The report reflects the work of 22 committee members representing a broad range of interests and substantial input from a consistently large and diverse group of non-members.

The Department of Ecology has faithfully fulfilled its legislatively directed role as a resource and administrative aid to the committee. While Ecology maintained a seat on the committee, this was truly an independent effort and not an Ecology advisory committee following an Ecology agenda. The committee set the agenda with its December 15, 1995 report to the Legislature.

It has been my pleasure to work with members and interested parties who struggled in a very technical scientific arena. Strong feelings permeate hazardous waste site cleanups and tough policy questions arise with the simplest of perceived issues. A deep undercurrent of public service, voluntarism, and desire to do the right thing drove our work. Of course, individual interests had specific agendas and goals for the process. We had to remind ourselves of our consensus mandate and yet not let that requirement weaken our resulting recommendations. The level of effort by committee members and others was extraordinary and consistently constructive. We have met the stringent legislative deadlines at great individual sacrifice by many members and interested parties.

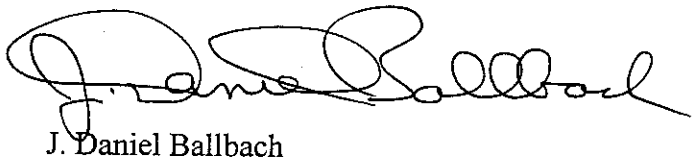
Washington Department of Ecology Contact:
Dawn A. Hooper, (360)407-7182

Facilitation Team Contacts:
Patricia J. Serie or Amy J. Grotefendt (206)343-7701

I believe a better Model Toxics Control Act can be achieved from these recommendations. The right people were at the table. We had the benefit of much more extensive study and analysis than the typical legislative session permits. We also had the freedom to take initiatives with this legislation and its rules which Ecology frequently cannot take from its executive branch position.

The committee thanks you for your support and the opportunity to engage in this important endeavor. We urge you to respect these efforts and implement our recommendations. We fully understand your independent roles and respect your need to exercise independent judgment. We remain available for questions, help with implementation, or whatever role you deem appropriate to ensure these fruitful efforts are most effective.

Sincerely,



J. Daniel Ballbach
Presiding Officer

PREFACE

The members of the Model Toxics Control Act Policy Advisory Committee (MTCA PAC), as authorized by Engrossed Substitute House Bill 1810, 1995 Regular Session, hereby submit our recommendations regarding the application and implementation of the Model Toxics Control Act (Chapter 70.105D RCW) and its implementing rules (Chapter 173-340 WAC). We appreciate the opportunity to examine closely the statutory, regulatory, and policy aspects of the Model Toxics Control Act.

We are committed to continuing to work with the Legislature and Ecology on an informal basis to ensure that these important changes are successfully made. While our deliberations have involved differences of opinion and our decisions reflect compromise, the collective effort has been to ensure that the work of the committee represents a net gain in the speed, effectiveness, and public and environmental protectiveness of contaminated site cleanups in Washington. This report has been written to include explanation about how the committee's recommendations can be integrated to affect cleanup decisions and processes at a range of sites. The report is submitted with the consent of all members, but the decisions of the Policy Advisory Committee are reflected solely in the recommendations found in Section 3 and Appendix B.

We certify that this report contains the recommendations of the Model Toxics Control Act Policy Advisory Committee established under ESHB 1810 and that the final report, while not a consensus or broad-support document as those terms are described in ESHB 1810, is a fair compilation and description of our deliberations.

Respectfully Submitted:

J. Daniel Ballbach, Presiding Officer

Leonard B. Barson, Environmental Organization

Mary E. Burg, Department of Ecology

Hon. Karen R. Fraser, Legislature

Richard L. Griffith, Small Business

Taryn M. McCain, Large Business

Sharon S. Metcalf, Cities

Terry D. Austin, County

Rodney L. Brown, Jr., Environmental Organization

Hon. Gary R. Chandler, Legislature

Kevin M. Godbout, Large Business

Eric D. Johnson, Port Districts

Scott McKinnie, Agriculture

Gerald M. Pollet, Environmental Organization

Jody M. Pucel, Finance

Michael C. Sciacca, Small Business

Hon. Daniel P. Swecker, Legislature

Jim W. White, Department of Health

Hon. Nancy S. Rust, Legislature

Gerald W. Smedes, Consulting Industry

Laurie M. Valeriano, Environmental Organization

Julie L. Wilson, Science Advisory Board

-- NOTE --

This report contains the recommendations of the Model Toxics Control Act Policy Advisory Committee based upon its deliberations over the period mid-1995 thru 1996.

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Ecology Regulatory Recommendations
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The balance of the report is submitted with the consent of the committee, but only the recommendations reflect our legislative mandate for consensus or broad-support recommendations.

Note: *The final report of the Model Toxics Control Act Policy Advisory Committee represents areas of general consensus. Many other issues were discussed, but did not receive the required general consensus agreement of the members of the Policy Advisory Committee. My signature represents approval of the process. While I agree that this report, on balance, presents a number of needed changes in the Model Toxics Control Act, I cannot foreclose the possibility that I will support additional changes or amendments proposed by others. In addition, I am unable to bind any other legislators or stakeholders.*

Representative Gary Chandler

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EXECUTIVE SUMMARY

The Model Toxics Control Act Policy Advisory Committee (MTCA PAC or committee) issues its final report with recommendations which we believe will meet the legislative directive and make the Model Toxics Control Act more effective. The report reflects that the committee did come to grips with a wide variety of issues. Consensus or broad support (limited opposition) was achieved in the overwhelming majority of areas identified as priorities in our December 15, 1995 report.

The Policy Advisory Committee has confronted and made substantive recommendations on:

- use of site-specific risk assessments;
- evaluation of ecological risks;
- technical assistance which will enable small business and others to get help with a very technical, time-consuming and expensive process;
- enhanced public participation;
- greater assurance about the quality of independent cleanups;
- greater assurance of success for institutional and engineering controls (measures to protect humans and the environment from hazardous substances left at a site);
- increased initiatives for areawide or so-called "brownfields" sites (historically contaminated and underutilized property) to re-enter the market as productive, usable, tax revenue producing and economically restored property;
- more readable and understandable regulations reflecting the real world of cleanups under the Model Toxics Control Act;
- a menu of options to address and hopefully resolve disputes with Ecology more quickly and cheaply;
- a short- and long-term strategy for dealing with the most prevalent contamination -- petroleum.

The recommendations will require both legislation and rule-making, along with some additional issuance of guidance from Ecology. The legislative recommendations are targeted and do not reflect wide-sweeping program changes. Recommendations for statutory change are succinctly compiled in Section 4.0 and include the following areas:

- areawide contamination/brownfields
- enhanced technical assistance
- tax policy
- public participation and community involvement
- plume clause
- transferability of covenants not to sue
- release reporting

The committee's goal was a budget-neutral set of recommendations. This set of recommendations comes close. The costs of implementing most of the recommendations are

recoverable from liable parties, but a few are not. The PAC respects the difficult fiscal session being faced by the Legislature, and believes there is potential for shifting some Ecology priorities and current funding directions. In the interim, the group urges implementation of the recommendations. The additional revenue requirement is expected to be approximately $700,000 for the biennium. Most of that goes to the effort to simplify and increase program accountability. The result is believed to be a net economic benefit to the state.

1.0 INTRODUCTION TO THE MTCA POLICY ADVISORY COMMITTEE -- MISSION AND OBJECTIVES

1.1 INTRODUCTION

The Model Toxics Control Act Policy Advisory Committee (MTCA PAC or committee), established by Engrossed Substitute House Bill 1810 (ESHB 1810, see Appendix A), has completed its work. This report is intended to meet the ESHB 1810 requirement for a final report to the Department of Ecology (Ecology) and the appropriate legislative committees on the priority issues identified for review in the MTCA PAC's Preliminary Report submitted December 15, 1995. The Preliminary Report is an integral part of the MTCA PAC process and is hereby incorporated in this final report.

This section describes the history of MTCA since its inception, and the mission and objectives of the PAC. Section 2 describes the composition of the committee and how it operated. In Section 3, the PAC's recommendations on the priority issues identified in the preliminary legislative report are provided. Section 4 calls out those recommendations requiring statutory revision, while Section 5 addresses those recommendations that can be resolved by Ecology through rulemaking and/or guidance. Section 6 suggests an approach to implementing the PAC's recommendations after January 15, 1997, when the PAC's work will be complete. It also reflects a strong PAC commitment to the principles and values represented by the recommendations, and members' willingness to continue to work together informally with Ecology and the Legislature to implement these recommendations.

1.2 STATUTORY AND INITIATIVE HISTORY

In November 1988, voters passed the Model Toxics Control Act as Initiative 97, which became effective in March 1989. It was codified as Ch. 70.105D RCW. After the contentious initiative debate, different interests came together to advise Ecology on implementing the statute with a workable cleanup program. A successful negotiated rulemaking produced the MTCA regulations, Ch. 173-340 WAC, which established a cleanup process within the broad framework of the statute that was accepted by business, environmental, and local government groups. This broad-based approach to rulemaking resulted in no legal challenges.

Since its passage by initiative, MTCA has been subject to several amendments. Those amendments can be characterized as ones which clarify specific issues or as targeted efforts to make the program more effective. Changes to MTCA have tended to be consensus or broad-support changes with minimal opposition.

In the 1993 legislative session, MTCA was modified to establish an explicit private right of action to recover cleanup costs (RCW 70.105D.080). In the 1994 session, MTCA was amended in several respects by SB 6123. The Legislature expanded on the definition of industrial properties that was in Ecology's rules so more sites could take advantage of industrial cleanup standards. The legislation formally authorized agreed orders and institutional controls, both of which had become widely used procedural elements of MTCA under the rules. The Legislature also authorized

prospective purchaser agreements between the Attorney General and a person who is not a potentially liable person under MTCA, but wants to acquire an interest in property that could be subject to MTCA cleanup.

An exemption from the State Hazardous Waste Management Act was provided for state-only dangerous waste generated as part of a MTCA consent decree. In 1994, the Legislature also provided certain relief from permitting requirements for MTCA-initiated cleanups with SB 6339. This exemption provides relief from the procedural requirements of several state and local laws.

The 1995 Legislature passed a lender liability bill which amends RCW 70.105D.020 and .030. This amendment tracks and expands upon federal efforts to protect lenders by virtue of defining "safe harbor" activities such as "operating a facility to protect a security interest," "participation in management," "policing activities," and other descriptions of security interest holder activities that will not give rise to liability.

The 1995 Legislature also adopted ESHB 1810, which directed Ecology to establish the MTCA PAC.

1.3 MTCA POLICY ADVISORY COMMITTEE MISSION AND OBJECTIVES

ESHB 1810 required the PAC to review, provide advice, and develop recommendations on at least the following subjects:

- Cleanup standards and cleanup levels, including the use of site-specific risk assessment
- Policies, rules, and procedures, including the use of cost, current and future land use, and other criteria in the selection of cleanup remedies
- The Department of Ecology's methods to carry out the cleanup program in practice, including training and accountability for cleanup decisions and their implementation
- Improvements in the cleanup process to provide additional incentives to potentially liable parties to fully and expeditiously fund cleanups
- The need for adoption of and recommended levels for ecologically-based cleanup standards
- A review of the effectiveness of independent cleanups

All of these issues have been examined closely by the PAC, as have a number of other issues identified as priorities. An issue identification exercise early in the PAC process resulted in over one hundred issues being suggested for consideration. In December 1995, PAC members reached consensus on twenty-three priority issues for full analysis (many of which at least touched on the many more underlying issues and levels of detail needed to understand the implications of MTCA for the environment, the public, liable parties, and Ecology). The priority issues are listed in Table 1 in the order they appeared in the preliminary report to the Legislature. The PAC's

recommendations on each priority issue and several other issues are summarized in Section 3 and fully documented in Sections 4, 5, and the appendices to this report.

The PAC recommends that Ecology should promptly begin implementing those PAC recommendations that do not require statutory or rule changes (at sites under review). For PAC recommendations involving policy, guidance, or regulatory clarification, the PAC encourages Ecology to begin the rule adoption process and policy/guidance preparation immediately to the extent that resources allow.

TABLE 1: Priority Issues for the MTCA PAC

Risk Assessment

1. Should site-specific risk assessment be used to set cleanup levels and make remedial action decisions under the MTCA as compared with current practice?

2. Do allowable risk values in the MTCA cleanup regulations appropriately balance the public's desire for protecting individuals with the need for cleanups to proceed at a reasonable cost? Should the allowable risk values for carcinogens in the MTCA cleanup regulations be amended, for example, to match federal risk range values under CERCLA (the federal Superfund program) in the National Contingency Plan?

3. Should an alternative method for evaluating risk and establishing cleanup levels be identified under the MTCA for petroleum?

4. Is there a need for ecologically based cleanup standards (i.e., protection of plants and animals) in addition to cleanup standards based on protection of human health?

Remedy Selection

5. There are a variety of related issues concerning the permanence of remedies, including (1) should the MTCA continue to require permanent solutions to the maximum extent practicable, and if so to what extent; (2) how should projections of future land use influence remedy selection, especially in determining protectiveness or in establishing the degree of permanence; (3) how should the waste management hierarchy influence remedy selection (MTCA defines a hierarchy of cleanup techniques, beginning with reuse or recycling as the most preferable remedy, and ranging to institutional controls and monitoring as the least preferable approach.); (4) how can long-term effectiveness for remedies which leave hazardous substances on site be assured; and (5) should there be additional recognition of the difficulty of remediating groundwater contamination and consideration of additional cleanup alternatives?

6. To what extent should cost influence remedy selection? For example, should the cost of the remedy, and the incremental risk reduction achieved, be considered in remedy selection?

TABLE 1: Priority Issues for the MTCA PAC

7. After a remedy has been selected, should it be implemented through the current practice of using "cleanup action levels," (that define the material that must be remediated or contained with a specific technology or engineering control) and if so, how should those levels be determined?

8. Should Ecology have a "remedy czar" or someone who can perform dispute resolution for remedy selection?

9. What steps can be taken to encourage cleanups that lead to redevelopment and reuse of "brownfields" (industrial properties), agricultural properties, and other areas of broad-based surface contamination while ensuring that the cleanups comply with the MTCA's fundamental requirements?

Independent Cleanups

10. How can we best leverage limited Ecology resources (existing and future) to provide greater technical assistance for independent cleanups?

11. Can the Independent Remedial Action Program (a process whereby Ecology is asked to review a report on an independent cleanup and a no-further-action-letter may be issued by Ecology), which represents a moderate level of Ecology oversight and results in limited assurances of finality, be improved?

12. Would a consultant certification program make independent cleanups better and/or easier to accomplish?

13. Should we institute a program of random Ecology audits or spot-checks of independent cleanups on an ongoing basis?

Implementation

14. Are there ways that Ecology can improve its internal decision making to enhance cleanups, or manage its information base differently in order to improve cleanup decision making?

15. Should there be a neutral "appeal" option built into the cleanup process to allow parties a review of site cleanup decisions? This could include appeals of liability determinations, risk levels, cleanup standards, cleanup action plans, points of compliance, and other things. Several options exist for mechanisms for the appeal process.

16. Could better information management facilitate cleanups? This would include more access to Ecology information by non-Ecology interests. This information could include cleanup action plans and site remediation designs.

TABLE 1: Priority Issues for the MTCA PAC

17. Should we change our existing tax policy to create financial cleanup incentives? There is an unresolved issue of applying sales tax to independent cleanup actions, which makes these cleanups relatively more expensive.

18. Should the method of applying strict, joint and several, and retroactive liability be modified?

19. Some states, as well as the EPA, define "equitable factors" to help PLPs apportion liability among themselves. Should Washington State define these as well? Equitable factors can also be used to impose apportioned liability from a higher authority. Should the law describe factors that courts, arbitrators or the agency could use to impose apportioned liability?

20. Are adequate resources being distributed to the Toxics Cleanup Program, relative to other agencies and programs that receive money from the Toxics Control Account? What should be the priorities for the funds appropriated to the Toxics Cleanup Program?

21. How should public participation and community involvement be provided for in connection with recommendations for risk assessment, remedy selection, and independent cleanups, and with other elements of MTCA implementation?

22. Should the law include a "plume" clause, stating that parties are not liable for a plume of groundwater contamination that extends under their property, if they had no relationship to the cause of the contamination?

23. Should "Covenants Not to Sue" be made expressly transferable? (Currently, the law is silent on whether these covenants may be transferred from the recipient of the covenant to the purchaser of the property covered by the covenant.)

2.0 PAC COMPOSITION AND OPERATING PROCEDURES

2.1 MEMBERS AND ALTERNATES TO THE PAC

The MTCA PAC was established to provide advice to the Legislature and Ecology on administrative and legislative actions to implement MTCA more effectively. Per ESHB 1810, the committee consisted of 22 members representing the Legislature, local government, large and small business, agriculture, environmental organizations, financing institutions, ports, Ecology, Department of Health, the environmental consulting industry, Ecology's Science Advisory Board, and the public at large. Ecology held a seat and provided administrative support to the PAC, but the PAC was directed by a presiding officer, supported by a facilitation team. Table 2 lists the PAC members, their affiliations, and their alternates with affiliations.

TABLE 2: MTCA Policy Advisory Committee Membership

Members:

J. Daniel Ballbach, Chief Operating Officer, Landau Associates, Policy Advisory Committee Presiding Officer
Terry D. Austin, Yakima County, County
Leonard B. Barson, Attorney, Friends of the Earth, Environmental Organization
Rodney L. Brown, Jr., Washington Environmental Council, Environmental Organization
Mary E. Burg, Program Manager, Department of Ecology, Government
Hon. Gary R. Chandler, Representative, Legislature
Hon. Karen R. Fraser, Senator, Legislature
Kevin M. Godbout, Weyerhaeuser, Large Business
Richard L. Griffith, Stoel Rives, Small Business
Eric D. Johnson, Washington Public Ports Association, Port Districts
Taryn M. McCain, Counsel, The Boeing Company, Large Business
Scott McKinnie, Farwest Fertilizer & Agrichem Association, Agriculture
Sharon S. Metcalf, Assistant City Attorney, City of Seattle, Cities
Gerald M. Pollet, Heart of America Northwest, Environmental Organization
Jody M. Pucel, SAFECO Insurance Company of America, Finance
Hon. Nancy S. Rust, Representative, Legislature
Michael C. Sciacca, Washington Oil Marketers Association, Small Business
Gerald W. Smedes, Ph.D., Smedes & Associates, Consulting
Hon. Daniel P. Swecker, Senator, Legislature
Laurie M. Valeriano, Washington Toxics Coalition, Environmental Organization
Jim W. White, Ph.D., Department of Health, Government
Julie L. Wilson, Ph.D., GeoEngineers, Science Advisory Board

Alternates:

Eric D. Johnson, Washington Public Ports Association, Ports, Alternate for Dan Ballbach
Dennis M. Scott, Spokane County Public Works, County, Alternate for Terry Austin
Loren R. Dunn, Washington Environmental Council, Environmental Organization, Alternate for Len Barson

TABLE 2: MTCA Policy Advisory Committee Membership
Loren R. Dunn, Washington Environmental Council, Environmental Organization, Alternate for Rod Brown
Carol B. Kraege, Department of Ecology, Government, Alternate for Mary E. Burg
Marge Plummage, Legislative Aide, Legislature, Alternate for Gary Chandler
Michael W. Condon, Texaco Environmental Services, Large Business, Alternate for Kevin Godbout
Richard A. DuBey, Stoel Rives, Small Business, Alternate for Rick Griffith
Tom A. Newlon, Port of Seattle, Ports, Alternate for Eric Johnson
Gary E. Gunderson, Unocal, Large Business, Alternate for Taryn McCain
Terry Uhling, JR Simplot Company, Agriculture, Alternate for Scott McKinnie
Lawrence A. Peterson, City of Yakima, Cities, Alternate for Sharon Metcalf
Basil Badley, American Insurance Association, Finance, Alternate for Jody Pucel
Debbie Regala, Representative, Legislature, Alternate for Nancy Rust
James E. Bruya, Ph.D., Small Business, Alternate for Mike Sciacca
Kristy J. Hendrickson, Landau Associates, Consulting, Alternate for Gerald Smedes
John C. Stuhlmiller, Legislature, Alternate for Dan Swecker
Doris Cellarius, Washington Toxics Coalition/Sierra Club, Environmental Organization, Alternate for Laurie Valeriano
Marjorie G. Norman, Foster Wheeler Environmental, Science Advisory Board, Alternate for Julie Wilson
Facilitation Team:
Patricia J. Serie, EnviroIssues
Amy J. Grotefendt, EnviroIssues

At the beginning, members discussed their interests in the issue, described their backgrounds, and committed to the consensus process established in the legislation. Diverse interests were represented, with broadly varying perspectives on what would constitute a more effective MTCA. Members worked effectively together according to ground rules established within the first two months of the PAC's existence. Those ground rules called for the group to share information, analyze issues, and attempt to reach consensus recommendations on those issues. Where consensus, defined by the committee as unanimity, was not achievable, the Legislature requested that any reports include other views within the committee.

Periodically, as required by ESHB 1810, members disclosed potential conflicts of interest or bias. In general, an effort was made to reflect these disclosures in the meeting summaries. Members had agreed not to characterize decisions of the PAC outside the PAC process until those decisions were final, and all members discussed with the PAC occasions on which they had been asked to speak or participate in discussions regarding the PAC process and progress to date.

2.2 PAC OPERATING STRATEGY

The PAC took a broad look at MTCA, its implementing regulations, and the policies and guidance with which Ecology oversees cleanups statewide. Issues ranged from the basic use of risk

assessment and remedy selection criteria in cleanup decisions to the day-to-day issues of implementing MTCA, such as information management, dispute resolution, and public participation. Early on the members were reminded of the inter-relationship of the various elements of the cleanup program. Changes in one seemingly limited component almost inevitably impacted other areas. The committee's ability to evaluate proposals over an intense 18-month process was truly a significant advantage.

PAC members spent uncounted hours understanding the details of MTCA implementation that underlie broader, policy-level improvements. Considerable effort also went into learning about each others' interests, discussing varying viewpoints, and building trusting relationships that would allow mutual fact finding, alternatives analysis, and development of consensus recommendations. Members gave considerable thought to how the issues and the resulting recommendations must be integrated to form a "New MTCA." Many recommended changes are intended to make cleanups faster, easier, less expensive, and more effective.

The PAC focused on policy-level recommendations, but the technical and administrative complexity of MTCA implementation required members to share a great deal of information and to jointly learn about how MTCA works today.

Subcommittees

To facilitate that mutual learning process, the PAC formed four subcommittees, and assigned the priority issues to appropriate subcommittees. They were:

- Risk Assessment Subcommittee -- Dr. Julie Wilson, GeoEngineers, Chair
- Remedy Selection Subcommittee -- Rod Brown, Marten & Brown, LLP, Chair
- Independent Cleanup Subcommittee -- Sharon Metcalf, City of Seattle, Chair
- Implementation Subcommittee -- Eric Johnson, Washington Public Ports Association, Chair

The subcommittees were made up of PAC members with particular interests in those topics and other interested persons. Descriptions of each subcommittee are provided in Appendix B. For most of the year, the PAC met monthly and each subcommittee held a monthly meeting. Beginning in the fall of 1996, as issue recommendations began to take shape, both the PAC and the subcommittees met more frequently, often participating in conference calls between meetings. During 1995 and 1996, the PAC held 26 full committee meetings, and many more subcommittee and work group meetings. In a few cases, a particular issue represented such complexity or interest that a work group to a subcommittee was informally constituted to fully understand the issue and develop input and suggested recommendations to the subcommittees. All issues were discussed first in subcommittee, then brought to the PAC for information, discussion, and ultimately consensus or broad support recommendation. Work sessions were also held for the PAC periodically on key issues (e.g., ecological risk, Toxics Cleanup Program budget) to allow members to learn in depth about the elements of a challenging issue.

Decision-Making Process and Format

Issues brought to the PAC for resolution were formatted in a uniform manner, including a statement of the issue, options for resolution, an analysis, and a specific recommendation. Where appropriate and feasible, suggested statutory or regulatory language was developed for the recommendation. Those issue "templates" are included in Appendix C. **It is important to note that the decisions reached by the MTCA PAC are incorporated in the PAC recommendations. No consensus or broad support is intended, nor should any be inferred, for the non-recommendation language of individual issue templates. Those portions of the templates served as background to the committee discussions but are not necessarily reflective of all the considerations that went into a particular decision.** The MTCA PAC did not take minutes, but instead prepared meeting summaries. These summaries were not brought to the Committee for action, but formed an important part of the background materials for the process.

Any time this report mentions the PAC's failure to reach a consensus or broad support for a recommendation, the words mean just that. In some situations there may have been insufficient time to address an issue, for others there was insufficient momentum for a resolution, others had insufficient support for a change to MTCA, and various other reasons led to no consensus or broad support. The PAC has declined to characterize the reason or reasons for no recommendation in this report in the interest of focusing on the numerous issues that were capable of resolution.

2.3 PUBLIC PARTICIPATION IN THE PAC

Membership of the PAC, as intended by the Legislature, represented a broad cross section of the interests represented in examining and revising MTCA. Through their affiliations with larger interest groups, members and alternates were able to carry forward and represent information, interests, and objectives of a much broader constituency. In addition to the direct efforts of PAC members and their alternates, however, many other members of the public, representing even more diverse constituencies, participated actively. Many members of the public -- citizens, industry representatives, and consultants -- attended and participated in PAC meetings, subcommittee and work group meetings, and review of materials throughout the process. Attendance numbers remained high throughout the eighteen-month process, as reflected in PAC meeting summaries. Analysis of case studies to serve as a basis for discussing potential changes to MTCA was aided enormously by the volunteer efforts of PAC members and alternates, but also by members of the risk assessment, environmental consulting, and engineering communities in Washington, who worked hard to contribute to the PAC's deliberations.

The PAC took a number of steps to ensure that broad public participation was possible in the committee's work, including:

- All PAC meetings were open to the public, and noticed broadly to Ecology's mailing list. Agendas were distributed in advance, and public comment was invited and received throughout each meeting and just prior to adjournment. Efforts were made to make the preliminary report to the Legislature and all subsequent PAC working materials (draft issue

resolution papers, case study materials, background information) understandable and available to a range of interested parties in addition to the PAC itself.

- The PAC recognized the difficulty for the general public to attend and provide comments at daytime meetings. Thus, the PAC met in various locations throughout the state, including Everett, Seattle, Tacoma, Olympia, and Wenatchee. The Everett meeting included an evening session focusing on public participation in MTCA, which benefited greatly from attendance by local government representatives and citizens with MTCA site experience. The Wenatchee meeting illuminated areawide contamination issues faced by agricultural interests, specifically contamination in orchard soils contaminated many years ago with lead and arsenic compounds. Both these special-topic meetings were highly effective in helping the PAC understand and develop recommendations on ways to address those problems.

- PAC issues and activities were summarized in a newsletter, which was distributed statewide in September 1996 (See Appendix D). An informal public roundtable was held in Seattle on the evening of October 2, allowing interested members of the public a chance for dialogue with PAC members.

The PAC believes that its ability to understand and address concerns of Washington's regulated community, the public, and agency staff statewide has been tremendously improved. The recommendations provided in this report reflect truly broad-based interests, and will result in benefits all across the state.

2.4 ROLE OF PILOT SITES IN THE PAC'S DELIBERATIONS

In accordance with Section 3 of ESHB 1810, the PAC selected two pilot projects in September 1995. A list of proposed pilot sites was provided by Ecology, and the PAC briefed on each candidate. Eligibility criteria for pilot site selection included seeking projects that would allow evaluation of alternative methods for accomplishing faster, less-expensive, and equally protective cleanups at complex sites within the MTCA framework.

The PAC selected two sites as pilots: the L-Bar site in Ecology's eastern region, and the Yakima Valley Spray/U-Haul site in Ecology's central region. Detailed material regarding the selected sites, the criteria and process for selection, and related materials, was contained in the preliminary report to the Legislature in December 1995.

The liable parties at the selected sites received information on the priority issues to be addressed by the PAC, and were requested to consider those issues in designing the alternative approaches that would be piloted. The PAC was briefed periodically on the pilot sites' progress, and emerging issues were identified and described at the subcommittee level. Table 3 on the next page summarizes the principal issues raised at each pilot site, and relates them to the PAC's issue discussions and recommendations. Further detail on the outcomes to date from the pilot sites is included in Appendix E.

Table 3. Summary of MTCA PAC Pilot Site Issues

Pilot Sites' Issues Raised	Relevant MTCA PAC Issue Recommendations				
	Eco-Risk Standards	Site-Specific Risk Assessment	Areawide Contamination and Brownfields	Remedy Selection	Public Participation
Yakima Valley Spray/U-Haul Site					
Soil-to-Groundwater Cleanup Levels using Chemical-Specific Leaching Factors		X			
Site-Specific Attenuation Factors		X			
Conditional Point of Compliance				X	
Areawide Groundwater Contamination			X	X	
Land Use Assumptions		X			
Public Participation					X
L-Bar Site					
Site-Specific Ecological Risk Assessment	X	X			
Conditional Point of Compliance				X	
Recycling/Reuse vs. Cleanup Timeframe				X	

2.5 USE AND STATUS OF APPROPRIATED FUNDING

The Legislature appropriated $300,000 to Ecology to support the PAC ($150,000 from both state and local toxics control accounts). As of October 31, 1996, Ecology had spent $16,800 on salaries and benefits, principally for a part-time secretary, as specified in the fiscal note for ESHB 1810. An additional $118,500 was spent for facilitation by an outside, neutral third party. Ecology and several PAC members selected EnviroIssues to perform this function. In addition, EnviroIssues was contracted to develop a public participation plan for the U-Haul pilot project. $50,000 was set aside to support development of an interim policy for petroleum cleanups, administered through the Duwamish Coalition Project Oversight Group. Tasks being completed are specifically targeted to the interim policy but are also expected to support the final rule development. The remaining funds were spent on support of PAC meetings and travel costs for PAC legislative members. Approximately $28,000 was spent on room rental, printing, etc. The PAC recommends that any remaining monies be used to fund short-term implementation of its recommendations.

3.0 AN INTEGRATED STRATEGY: RECOMMENDATIONS TO MORE EFFECTIVELY IMPLEMENT MTCA

This section outlines the recommendations of the PAC. It presents an integrated set of recommendations (See Figure 1), to show how they fit together to meet the PAC objectives. Once again, please recall that only the recommendations are PAC decisions for the Legislature and Ecology to consider.

3.1 THE BIG PICTURE: OVERALL RECOMMENDATIONS

The PAC learned much about how MTCA works today. With seven years' experience since it was initially put in place, day-to-day regulatory and cleanup practices have settled into patterns. For example, approximately 90 percent of all cleanups are done independently, without Ecology oversight. While there is a preference for permanent remedies, and a technology hierarchy that values reuse, treatment, and removal most highly, remedies selected often include onsite containment as opposed to full removal or destruction of contaminants. While there is significant flexibility in MTCA as it exists, many liable parties do not understand how to use it, feel they cannot convince their Ecology site managers to accept the results, or may suffer from lack of guidance and training. As a result, the default parameters in the regulations are most often used to establish cleanup standards, which results in what many liable parties consider to be overly conservative cleanup standards. Other groups, however, find the current standards appropriate.

To understand how the recommendations for the "New MTCA" would work, consider a hypothetical (but not necessarily typical) site in Washington. It is a fairly large and heavily contaminated site, technically and geologically complex. Community interest and concern are high; apparent remedies are expensive and technically challenging. Here is how cleanup of that site may change if the PAC's recommendations are implemented:

- The liable party could propose site-specific exposure assumptions for measurable factors such as how the human body absorbs contaminants, and for physical aspects of the site such as soil type, hydrological conditions, or measurable characteristics of the contaminants. These elements, if they meet the PAC's recommended requirements for quality of information, can be considered in establishing site-specific cleanup levels. Other factors that may vary based on human behavior (e.g., frequency of soil contact, duration of exposure) may be changed and used in establishing remediation levels -- levels to be used in evaluating remedy options for site cleanup -- if the quality of the information supports the change.

- Citizens will be assured of early notice and more effective participation in site cleanup decisions affecting their community's quality of life. Citizens living in the vicinity of the site could more easily apply for public participation grant funding to support local public involvement, review, and information needs. Previously complicated application processes and forms will be simplified. For a complex and regionally significant site, increased grant

FIGURE 1. THE BIG PICTURE - MTCA PAC RECOMMENDATIONS

Improve Public Participation in MTCA Cleanups

- *Full Statutory Funding for Public Participation Grants*
- *Improved Public Participation Grant Process; Modify Grant Allocation*
- *Added Public Notice for Certain Cleanups*
- *Technical Assistance "Ombudsperson" for Public Involvement*

Facilitate Cleanup of Areawide Contamination and Brownfields Sites

- *Interim TPH Cleanup Policy*
- *Areawide Implementation Solutions*
- *"Innocent Landowner" Groundwater Plume Exemption*
- *Support for Long-term TPH Rules*
- *Enhanced Prospective Purchaser Agreements*
- *Orchard & Soils Cleanup Process*
- *Transfer of Covenants Not to Sue*

Increase Use of Site-Specific Risk Assessment in MTCA Cleanups

- *Revised Soil-to-Groundwater Parameters*
- *Definition of Required Quality of Site-Specific Information*
- *Probabilistic Risk Assessment on Informational Basis*
- *Clarification of Land Use Scenarios*
- *Site-Specific Parameters with Constraints*
- *Tiered Approach for Evaluating Ecological Risk in soils*

Affirm and Clarify Remedy Selection Process Under MTCA

- *Formalize and Clarify Cleanup Action Level Process ("Remediation Levels")*
- *Clear Criteria for Evaluating Remedy Options*
- *Site-Specific Risk Assessment Results Used in Remedy Selection*
- *Interim TPH Cleanup Policy*
- *Long-Term Remedy Protectiveness as Overall Goal*
- *Guidance on Considering Costs and other Balancing Criteria*
- *Presumptive or Model Remedies*
- *Regulatory Guidance & Training*
- *Default Gas Station Scenario*

Affirm and Encourage Independent Cleanups Under MTCA

- *Quality Control of Independent Cleanup Reports*
- *Authorize and Encourage Ecology to Provide Enhanced Technical Assistance Including Written Opinions*

Streamline and Strengthen Ecology Implementation of MTCA

- *Clear Dispute Avoidance and Resolution Process*
- *Formalize Release Reporting*
- *Name Liable Parties Early*
- *Improved Information Management and Dissemination*
- *Staff Training, Mentoring, Support*
- *Equalize State Sales Tax Treatment of Cleanups*
- *Focus Toxics Control Account Funds on Cleanups*

Strengthen Application, Monitoring and Enforcement of Institutional Controls to Ensure Long-Term Effectiveness

funds may be made available. Citizens may call on the capabilities of a third-party "ombudsperson" who can help interpret technical issues and materials, aiding citizens and community organizations in understanding and participating in cleanup decisions. The liable party and Ecology will provide for opportunities to learn about and contribute to the definition of site-specific parameters.

- If there are soil-based ecological resources on or nearby the site, the liable party can more easily evaluate the need for an ecological risk assessment using the PAC-recommended tiered approach. Two "off-ramps" exist for screening the site in tiers 1 and 2; only if certain conditions exist (e.g., sensitive resources, types of contaminants known to be more highly toxic to ecological resources than to humans) and the site does not qualify for the off-ramps, will an ecological risk assessment be required. Many sites are expected to be screened out of the need for such an assessment using this tiered approach. Unlike current MTCA, where no consistent process exists for evaluating ecological risks in soils, parties will have a roadmap for this element of MTCA.

- Based on results of the remedial investigation and risk assessment, the liable party will analyze potential cleanup remedies and work with Ecology to select an appropriate remedy or package of remedies. Under the new MTCA, that process of remedy screening, evaluation, and selection is much more clear. Today's practice of setting cleanup action levels that guide remedy selection, which is not clearly expressed or explained in statute or regulation, has been clarified and renamed as "remediation levels." The statutory preference for remedy permanence to the maximum extent practicable remains. The implementation focus is on short and long-term protectiveness of a proposed remedy. The rewritten regulation will include an understandable process for quantitatively and qualitatively balancing factors of cost, practicality, timeframe, and public concerns.

- Under current law, if the selected remedy calls for leaving contaminants onsite, institutional controls are called for (e.g., physical controls such as fencing or capping; administrative controls such as restricting future land uses through deed records or requiring public notification). The new MTCA includes an emphasis on evaluating the cost and reliability of those controls as part of remedy selection, and ensuring that Ecology effectively monitors the control activities to see that they continue to provide a protective remedy under conservative exposure assumptions.

- If the site has been contaminated as part of an areawide problem, or is a "brownfields" (the shorthand term for historically contaminated and underutilized or vacant industrial property), the new MTCA offers some alternatives that will speed cleanup and expedite redevelopment. Under the new MTCA, Ecology, in conjunction with local government or PLPs, may develop areawide solutions, including investigation work plans, model remedies, or area-wide determinations of groundwater potability. Legal protections for landowners that have met their cleanup responsibilities, with corresponding ongoing obligations, apply to successor landowners with sale of the land. Additionally, enhanced public participation goals that include sustainable economic development and environmental justice will be developed for certain "brownfields" projects. Landowners

overlying contaminated groundwater plumes will be exempted from liability if their property is not the source of the contamination, if they did not cause or make the problem worse, and they allow access for cleanup.

- If the site is not under enforcement order or decree, the liable party may address the site as an independent cleanup, with no Ecology oversight. This is certainly allowed today. The new MTCA, however, adds greater certainty to the independent cleanup process by enhancing the level of technical assistance available to the liable party throughout the investigation and cleanup. Ecology can also provide written, though nonbinding, feedback to the liable party on its plans and results as the site proceeds through cleanup. Short of full oversight, this nevertheless provides added confidence in the assessment of risks and identification of protective remedies. It is also expected to add to the ability of third parties (e.g., lenders) to understand true site liabilities and rely on independent cleanup results to a greater extent than possible today. If Ecology believes that there are near-term cleanup requirements or risks from the site, the liable party will be requested to provide notice to site neighbors. Ecology will review independent cleanup sites that have been ranked under the Site Hazards Assessment process to assess the adequacy of the cleanups. Sites that have not been ranked but are being cleaned up independently can now benefit from a state sales tax exemption on remedial actions, which is currently applicable only to ranked sites.

- To ensure that these new approaches, and the remaining body of MTCA activities, work effectively, the PAC also recommends some implementation changes. The way in which Ecology, liable parties, and the public interact during site investigations and cleanups will focus on clarifying expectations, providing full information to all parties, supporting the Ecology site manager with peer review and feedback, and providing needed guidance documents, training, information access, and outreach on MTCA. An informal dispute resolution process will be defined clearly for times when the communication measures above do not solve a problem. After two years, Ecology will review the effectiveness of this approach to see if a more formal dispute resolution process may be called for.

- If the site contains petroleum contamination, a new interim approach will be available to more accurately reflect the characteristics and risks of the contamination within the existing MTCA Methods B and C framework. This approach is expected to provide more options to persons conducting petroleum cleanups and make some cleanups less expensive, while remaining protective of human health and the environment. Over the longer term, the PAC supports the efforts of the Duwamish Coalition Project Oversight Group to fully develop a petroleum cleanup approach for the State of Washington and work with Ecology to change the rules.

In summary, the PAC's recommendations can be compared with MTCA as it works today (Table 4).

Table 4. Comparison of MTCA As-Is to the "New MTCA"

PRIORITY ISSUE	MTCA AS-IS	THE NEW MTCA
1. Site-Specific Risk Assessment	Limited flexibility in parameters to be changed; no specific criteria for quality of site-specific information.	Increased flexibility in varying parameters to define cleanup levels and remediation levels ("cleanup action levels"); criteria for quality of information; more realistic land use assumptions.
2. Allowable Risk/Risk Range	Allowable risk for cancer is 1 in 1 million for individual chemicals, 1 in 100,000 for multiple chemicals or pathways.	No consensus or broad support recommendation reached to change current situation.
3. Petroleum Cleanup Method	Ecology policy recommends use of Method A Total Petroleum Hydrocarbon (TPH) cleanup levels, resulting in deliberately conservative cleanups.	Interim policy incorporates surrogate human health toxicity for TPH fractions, establishes fate and transport and analytical methods to be used so that MTCA Methods B and C are usable; results in risk-based cleanup levels.
4. Ecologically-Based Cleanup Standards	MTCA requires protection of the environment, but little framework exists in regulation or policy to define needed activities.	Proposed tiered approach offers "off-ramps" for many sites; defines objectives and framework for regulations on ecological risk assessment for remaining sites. Applies to soils only.
5. Remedy Permanence, Land Use, Hierarchy, Long-Term Effectiveness, Groundwater Contamination	MTCA regulations Section 360 currently define remedy selection unclearly; methods to apply and balance remedy selection criteria are not well understood.	Proposed new Section 360 framework clarifies remedy selection based upon experience, provides a streamlined approach to balancing remedy selection criteria, augments institutional controls, clarifies point of compliance determinations, provides for use of site-specific risk assessments, and assures protectiveness under appropriate Reasonable Maximum Exposure assumptions.
6. Remedy Cost	See Remedy Permanence, etc., above.	See Remedy Permanence, etc., above.

Table 4. Comparison of MTCA As-Is to the "New MTCA"

PRIORITY ISSUE	MTCA AS-IS	THE NEW MTCA
7. Cleanup Action Levels	Current practice uses cleanup action levels to define required remedial actions; they are often less conservative than cleanup levels to take into account actual exposure, practicality, cost, etc.; cleanup action levels are not currently clearly defined in statute or rule.	Recommended use of term "remediation levels" and clearer process for establishing them (See Remedy Permanence, etc., above).
8. "Remedy Czar"	Ecology staff and liable parties sometimes disagree on regulatory decisions; options for resolving disputes are unclear.	See Neutral Appeal/Dispute Resolution process below; addressed as part of communication, training, outreach, and informal dispute resolution.
9. Areawide Contamination and Brownfields	Much of the regulatory framework in place, but not clearly identified; some authorities and responsibilities still needed.	Proposed approach to allow areawide determinations, encourage cleanups through various practices; increase availability of prospective purchaser agreements (See Plume Clause, Enhanced Technical Assistance, and Transferability of Covenants Not to Sue).
10. Enhanced Technical Assistance for Independent Cleanups	Limited technical assistance available to independent cleanups; no Ecology feedback or determinations available outside Independent Remedial Action Program (IRAP), which provides Ecology review of final cleanup reports.	Enhanced technical assistance available throughout independent cleanup process (Ecology can recover costs); written nonbinding determinations available from Ecology.
11. Improvements to IRAP	Ecology review of independent cleanup reports available at liable party's cost; can result in no-further-action letter.	See Enhanced Technical Assistance above. Recommend that Ecology consider revising fee structure to reflect actual staff time spent on review.
12. Consultant Certification	No program exists to independently certify cleanup consultants.	No consensus or broad support recommendation reached.

Table 4. Comparison of MTCA As-Is to the "New MTCA"

PRIORITY ISSUE	MTCA AS-IS	THE NEW MTCA
13. Audits or Spot Checks of Independent Cleanups	Ecology reviews some independent cleanup reports, often with significant elapsed time.	Program for review of all ranked sites where independent cleanup report submitted; review of Site Hazard Assessment and site investigation procedures.
14. Ecology Decision Making	Some concerns seen with information, training available to Ecology site managers.	See Neutral Appeal/Dispute Resolution below.
15. Neutral Appeal/Dispute Resolution	Ecology decisions on liability, risk, cleanup standards, cleanup action plans, points of compliance, and other issues, are not seen as appealable by liable parties; a neutral appeal process was suggested.	Recommendations for clear communication protocols and expectations, site manager support, guidance and training, outreach, access to information on other cleanups, and informal dispute resolution.
16. Improved Information Management	Well-organized historical information on cleanups is not easily available to Ecology or outside parties.	See Neutral Appeal/Dispute Resolution above.
17. Sales Tax Policy	Current Department of Revenue policy exempts listed sites from state sales tax on remedial actions; exemption not available to unlisted independent cleanup sites.	Endorsement of Department of Revenue policy to encourage cleanups; recommendation to amend tax law to provide sales tax exemption for all sites
18. Strict, Joint and Several, and Retroactive Liability	MTCA currently requires strict, joint and several, and retroactive liability for polluting parties.	No consensus or broad support recommendation reached to change current situation
19. Equitable Factors for Liability Apportionment	EPA and some states define equitable factors to apportion liability among liable parties; Washington does not have such factors.	No consensus or broad support recommendation reached to change current situation

Table 4. Comparison of MTCA As-Is to the "New MTCA"

PRIORITY ISSUE	MTCA AS-IS	THE NEW MTCA
20. Toxics Cleanup Program Budget and Resources	Funds from the Toxics Control Account are currently distributed to the Toxics Cleanup Program, Local Toxics Account, and other agencies and programs through Biennial Appropriation process; PAC recommendations have budgetary impacts.	Implementation of PAC recommendations to receive priority funding from Toxics Control Account.
21. Public Participation in MTCA Cleanups	MTCA defines public participation requirements for cleanups, including public participation plans, public notice and review of documents, and public meetings and hearings; public participation grant program available for site community use.	Public participation grant program to be streamlined where possible; maximum grant amount increased; full one percent allocation to be made available from Toxics Control Account, divided evenly between substance release and waste management. Early public involvement and technical assistance available to communities through Ecology-administered ombudsperson program; public notice provided for certain cleanups, based on Ecology determination.
22. Plume Clause	Ecology policy is not to enforce against landowners overlying contaminated groundwater where their property is not a source of the contamination. Landowners are still subject to liability through contribution activities.	Creates statutory exemption from liability for owner or operator overlying groundwater plume where property is not source of contamination and owner has not contributed to or made the groundwater plume worse, and allows access for remediation.
23. Transferability of Covenants Not To Sue	Silent on whether protections and obligations of consent decrees can be transferred from the recipient of a covenant not to sue to a new owner.	Exempts successors from Ecology enforcement provided conditions in decree are met.

Table 4. Comparison of MTCA As-Is to the "New MTCA"

PRIORITY ISSUE	MTCA AS-IS	THE NEW MTCA
24. Release Reporting (new issue) S	Statute silent on timeframe for release reporting.	Establishes 90-day requirement for release reporting.
25. Probabilistic Risk Assessment (new issue) P	Probabilistic risk assessment, which uses ranges of input parameters and results in ranges of potential risk, is currently not used in MTCA cleanup decisions.	Ecology will review probabilistic risk assessment methods for incorporation, allow use on informational basis in remedy selection on pilot basis.
26. Guidance and Training for Potentially Liable Persons and the Public (new issue) P	Guidance documents are available on many aspects of implementing MTCA; some outreach and training occur.	Ecology to emphasize development of needed guidance, training, and educating liable parties and other interested persons.
27. Contribution (new issue) A	Liable parties that participate in a cleanup incur economic burdens, and must seek contribution from other parties through the courts.	Ecology encouraged to name all parties early; examine need for resolving allocation issues.
28. Toxics Control Account Spending Authorizations (new issue) ?	Statutory spending authorizations are broad, and Toxics Control Account funds are spent on a wide range of activities	Legislature requested to review spending authorizations, prioritize them, and fund them proportionately to the primary purposes of MTCA.

3.2 PRIORITY ISSUE RECOMMENDATIONS

The material above summarized the impacts of the recommended changes to MTCA, and compared them generally with today's MTCA. To understand each recommendation, however, more detailed material is needed. This subsection outlines the recommendation for each issue. As part of many recommendations proposed statutory and regulatory language is provided (also compiled in Sections 4 and 5). A minority view for those areas where the PAC did not forge full agreement is provided. A full analysis of each issue as it was presented to the PAC for consideration, and any members opposing or abstaining from the recommendation, is also included in the issue templates provided in Appendix C. As stated earlier, however, only the recommendations themselves represent PAC endorsement; background discussion or descriptive information in this report and in the issue templates, which is designed to aid the reader, has not undergone full PAC consensus discussion.

3.2.1 Priority Issue #1: Site-Specific Risk Assessment

Summary - The intent of this recommendation is to increase flexibility within MTCA to use risk assessment for establishing site cleanup levels and for application in the remedy selection process (remediation levels, called cleanup action levels in the old MTCA process). To illustrate how these recommended changes would be implemented, consider how they would work in MTCA Methods A, B, and C.

There are no proposed changes to Method A. Method A establishes default (conservative) cleanup levels for a limited suite of chemicals.

Method B cleanup levels have always been considered levels that were safe under conditions of unrestricted land use. This concept remains intact under the proposed changes. However, the new MTCA will allow changes to the default input values used in calculating cleanup levels for parameters that can be reliably measured at the site. These may include parameters such as contaminant leaching and transport variables. The same changes will be allowed to parameters that were allowed to change under the old MTCA if sufficient data can be presented to support the change (e.g., inhalation correction factor, soil gastrointestinal absorption rate, inhalation absorption percentage). All changes to Method B default assumptions in calculating cleanup levels must meet new requirements for quality of information, as outlined in the proposed revised Section 702 of MTCA and to be amplified in future guidance. Cleanup levels for Method B carcinogens are based on a 1 in 1,000,000 risk level for individual carcinogens and a 1 in 100,000 risk for total carcinogens at the site. Cleanup levels for Method B noncarcinogens are based on a hazard quotient of 1.0 for individual noncarcinogens and a hazard index of 1.0 for total noncarcinogens at the site.

Method B remediation levels, to be set in the remedy selection process, may now be identified with greater consideration of site-specific information than is currently allowable in calculating Method B cleanup levels. A requirement for use of remediation levels at a site will be providing institutional and possibly engineering controls to ensure protection of site occupants (See Section

3.2.5 and Issue Template #5 in Appendix C for specific institutional control recommendations). In calculating Method B remediation levels, the site-specific information allowable in Method B cleanup levels may be used, plus other factors, if supported by a Reasonable Maximum Exposure (RME) scenario. Those other factors may include, as appropriate, exposure frequency, exposure duration, and exposure time. Body weight, soil ingestion rate, and breathing rate, may also be changed if the RME scenario changes the exposed person (e.g., from a child to an adult). The use of alternative RME scenarios allows elimination of separate "commercial site cleanup levels" under the old MTCA. It allows tailoring an appropriate commercial RME scenario, recreational RME scenario, or "urban residential" RME scenario for calculation of Method B remediation levels appropriate to specific sites. For exposure of an involuntary adult or child, remedial levels for individual carcinogens are based on 1 in 1,000,000 risk, with 1 in 100,000 for total site carcinogens. For noncarcinogens, a hazard quotient of 1.0 applies to individual noncarcinogens and a hazard index of 1.0 to total noncarcinogens at the site. Where the RME is a voluntary adult site worker, remediation levels for that RME for individual carcinogens may be based on a risk of 1 in 100,000.

Method C soil cleanup levels are levels that are considered safe under conditions of industrial land use. This concept will not change. The new MTCA will, however, allow changes to default input values used to calculate cleanup levels, for those parameters that can be reliably measured. As in the changes to Method B, sufficient data must be provided to support the change. The acceptable risk quotient is 1 in 100,000 for individual carcinogens and total carcinogens at the site. Cleanup levels for Method C noncarcinogens are based on a hazard quotient of 1.0 for individual chemicals and a hazard index of 1.0 for multiple chemicals at a site.

Method C remediation levels may use site-specific information, as described for Method B above. In addition to the Method C cleanup level parameters that may be varied from the default, reasonably likely factors appropriate to the RME scenario can be varied in setting remediation levels. These include, as appropriate, exposure frequency and duration, and exposure time. Body weight, and soil ingestion and breathing rates are already based on an adult scenario at industrial sites. At an industrial site, it is assumed that only voluntary adults are exposed. Method C remediation levels would be based on a 1 in 100,000 risk for individual carcinogens (1 in 100,000 for total site carcinogens), a hazard quotient of 1.0 for individual noncarcinogens, and a hazard index of 1.0 for total noncarcinogens at the site.

The following is the recommendation as agreed to by the PAC:

Allow use of site-specific risk assessment in setting cleanup levels, remedial action levels, or in making remedial action decisions under MTCA with the limitations and requirements established by the PAC in the accompanying documentation. The PAC recommended revisions to MTCA sections -702 and-708 (See Priority Issue #5 in Section 5.0 and Appendix C). These sections specify the burden of proof/quality of information required for use of site-specific information in establishing cleanup levels and remediation levels, and the limitations on use of site-specific information. A memorandum dated December 10, 1996 from Pete Kmet reflects PAC recommendations on land use considerations within the new requirements outlined in revised MTCA sections -702 and -708.

The PAC further recommends that the MTCA regulations be amended to:

- require that commercial sites use the MTCA residential exposure scenarios as the default scenarios, but allow them to establish cleanup and remediation levels through a site-specific risk assessment in accordance with WAC 173-340-708; and
- eliminate the commercial scenario and the requirement that commercial sites attain cleanup levels as close as practicable to residential cleanup levels; and
- for the types of sites noted below, Ecology shall, where appropriate, allow for the use of alternative exposure scenarios as provided for in WAC 173-340-708.

Also, it is the PAC's expectation that many types of commercial sites may, where appropriate, qualify for alternative exposure scenarios under 708(3) since contaminated soil at these sites is typically characterized by a cover of buildings, pavement, and landscaped areas. Examples of these types of sites include:

- commercial properties removed from a single family, duplex, or subdivided individual lots,
- private and public recreational facilities when access is physically controlled,
- urban residential sites (i.e., upper-story residential over lower-story commercial), and
- offices, restaurants, and other facilities primarily devoted to support administrative functions of a commercial/industrial nature

Minority View Presented by Laurie Valeriano

Throughout our service on the MTCA PAC, the Washington Toxics Coalition and Sierra Club have supported maintaining strong, consistent cleanup standards to protect health and the environment, to respect non-degradation policies, and to drive pollution prevention programs. Because the Committee's recommendations for the expanded use and flexibility of risk assessment and land use designations subvert each of these goals, we are forced to submit this minority report. The proposed changes for the use of site-specific risk assessment and land use designations will not result in cheaper, faster, better cleanups. They will instead lead to less cleanup, more exposures, and lessened incentives for pollution prevention.

First, the proposed changes will make the regulatory process even more burdensome and expensive for residents faced with toxic site cleanups in their communities. The PAC did make minor changes to the public participation requirements to minimally increase public participation grant funding and provide a technical ombudsman to communities. However, this will be no match for the technical and legal resources of some potentially liable parties and citizens will often be effectively left out of the decision making process.

Second, it was clear throughout the MTCA PAC process that potentially liable parties want the use of site-specific risk assessment to result in more contamination being left behind with a greater reliance being placed on institutional controls such as fences, signs and deed restrictions. Site-specific risk assessments can underestimate real-world risks because risk assessors can exclude from calculations risks that are supposedly "cut off" by a cap or a fence or by a land use that assumes that no one ever will go there. We cannot support a system which relies on short-term fixes

at the expense of our children and future generations. Investing now in permanent cleanups will result in lower maintenance, notice, health and environmental costs in the future.

Thirdly, land use designations should not be used to justify higher cleanup levels and lower levels of protection. Cleanup levels must protect on-site workers, customers, and all users of the area. Daycare centers and recreational areas such as jogging paths are often part of industrial sites. Many industrial areas contain small areas of residences and these citizens must be protected. Finally, we cannot predict how a parcel of property will be used or zoned 100 years from now. To allow contamination to stay in place imposes the consequences of our irresponsibility on our descendants limiting what they can do with land and/or exposing them to pollutants we opted to leave behind. We must strive for the most protective cleanup levels in commercial, industrial and residential areas.

Risk assessments are at best inadequate and imprecise estimates of actual risk. They attempt to assess only a few of the many risks associated with contaminant exposures and cannot predict the complex interactions among the many chemicals to which potential victims are always exposed. Outcomes can often be heavily influenced by the biases of the risk assessors and it is easy to bias an outcome through inappropriate use of overly favorable assumptions. We do not believe that it is good public policy to place more emphasis on models and complicated equations when they are scientifically incapable of "proving" that one particular option is "safe" or "safe enough".

Furthermore, health endpoints like immunological damage, developmental impairment, and reproductive problems have not been adequately predicted by risk assessments done to date, as is evidenced by a broad body of wildlife, laboratory and human studies. Nor will it ever be possible to predict the full range of impacts that pollutants can cause.

Instead of expanding the use of complicated risk assessments, the emphasis should continue to be on eliminating or minimizing exposures and on ensuring permanent cleanups. This was the original goal of MTCA-a goal which should be enhanced and improved, not undercut by the PAC's work. We object strenuously to the proposal that the goal of the Act be changed to "adequately controlling" toxic contamination as opposed to cleaning it up. This is clearly no solution to the problems of long term impacts on human health and the environment.

Finally, our experience with the MTCA process was unfortunately indicative of the difficulty that everyday citizens have in participating in the cleanup process in general. We attended as many meetings and reviewed as many technical documents as possible with the limited resources of a non-profit organization. We and other citizen groups consistently requested that subcommittee meetings, work loads and issues be lessened. Our comments were not addressed adequately and too many decisions and requests for comment were left until the very end of the process. We cannot stress enough that making the regulations more difficult for citizens and public interest groups to participate will further exacerbate the ability of people to participate in a democratic fashion in cleanup decisions which directly affect their health, their financial status, their quality of life, and their peace of mind.

3.2.2 Priority Issue #2: Allowable Risk/Risk Range

Summary - Analysis of this issue examined the origin of MTCA's 1 in 1,000,000 and 1 in 100,000 acceptable risk values, and included discussion of how other changes being contemplated (e.g., site-specific risk assessment, remedy selection process) might effectively make the allowable risk values more flexible. Ecology's Science Advisory Board (SAB) had several years ago expressed some concern that MTCA's risk values were too restrictive. The SAB revisited that opinion at the PAC's request (opposed by Loren Dunn and Laurie Valeriano), but the Board declined to recommend changing the risk values because they were seen as a policy matter.

The PAC reached no consensus or broad-support recommendation on allowable risk and risk range.

3.2.3 Priority Issue #3: Petroleum Cleanup

Summary - Ecology's current policy for petroleum cleanups recommends that liable parties use MTCA Method A cleanup levels due to lack of human health data. These levels are not solely risk-based and are seen by some as overly conservative. Barriers to using MTCA Methods B and C on petroleum contamination resulted from limited human health toxicity data to support risk evaluations of petroleum products. Nationally, work is under way to establish surrogate toxicity information for certain petroleum fractions, and to develop appropriate models and approaches for understanding how petroleum products behave in soil and groundwater and how adequate controls can be imposed. To implement a surrogate-based approach, revisions to standard laboratory analysis methods are also needed.

Prior to establishment of the PAC, the Duwamish Coalition was formed to address redevelopment issues in the Duwamish corridor. It was determined that a significant percentage of sites in the area were contaminated with petroleum products. As a result, the coalition formed the Project Oversight Group and secured funds to analyze national total petroleum hydrocarbon (TPH) research efforts and to provide advice to Ecology regarding all aspects of TPH cleanup. This work is expected to be completed by 1998.

That ongoing work by the Duwamish Coalition's Project Oversight Group was presented to PAC members, and a number of members participated in TPH policy scoping and input. The PAC endorses the ongoing effort, but also directs Ecology to develop an interim petroleum cleanup policy to replace the existing policy until the longer-term work is complete. The interim policy is to provide guidance on how to establish Method B and C petroleum cleanup levels, based on fate and transport characteristics and using a surrogate approach to evaluate human-health risk.

Many PAC members participated in a working group to help Ecology develop the elements of the interim policy and to evaluate how the interim policy can be implemented at MTCA sites. The group's recommended approach is included with Priority Issue #3 in Appendix C. A policy is under development by Ecology, and will be issued in the form of guidance by January 1, 1997. It will reflect the policy inputs and reviews of PAC members. The current framework and timeline of the policy are included with Issue Template #3 in Appendix C. As the longer-term petroleum

cleanup policy proceeds over the next 18 months, individual PAC members with a stake in the issue will continue to participate in its development and in the rulemaking process for the ultimate approach.

The following is the recommendation as agreed to by the PAC:

Long-Term Policy

The PAC will monitor, participate in, and expedite other efforts with the intention of supporting the outcome of the effort. The PAC will also examine the need for interim policies for TPH cleanups and may recommend appropriate actions to Ecology and the Legislature.

Interim Policy

Ecology should revise the TPH focus sheet to allow cleanup levels to be established using Method B (and Method C at appropriate sites), as provided under current MTCA regulations. Ecology should apply the surrogate approach similar to that developed by the National TPH Criteria Working Group to the petroleum mixture found at the site. Other approaches may also be needed to protect pathways or concerns which may not be addressed by the surrogate approach. The interim guidance shall address all appropriate pathways and receptors currently addressed under the MTCA rule. Ecology will submit a draft of the guidance to the PAC and other interested parties, to allow further review of the work done by the National TPH Criteria Working Group and Ecology (See Priority Issue #3 in Appendix C).

In addition, Ecology should evaluate the need to prepare guidance to assist in the determination under current rules as to whether (1) groundwater is a current or potential future source of drinking water, and (2) it is unlikely that a hazardous substance will be transported from contaminated groundwater to groundwater that is a current or potential future source of drinking water at concentrations which exceed groundwater quality criteria.

Commercial Default Retail Gasoline Station Scenario

In addition, the PAC recommends a new commercial retail gasoline station scenario for use when appropriate. The following is the recommendation as agreed to by the PAC:

Amend regulations to:

1. define a default exposure scenario for commercial retail gasoline station remediation levels, applicable to direct contact with soil, which shall apply to commercial retail gasoline stations in lieu of WAC 173-340-740(1)(c) (See Priority Issue #3 in Appendix C for specifics on default exposure scenario); address other pathways, as appropriate, in consultation with existing groups; and allow commercial retail gasoline stations to establish cleanup levels through a site-specific risk assessment in accordance with WAC 173-340-708; and
2. apply land use restrictions and any other appropriate institutional and/or engineering controls to

any property cleaned to remediation levels based on the default exposure scenario for commercial retail gasoline stations to prevent uses that could result in a higher level of exposure.

3.2.4 Priority Issue #4: Ecologically-Based Cleanup Standards

Summary - MTCA requires Ecology to protect the environment, in addition to human health. In many if not most cases, standards for protection of human health are stringent enough to also protect plants and animals. In some cases, however, because particular contaminants are more toxic to the environment than to people, or because of site-specific conditions (e.g., proximity to sensitive ecological resources), special attention should be paid to ecological resources impacted by soil contamination. Today, Ecology makes those determinations with no clear framework for themselves or for liable parties, and there is uncertainty and confusion about the requirements for ecological risk assessment.

The PAC examined this issue closely, and learned a great deal about ecological risk assessment approaches used elsewhere and about the elements of a potential policy for Washington. A three-tiered screening approach is recommended by the PAC, providing two levels of "off-ramps" before a full ecological risk assessment would be required. The tiered approach considered by the PAC was embodied in a draft flowchart and draft guidance document. The first level (Tier 1) is a simple checklist about site conditions, to be completed by a liable party without the need to retain professional technical help. If the site satisfies Tier 1, no further ecological assessment would be required.

Tier 2 of the screening approach asks more detailed questions about the site, the contaminants, and nearby ecological receptors. Professional resources will be necessary to complete this checklist, but the effect will be the same: if the site satisfies Tier 2, no further ecological assessment will be required.

If a site is, however, deemed to have potential impacts on ecological receptors of significance according to Tier 2, that triggers an ecological risk assessment. The recommended policy outlines the elements of such an assessment, but much developmental and rulemaking work remains before the ecological risk approach can be fully implemented. The PAC recommends that the approach, currently contained in the draft flowchart and guidance document, move forward to be implemented by Ecology on a pilot basis, and fully developed in a rulemaking process to be coordinated with rulemaking on the rest of the PAC's recommendations.

The following is the recommendation as agreed to by the PAC:

1. Recommend that the flowchart and the guidance be used as templates for finalizing guidance and initiating rulemaking addressing protection of ecological receptors. The PAC would not adopt the flowchart and the guidance word-for-word, as they are works in progress and are subject to refinement during the process of finalizing guidance/rulemaking, but the PAC expects that the flowchart and the guidance will substantially conform to the

structure that has been developed to date and will be further refined through further work.

2. Recommend a process to finalize the flowchart and the guidance (for purposes of addressing (at least) the 13 issues listed in the issue template in Appendix C), and testing its practicability and readiness to support rulemaking. Include the following:
   a. Ecology finish the draft flowchart and guidance.
   b. Provide for SAB technical review of the flowchart and guidance, as well as the issues listed above.
   c. Ecology circulate the proposed final flowchart and guidance to PAC members and other interested persons for review and comment.
   d. Ecology circulate the proposed final flowchart and guidance to eco-risk workgroup members and other interested persons for review and comment.
3. Recommend that Ecology conduct a pilot project to test the "final" flowchart and guidance to assess their ease of use, practicability, economic impact and comprehensiveness, and to identify recommended revisions. As part of the pilot, Ecology should prepare a report of the pilot's results and agency recommendations. The pilot project should involve a review by a voluntary group that includes, to the extent possible, a cross-section of the persons/entities potentially subject to the ecological risk assessment process, including at least 10 small businesses, 3 large businesses, public and private entities, and urban and rural/agricultural locations. The pilot should also include at least 5 persons/entities conducting an independent remedial action. Ecology shall also test the tiered eco-risk approach as appropriate to supplement the pilot project. Funding must be made available for completing this pilot project.
4. Recommend rulemaking, as follows:
   a. Rulemaking supplemented by a pilot project as described in Option 3.
   b. Rulemaking which considers and addresses whether, and/or to what extent, the tiered eco-risk system should apply:
      (1) to independent remedial actions;
      (2) to previously completed remedial actions.
5. Recommend process schedules, as follows:
   a. Ecology/SAB finalize draft guidance and flowchart
      (2) by the end of April 1997.
   b. Ecology circulate (under option 2c and 2d above) draft guidance and flowchart for 30-day comment once draft is final.
   c. Ecology finalize guidance and flowchart for pilot or rulemaking within 30 days after comment period ends.
   d. Ecology conducts and completes pilot project (in conjunction with pilot rules), including preparation of a report of results and recommendations for public review and comment, within one year after the draft guidance and flowchart are finalized.
   e. Ecology initiates rulemaking, as provided in RCW 34.05, Part III (Rule-Making Procedures):
      (1) Ecology must <u>not</u>:
         (A) Close the public comment period for proposed rules until at least 60 days after the completion of the pilot, including publication for comment of the final agency report on the pilot.

(B) Finalize any analysis under RCW 34.05.328 regarding cost-benefit or burden imposed by the proposed rule, or regarding alternatives until after completion of the pilot.

6. Recommend a periodic review period for rules adopted to incorporate the tiered eco-risk system into the MTCA regulations. The review would be to assure timely modifications to improve the original process.

a. Ecology conduct internal review and solicit public comment to review rules every two years.

Note: This applies only to soil media, and does not apply to sediments, air, groundwater or surface water.

3.2.5 Priority Issue #5: Remedy Permanence, Future Land Use, Waste Management Hierarchy, Long-Term Effectiveness, Groundwater Contamination, Remedy Cost

Summary - The PAC found that the process of selecting a remedy for a particular site, after cleanup levels are identified, was complex and not well understood. Ecology's practices in evaluating potential remedies take into account a range of factors in addition to permanence, including implementability, cost, risk, and public concerns. Liable parties do a lot of work to develop remedies, but are often unclear about what is acceptable, what types of analyses are required, or whether alternative approaches to simply meeting cleanup levels throughout the site are allowed.

Section 360 of the MTCA regulations has been reorganized in this recommendation, with an improved framework provided as a basis for rulemaking. The new approach 1) changes use of the technology hierarchy to use as a guide to the criterion of long-term effectiveness, and as a checklist for use in selecting technologies during the feasibility study, 2) consolidates criteria for selecting a remedy, 3) continues to recognize "permanent to the maximum extent practicable" and "protectiveness" as requirements and establishes a disproportionate cost test to weigh costs and benefits in determining permanence to the maximum extent practicable; 4) clarifies that cost should be weighed against all the other criteria in selecting a remedy; 5) allows the use of risk assessment as part of evaluating some of the criteria, 6) addresses the need to evaluate the effectiveness of institutional and engineering controls used when some contamination is left onsite, 7) allows the point of compliance to be set beyond the property boundary in certain circumstances, and 8) clarifies how the results of risk assessment may be used in balancing remedy selection decisions.

The following are the recommendations as agreed to by the PAC:

Revised Remedy Selection Framework

It was recommended that a conceptual framework for Section 360 rule changes be developed, reviewed, and approved by the PAC. Some guidance may also be needed. Ecology will then rewrite the rule (consistent with the framework) (see Issue #5 in Section 5.0 and Appendix C) in accordance with the legal requirements for rule making. The framework describes changes in

WAC 173-340-360, i.e., role of the hierarchy, steps in the remedy selection process and the test for comparing costs and benefits.

The language in the framework is not intended as specific regulatory language, although the PAC may recommend specific rule language or key provisions. Nor is the intent necessarily to eliminate language in the existing rule section simply because it is not described in the framework.

In addition, the use of quantitative risk assessment will now be allowed in the remedy selection process with the constraints described in WAC 173-340-700 through 760. While "risk assessment" has been used in the past in the remedy selection process, it has been a qualitative assessment or evaluation of the human health risks or potential risks at the site. This issue is also addressed in the framework.

Institutional Controls (Also see revised in 708(3)(d) in Priority Issue #1 Section 5.0 and Appendix C)

Section 360 and 440 should be clarified to ensure that institutional controls are judged by the same remedy selection standards, including protectiveness and long-term effectiveness, as are used to judge other cleanup actions. Ecology should continue its effort to compile information on institutional controls. Ecology should evaluate the effectiveness of institutional controls used to date and issue guidance to improve them, if necessary. Possible ways to improve the long-term effectiveness of institutional controls include: better record keeping by Ecology, verification of recording of deed restrictions, and use of financial assurance mechanisms.

The PAC recommends that statutory and regulatory language be adjusted to strengthen institutional controls where they are appropriately used. The following specific improvements to the system for managing institutional controls are suggested:

1. Ecology should maintain a list of sites which are subject to institutional controls.
2. Ecology should assure regular (five-year) reviews of compliance with institutional control requirements for sites which are subject to those requirements.
3. As provided in the current MTCA regulations, Ecology should, where appropriate, mandate financial assurance mechanisms be put in place for sites which are subject to engineering controls and institutional controls. It is presumed that financial assurance mechanisms will be required unless the PLP can demonstrate that sufficient financial resources are available and in place to provide for the long-term effectiveness of engineering and institutional controls adopted. Site decision documents should contain concrete proof that sufficient financial assurances have been provided. The RCRA program provides an excellent model for the shape and design of those financial assurance requirements.
4. The institutional controls should demonstrably reduce risks at the site to ensure a protective remedy. PLPs should be required to demonstrate the effectiveness of the institutional controls applied to the site. This demonstration should be based on a quantitative, scientific analysis where appropriate.
5. Institutional controls should provide for both short-term and long-term protection at the site, as

appropriate for the remedy selected.

6. Ecology should ensure that in the event that institutional controls are no longer effective, or the site is altered or developed in a way which is inconsistent with applicable institutional control requirements or so as to render institutional controls unlikely to be effective, the PLP remains responsible for conducting a reassessment of the site's residual risk and, if necessary, appropriate additional remediation activities.
7. Ecology, in consultation with interested parties, should make other conforming changes to Ecology's regulations to assure that the changes in the regulations occasioned by the approval of site-specific risk assessment changes are coordinated with the institutional controls and regulations.

Point of Compliance

The regulations and Ecology practice should be clarified so that when groundwater discharges to surface water, a monitoring well for compliance measurement may be located upland of the groundwater/surface water interface, as close as technically practicable to the point or points where the groundwater flows into the surface water. These revisions should also allow an estimate of the dilution that occurs between the upland monitoring well and the point of discharge to surface water to be used to calculate the cleanup level at the point of compliance. Because estimating the dilution that may occur between an upland monitoring well and nearby surface water may be difficult, Ecology should consult with affected stakeholders in identifying appropriate procedures. Ecology should also consult with affected stakeholders in developing regulatory language and guidance.

The regulations should be revised so that when groundwater containing contamination from a single property discharges into surface water after flowing under property not owned by the PLP, if the PLP obtains agreement to do so from down-gradient property owners and appropriate institutional controls are implemented, a conditional point of compliance may be established as provided for in (a) above. Furthermore, Ecology should work with the Department of Natural Resources to establish an appropriate policy that adequately protects the land they manage.

Ecology should amend WAC 173-340-720(6) to allow the approval of final cleanup actions at "areawide brownfield" sites with commingled plumes where the groundwater cannot practicably be remediated to meet cleanup levels at the property boundary. These cleanups must still meet all other requirements of MTCA, including the remedy selection requirements of Section 360. They must also include appropriate institutional controls, such as deed restrictions or land use overlays, to ensure that human health and the environment are not threatened by the contamination that is allowed to remain.

When amending the regulation, Ecology should adopt criteria for determining which sites will be considered to be "areawide brownfields" sites for purposes of this provision. The PAC recommends that the criteria should apply to those sites with multiple property owners, multiple sources of groundwater contamination, or a combination of the two, which make it impracticable to meet a point of compliance at each property boundary. For example, the criteria should be designed to cover appropriate portions of the Duwamish industrial area in Seattle and the Yakima

Railroad Area.

Sites which do not qualify as "areawide brownfields" sites should continue to be subject to the current requirements of WAC 173-340-720(6). Where Ecology determines that no remedy meeting these requirements is practicable under Section 360, then Ecology should continue its current practice of approving interim cleanup actions.

The PAC also recommends that Ecology delete WAC 173-340-720(b)(d)(ii), and prepare guidance, or rules if necessary, to clarify when treatment to the maximum extent practicable as determined through the WAC 173-340-360 process meets the AKART requirement to the extent it applies to contaminated sites as an ARAR under WAC 173-340-710. The PAC recommends that Ecology seek to limit, to the extent allowed by law, the instances when an AKART analysis must be conducted in addition to the remedy selection analyses required by WAC 173-340-360.

3.2.6 Priority Issue #6: Remedy Cost

See Remedy Permanence, etc., above.

3.2.7 Priority Issue #7: Cleanup Action Levels (Now redefined in New MTCA as Remediation Levels)

Summary - Some sites are remediated to the cleanup levels set in MTCA Methods A, B, and C, counting on removal and/or treatment of contaminants to bring them within cleanup levels and effectively remove the risk. In practice, however, Ecology has long used a concept of "cleanup action levels" to determine how a remedy should be implemented. This may include a mix of contaminant removal and treatment, accompanied by engineering or institutional controls to ensure a protective remedy. Containment of contaminants onsite is quite common, yet there is no express statement in the regulation about using cleanup action levels as part of a selected remedy.

The PAC endorses the continuation of this approach, which leads to practical and cost-effective remedies while maintaining protectiveness, but recommends that it be formalized in Section 360 of the regulation. In addition, to more clearly describe its meaning, the PAC recommends that the term be defined as "remediation level" rather than cleanup action level -- a protective remedy, specifying the level of contaminants that must be achieved through a single or a combination of remedies.

The following is the recommendation as agreed to by the PAC:

At many sites, the cleanup action will be designed to achieve the "cleanup levels" applicable to the hazardous substances present at the site. However, it is also possible to use the requirements of this section to select a remedy that leaves hazardous substances at the site in concentrations above the cleanup levels. Such a remedy will be implemented by developing site-specific "cleanup action levels" (remediation levels) for the hazardous substances at the site. A cleanup action is considered to be protective of human health and the environment even though it may leave hazardous

substances at the site in concentrations above cleanup levels, so long as it complies with the other requirements of this section.

Ecology should prepare amendments to Sections 360, 120, and 200, and perhaps other sections of the regulations, to authorize and explain the use of "cleanup action (remediation) levels." At a minimum, the amendment should authorize the use of remediation levels to implement remedy selection. Preferably, the amendment should explain better how remediation levels are established. The application of remediation levels and their relationship to point of compliance (however defined), as well as what it means to achieve remediation levels or cleanup levels, will be addressed later by the PAC. [See recommended framework for Section 360 for language change to "remediation levels," Priority Issue #5.]

3.2.8 Priority Issue #8: Remedy "Czar"

Summary - Liable parties sometimes believe that the decisions reached by the Ecology site manager are incorrect. They are not comfortable elevating the dispute beyond the site manager level. The PAC considered this situation as part of the neutral appeal and dispute resolution process described later in this section, and believes that the process described there, with its provision for periodic review and improvement, will address the question of dispute resolution for remedy selection.

No other specific recommendation is provided for this issue.

3.2.9 Priority Issue #9: Areawide Contamination/Brownfields

Summary - The PAC considered steps that could be taken to encourage cleanups that lead to redevelopment and reuse of "brownfields," agricultural properties, and areas of widespread contamination. Several of the other PAC recommendations have bearing on this issue. The recommendation to exempt innocent landowners from liability for contaminated groundwater plumes beneath their property ("plume clause"), the recommended ability of successor interests to benefit from legal protection in a consent decree ("transferability of covenants not to sue"), and enhanced technical assistance with written determinations, will all benefit these types of sites. The clarified remedy selection process, and recommendations for flexibility in establishing points of compliance, will also aid in areawide solutions.

In addition to these portions of other recommendations, the PAC also recommends that Ecology be authorized to enhance the availability of prospective purchaser agreements, approve areawide investigations and remedies, develop "model remedies," and encourage use of local toxics account monies to encourage areawide investigations and remedy selection.

With respect to contaminated orchard soils found in portions of eastern Washington, the PAC recommends application of the solutions described above, plus support for evaluating existing knowledge of health effects, climate and contaminant-specific issues of contaminant bioavailability, additions to soil composition, and engineering and institutional controls.

The following are the recommendations as agreed to by the PAC:

Areawide Contamination/Brownfields

In addition to recommendations agreed to by the PAC concerning transferability of covenants not to sue, a plume clause, the rewriting of Rule 360, and site-specific technical assistance, the following additional changes are recommended:

1. The remedy selection provisions of WAC 173-360 should be revised to include language to allow the Department to identify or develop model remedies for common categories of facilities, types of contamination, types of media and geographic areas.
2. Ecology and the Attorney General's office should undertake a study of prior settlements, including but not limited to the Thea Foss settlement, to identify options for addressing area-wide cleanups involving multiple land owners. Ecology should undertake appropriate outreach and education initiatives to better inform PLPs and local governments regarding mechanisms for addressing areawide cleanups.
3. Ecology should undertake rulemaking to revise WAC 173-340-720(6)(c) (which currently limits conditional groundwater points of compliance to property boundaries), for the purpose of facilitating areawide cleanups which may be complicated by current provisions (e.g., groundwater contamination involving overlapping plumes and multiple properties). (See Priority Issue #5 for point of compliance discussion).
4. Ecology and the Attorney General's office should analyze the need for rulemaking, guidance, and outreach to address whether local toxics fund monies may be utilized by a local government to perform an areawide cleanup or RI/FS. The analysis should include mechanisms for allowing participation by potentially liable parties, and PLP contribution of funds to partially reimburse grant expenditures. Additionally, community-based redevelopment projects led by local governments using local toxics account grant monies should develop public participation goals that include taking into account sustainable economic development and environmental justice, as appropriate.

Prospective Purchaser Agreements

The PAC recommends additional education/outreach, evaluating, streamlining, increasing availability and a statutory revision that would amend RCW 70.105D.040(5) as follows:

(5) In addition to the settlement authority provided under subsection (4) of this section, the attorney general may agree to a settlement with a person not currently liable for remedial action at a facility who proposes to purchase, redevelop, or reuse the facility, provided that:

(a) ~~The settlement will provide a substantial public benefit, including but not limited to the reuse of a vacant or abandoned manufacturing or industrial facility, or the development of a facility by a governmental entity to address and important public purpose;~~

~~(b)~~ The settlement will yield substantial new resources to facilitate cleanup;

~~(c)~~ (b) The settlement will expedite remedial action consistent with the rules adopted under this chapter; and

~~(d)~~ (c) Based on available information, the department determines that the redevelopment or reuse of the facility is not likely to contribute to the existing release or threatened release, interfere with remedial actions that may be needed at the site, or increase health risks to persons at or in the vicinity of the site.

The legislature recognizes that the state does not have adequate resources to participate in all property transactions involving contaminated property. The primary purpose of this subsection is to promote the cleanup and reuse of vacant or abandoned commercial or industrial contaminated property. The attorney general and the department may give priority to settlements that will provide a substantial public benefit, including, but not limited to the reuse of a vacant or abandoned manufacturing or industrial facility, or the development of a facility by a governmental entity to address an important public purpose.

Orchard Lands

The PAC recommends that a combination of the options below be put in place. Resources for these options should be sought from a variety of sources. Ecology is not a research arm of state government and does not have staff in place to conduct bioavailability studies. However, if resources become available, Ecology, Health, and Agriculture should participate in locally driven efforts to both scope and conduct these studies. Ecology and Health will convene a work group consisting of local stakeholders to develop approaches to Items 2, 4, 5, 6 and 7 below.

Ecology should take the lead in:

I. providing technical assistance to persons requesting such help (Item 3)
II. outreach activities (Item 8)
III. evaluation of new scientific information if it becomes available (Item 6)
adoption of developed BMPs and presumptive remedies, as appropriate. The Washington Department of Agriculture and/or the WSU Tree Fruit Research Center should take the lead in development of soil amendments and other economic farming practices (Item 7).

1. Maintaining the status quo will do nothing to protect human health and the environment when contaminated orchard property is converted to residential use, nor does it address potential risks to owners of property already converted to residential use. Similarly, a status quo approach does not address the uncertainty issues surrounding property transfer.
2. The true extent of contamination in central Washington has only been estimated. It may be that many of the orchard lands are only mildly contaminated, if they are contaminated at all. The issue should be framed on the basis of fact rather than conjecture. The first step should include a summary of existing data, an assessment of the data gaps, and a sampling plan if appropriate. The potential areas to be sampled should be determined in consultation with the local communities (landowners, local government, developers, lenders, buyers) and should include current residential properties located on former orchard lands. The data would be used to evaluate the reasonableness of available remedies, and could focus future agency work in areas where exposure is likely to be highest. It is anticipated that this work will be funded and carried out by local interests with technical assistance from Health and Ecology.
3. The MTCA PAC has already endorsed the concept of allowing Ecology to provide site-

specific technical assistance to persons conducting independent cleanup actions. This approach will be effective in protecting human health and the environment and reducing uncertainty, but would only do so on a case by case basis.

4. Summarize available information on lead and arsenic bioavailability from soils and identify data gaps. Develop appropriate methods for testing lead and arsenic bioavailability, with particular attention given to soil types found in orchards in central Washington. This task should be developed in conjunction with appropriate local entities and should include development of all potential funding sources (i.e. WA Dept. of Agriculture, WSU extension, EPA, Washington Horticultural Association, US Dept. of Agriculture).
5. If the bioavailability studies indicate that soil amendments or other farming practices can significantly reduce future site risks, Ecology and Health will work with Department of Agriculture, the WSU-extension and other appropriate local entities to provide this information to affected orchardists.
6. Using information developed by outside sources, Ecology may reevaluate the technical basis for Method A and Method B cleanup levels for lead and arsenic. The standard for such evaluations will be consistent with the PAC recommendations for introduction of new scientific information.
7. Best Management Practices (BMPs) and presumptive remedies can be developed for lead-arsenate contaminated soils to provide guidance to persons conducting cleanups. The scope of this effort will be affected by the extent of contamination actually found. If there are few high-risk sites, but many acres of low-risk sites, the BMPs and presumptive remedies will be much different than if the opposite is found to be true.
8. Educational materials should be developed in conjunction with appropriate local entities (e.g. Local Health Dept., Central Regional Citizens Advisory Committee, Horticultural Association, etc.) that describe state and local resources available to interested parties. They should also describe cleanup expectations and liabilities. Supplemental information from any of the above efforts should also be included as it becomes fully developed.
9. Health effects studies were discussed but are not considered appropriate at this time because they generally require very intensive data collection and evaluation and may require significant resources. In addition, these studies may not provide data which will be useful in reducing risk or liability. After the extent of contamination and bioavailability work have been completed, exposure studies may become appropriate.

Minority View Presented by Mike Sciacca Regarding Prospective Purchaser Agreements

I respectfully dissent from the PAC's recommendations on prospective purchaser agreements for the following reasons. In my view, purchasers who buy property after the release of contaminants has occurred should not be subject to the retroactive, strict liability scheme of MTCA. Holding completely innocent purchasers liable once they become owners creates "brownfields" because prudent buyers fear the heavy hammer of MTCA liability and as a result choose to develop new areas rather than use currently developed land.

Prospective purchaser agreements place the Department of Ecology in a position to determine which new property owners are exempt from MTCA liability and which are not. I believe this is an

unwise approach because, taken to its logical extreme, it either swamps the agency with priority-setting and legal wrangling or is used only at a limited number of sites, the sites that Ecology decides are worthy. The prospective purchaser agreement forged for the ill-fated Seattle Commons is perhaps an example of this last situation. A far better approach would be to amend MTCA to describe the conditions under which an incoming buyer is exempt, such as no interlocking directors or overlapping ownership between sellers and buyers, and allow all qualifying new owners to utilize the prospective purchaser exemption.

3.2.10 Priority Issue #10: Enhanced Technical Assistance

Summary - The PAC endorses the concept of independent cleanups, and worked to develop various methods that would improve certainty on the parts of liable parties and Ecology. Technical assistance is currently provided for non-site-specific questions and concerns to parties undertaking independent cleanups. A great deal of technical assistance is currently provided without charge. Statutory authority to provide site-specific help is not clear. Written regulatory guidance exists, but the opportunity to discuss in any detail the site-specific characteristics, cleanup options, or other elements of cleanup with an experienced Ecology site manager, is not authorized. The Independent Remedial Action Program (IRAP) provides a way that liable parties can submit a final cleanup report for Ecology review, but there is no way to achieve earlier input from Ecology on a site-specific basis.

This recommendation provides for statutory authority for independent remedial actions, and allows parties to request Ecology review of site-specific work products (remedial investigation work plans and reports, feasibility studies, remedy selection analyses, etc.) and receive written determinations from Ecology. Those determinations will be nonbinding, as the cleanup remains an independent activity, but will provide useful feedback to a party desiring such information. The cost for Ecology's time will be cost-recoverable at the agency's discretion. An approach for setting and collecting fees for enhanced technical assistance is recommended.

The following are the recommendations as agreed to by the PAC:

Enhanced Technical Assistance

Amend RCW 70.105D.030(1) by adding a new paragraph (i) and moving current (i) to (j), as follows:

(i) Provide informal advice and assistance to persons regarding the administrative and technical requirements of this chapter. This may include site-specific advice to persons who are conducting or otherwise interested in independent remedial actions. Any such advice or assistance shall be advisory only, and shall not be binding on the department. As a part of providing this advice and assistance for independent remedial actions, the department may prepare written opinions regarding whether the independent remedial actions or proposals for those actions meet the substantive requirements of this chapter and/or whether the department believes further remedial action is necessary at the facility. The department is authorized to collect, from persons requesting advice and assistance, the costs incurred by the department in

providing such advice and assistance; provided, however, that the department shall, where appropriate, waive collection of costs in order to provide an appropriate level of technical assistance in support of public participation. The state, the department, and officers and employees of the state shall be immune from all liability and no cause of action of any nature shall arise from any act or omissions in providing, or failing to provide, informal advice and assistance.

~~(i)~~(j) Take any other actions necessary to carry out. . . .

Amend RCW 70.105D.020 by adding a new paragraph (8) and renumbering thereafter, as follows:

(8) "Independent Remedial Actions" means remedial actions conducted without department oversight or approval, and not under an order or decree.

Amend RCW 70.105D.030(l)(f) as follows:

(f) Issue orders or enter into consent decrees or agreed orders that include, or issue written opinions under RCW 70.105D.030(l)(i) that may be conditioned upon, deed restrictions where necessary to protect human health and the environment from a release or threatened release of a hazardous substance from a facility. Prior to establishing a deed restriction under this subsection, the department shall notify and seek comment from a city or county department with land use planning authority for real property subject to a deed restriction.

Funding for Enhanced Technical Assistance

Direct Ecology to review alternative mechanisms for paying for technical assistance, and if appropriate, to develop rules and/or guidance establishing fees for technical assistance for independent cleanups. As far as practicable, the mechanism should accomplish the following:

- generally make fees proportional to staff time spent on technical assistance
- recognize a concept of de minimis services for which no charges would be made (The expectation is that the current level of free technical assistance would continue to be provided.)
- integrate enhanced technical assistance and IRAP programs in a logical fashion, for example, avoiding double charging for the same services, and avoiding creating inappropriate disincentives. As part of the integration, Ecology should consider revising the IRAP fee structure to correlate to staff time expended rather than the cost of the remediation.
- establish factors that Ecology may consider if a waiver is requested, and procedures for handling such requests. The Department shall, where appropriate, waive collection of costs in order to provide an appropriate level of technical assistance in support of public participation. The Department shall also recognize a preference for providing free assistance to small entities, with consideration of their ability to pay.

Minority View Presented by Mike Sciacca

I respectfully dissent from the PAC's recommendations on enhanced technical assistance for the following reasons. While I agree with most of the PAC's recommendations on this topic, they build on what I consider a fundamentally flawed approach with regard to funding of technical assistance. Currently the department charges potentially liable parties for technical reviews and oversight of cleanup projects. The PAC's proposal would expand these "cost recovery" programs to include even minor requests for technical assistance.

In my view, Ecology's "cost recovery" policy is counterproductive. Often potentially liable parties avoid contacting Ecology staff because Ecology's charges can be significant if the agency becomes involved. This is especially true for the small business which I represented on the PAC. In this case I believe the "polluter pays" principle of MTCA, which I generally support, is being used to reach a punitive result. I believe that provided technical assistance, technical reviews, and technical oversight should be one of the top spending priorities for the millions of dollars paid by the citizens of the state to the MTCA accounts, a far higher priority than "pollution prevention" programs, for example.

3.2.11 Priority Issue #11: Independent Remedial Action Program (IRAP)

See Enhanced Technical Assistance above.

3.2.12 Priority Issue #12: Consultant Certification

Summary - In beginning the analysis of independent cleanups, the PAC considered the potential effectiveness of a program of screening and certifying the competency of consultants to either perform independent cleanups or perform reviews of them. No consensus or broad support for a recommendation was reached.

3.2.13 Priority Issue #13: Independent Cleanup Audits/Quality Control

Summary - Members of the PAC expressed some concern about the large number of sites undergoing independent cleanup with no Ecology oversight, except for Ecology's ultimate review of final cleanup reports. Concerns were expressed by some that cleanups may not be adequately done, or that liable parties may in some cases make a problem worse by the way in which they attempt to clean it up. Others believed that most independent cleanups are well done, because liable parties want to avoid continuing liability.

To provide additional information on this issue, the PAC recommends that most independent cleanup sites on the Hazardous Sites List be reviewed to see whether they can be removed from the list. Procedures for site hazard assessment and site investigation are to be reviewed to add to the adequacy of Ecology review of independent cleanup reports.

The following is the recommendation as agreed to by the PAC:

Direct Ecology to develop a program for review of all ranked sites for which a final independent cleanup report was submitted after the Site Hazard Assessment had been performed. Such review should be conducted as expeditiously as possible, with priority given to higher ranked sites. The review will evaluate whether those sites can be removed from the hazardous sites list as required in WAC 173-340 - 330(4) or whether further action is required. Ecology shall conduct a review of the SHA and site investigation procedures, to ensure that both delegated counties and Ecology are properly reviewing the adequacy of independent cleanups. The Legislature and/or Ecology shall make funding available to implement this recommendation.

3.2.14 Priority Issue #14: Improved Internal Decision Making

Summary - The PAC questioned whether Ecology could improve its internal decision making to enhance cleanups, or manage its information base differently in order to improve cleanup decision making. This issue was ultimately addressed through the "neutral appeal/dispute resolution" recommendation which follows.

3.2.15 Priority Issue #15: Neutral Appeal/Dispute Resolution

Summary - The PAC discussed many of the ways in which Ecology staff and liable parties may disagree in the investigation and remediation of a site. There were concerns on the part of the regulated community that site managers sometimes make decisions or require actions that are not consistent with how other sites are managed within Ecology, or that simply are not appropriate. Liable parties repeatedly indicated that they value good relationships with site managers, and so hesitate to go beyond that level to resolve disputes, even though an informal process exists within Ecology. Nevertheless, there are situations in which a broader perspective on a decision would be beneficial to both sides.

The PAC determined that a combination of communication, clear expectations, mentoring and training, peer review, guidance, outreach, and access to information about other sites would preclude many disputes. For those situations where agreement is not reached, a clear process for elevating dispute resolution will be laid out. Neutral third-party assistance may also be invoked if agreeable to all parties. The PAC recommends a two-year review of these measures, with consideration of change if indicated.

The following is the recommendation as agreed to by the PAC:

The following tools should be used as appropriate for avoiding or resolving disputes that arise at any point during the cleanup process:

1. Clarify expectations between Ecology and PLP (and other interested persons) at the time a PLP is named, and prior to beginning any negotiation process. This includes providing every PLP and any interested party information about all of the channels available to them for resolving issues, concerns, and disputes about site cleanup. (Tell them plainly that disputes

will arise, and here are the ways to handle them. Include specific information about the informal dispute resolution process.)

2. Match skills and knowledge of site manager to the site, consideration should be given to such items as: The type of site (landfill, LUST, wood treat facility, etc.), complexity of the site, and whether the PLP has multiple sites throughout region or state. Designate a mentor for inexperienced site managers.
3. Establish a peer review team, as appropriate, to provide feedback to the site manager. This may include intra-and inter-office staff. It should always include the section supervisor.
4. Publish guidance documents on topics such as disproportionate costs and remedy selection. Provide these guidance documents to the PLPs and other interested parties.
5. Train site managers on technical, project management, dispute resolution and other related topics.
6. Host an annual workshop for the purpose of educating PLPs, consultants, lending institutions, and others regarding implementation of the MTCA and any new developments in the technical area of site cleanup activities. Also provide an opportunity for general comments about MTCA budget, technical or policy issues.
7. Provide access to information related to cleanup action plans and site remediation designs.
8. Develop an informal dispute resolution process which can be initiated at any time by PLP or Ecology to resolve disputes in a timely manner. Parties may include the site manager's peer review team, other agency experts, the section supervisor and/or the TCP program manager. Informal appeals may be elevated at any time to successive levels of Ecology management beginning with the unit supervisor, section manager and then program manager, if necessary. Public access to the informal appeal process could occur during the public comment process, and could include a request to elevate the dispute within the Department. Informal dispute resolution process may also involve a neutral third party mutually agreed upon by all parties.

After a two-year time period, Ecology shall conduct a formal review of the foregoing measures, with input and participation from PLPs, the public, and interested persons. Part of that review shall include consideration of additional or alternative measures.

Minority View Presented by Kevin Godbout

The proposed dispute resolution process doesn't allow for a PLP--at its discretion-- to enter into alternative dispute resolution/mediation with Ecology and use outside third-party experts to render either binding or non-binding decisions. The proposed process continues to promote an informal system that leaves dispute resolution in the hands of the enforcement agency. Such a system is unfair and provides very little incentive for private parties to participate. It also provides limited incentive for the Agency to devote energy to fairly and equitably resolving disputes; they ultimately decide the fate of the issue. As proposed, the PAC recommendation supports the status-quo, an unfair system that doesn't resolve disputes or encourage mediation.

The legislature should consider making statutory amendments to MTCA that allow a PLP--at its discretion-- to enter into alternative dispute resolution/mediation with Ecology and use outside third-party experts to render either binding or non-binding decisions to the two parties.

3.2.16 Priority Issue #16: Improved Information Management

Summary - The PAC suggested that it would be a benefit to improve access to Ecology information by non-Ecology interests. This information could include cleanup action plans and site remediation designs. This issue is addressed by the "Neutral Appeal/Dispute Resolution" recommendation above.

3.2.17 Priority Issue #17: Tax Policy

Summary - Current Washington State Department of Revenue policy exempts listed site cleanups from state sales tax on remediation. The PAC recommends that exemption be formalized in statute and extended to those sites that have not been formally listed, but that are undergoing independent cleanups.

The following is the recommendation as agreed to by the PAC:

The PAC affirms the existing Department of Revenue policy, except that the sales tax exemption in the current Department of Revenue policy should be applied to all remedial actions, whether or not officially designated waste sites. The state's tax laws in Chapter 82 RCW should be amended to accomplish this. The mechanics of implementation could be developed in coordination with the Department of Revenue, to be consistent with existing practices for contractors working on sales tax-exempt projects. The procedures should include some guidance from Ecology regarding what actions constitute remedial actions under MTCA in order to prevent abuse by property owners conducting other activities on their properties.

Minority View Presented by Sharon Metcalf

Since the state of Washington has no personal or corporate income tax, sales taxes are a principle source of government revenue. The effect of this recommendation will be to shift a certain percentage of cleanup costs from liable parties onto the general public, since state and local government revenue will be reduced, leaving the public to either absorb a correspondingly greater tax burden or go without services. Local governments strongly object to the erosion of their already limited tax revenue by creation of yet another exemption from sales taxes, in an era when demands for services from local government are expanding significantly.

Sufficient incentives for site cleanup already exist, as demonstrated by the fact that hundreds of them occur in this state each year, and of these, some 90% are done independently. This proposal is not designed to benefit small business, since it would be available to anyone, and neither is it targeted to "brownfields" sites (those on underutilized industrial land). It carries a significant potential for abuse, in that it will be very difficult to distinguish true site remediation from site development activities, such as excavation, grading, fencing, and paving.

3.2.18 Priority Issue #18: Strict, Joint and Several, and Retroactive Liability

Summary - The PAC in its early deliberations questioned whether the method of applying strict, joint and several, and retroactive liability should be modified in Washington. This is a complex issue that has been extensively debated at the federal level. No consensus or broad support for a recommendation was reached.

3.2.19 Priority Issue #19: Equitable Factors

Summary - Some states, as well as the EPA, define "equitable factors" to help liable parties apportion liability among themselves. In some cases, equitable factors are imposed by a higher authority. The PAC questioned whether Washington should define and apply such factors, and considered whether those factors could be applied by courts, arbitrators, or Ecology to impose apportioned liability. No consensus or broad-support recommendation was reached.

3.2.20 Priority Issue #20: Toxics Cleanup Program Budget

Summary - The PAC indicated a desire to examine whether adequate resources are being distributed to the Toxics Cleanup Program for its activities, as compared with money from the Toxics Control Account going to other agencies and programs. In addition, though many of the PAC's recommendations are projected to be budget-neutral (i.e., the expenses are cost recoverable), there will be some additional costs to implement some of the recommendations and to initiate those recommended programs that will involve fees for service and cost recovery.

The following is the recommendation as agreed to by the PAC:

Recommend to the Legislature that PAC recommendations be given priority funding within the Toxics Control Account during the biennium. Such funding shall be in addition to the amount requested by Ecology for the Toxics Cleanup Program budget for FY 97/99. Implementation of the PAC's recommendations will require the use of Ecology's existing resources and the addition of new resources. It is estimated that an appropriation in the range of $1.8 to $3.1 million is needed to fully implement all of the PAC's recommendations. Of this amount, approximately $1.1 to $2.4 million can be recovered from potentially liable persons through the recovery of Ecology's oversight costs and the payment of fees for technical assistance received by potentially liable persons. The balance of approximately $700,000 is non-recoverable money. We further recommend the Legislature consider reallocating or reappropriating funds to meet this need from the following: 1) interest accrued from the Toxics Control Account which currently accrues in the "general fund," 2) appropriate supplemental funds to directly support this recommendation, and/or 3) reappropriation of the $300,000 originally allocated to implement the PAC during the last biennium.

3.2.21 Priority Issue #21: Public Participation and Community Involvement

Summary - The PAC questioned how public participation and community involvement should be provided for in connection with PAC recommendations for risk assessment, remedy selection, independent cleanups, and other elements of MTCA implementation. The committee examined this issue in significant detail, and received general public input on it as well as input from Ecology's Regional Citizens Advisory Committees. Especially with increased use of site-specific risk assessment in setting cleanup levels and selecting remedial actions, citizen groups are concerned about communities' ability to understand and influence risk assessment and cleanup decisions.

The PAC recommends a number of modifications to public participation, including availability of an "ombudsperson" to provide technical assistance. The public participation grants program will be evaluated for potential streamlining, and increased grant amounts made available. Ecology will have increased ability to require additional public notification at independent cleanup sites under certain conditions through amendment of RCW 70.105D.040(4)(a) and WAC 173-340-310(4), and will involve the public in development of site-specific exposure scenario development if public concerns regarding future land use and exposure exist.

The following is the recommendation as agreed to by the PAC:

1. Clarify the restriction on conflict of interest regarding applicant eligibility through regulatory modification (including specific language);
2. Change the Regional Citizens' Advisory Committees' charter in WAC 173-340-610 to read "Advise Ecology of community concerns about the Cleanup Program's activities and develop proposals for addressing these concerns. Committees may use site-specific issues as a foundation for understanding regional issues."
3. Change RCW 70.105D.040(4)(a) and WAC 173-340-310(4) to require that public hearings for consent decree sites be held upon the request of ten or more individuals or as determined by the department. Amend RCW 70.105D.040(4)(a) as follows: a) The attorney general may agree to a settlement with any potentially liable person only if the department finds, after public notice and <u>any required</u> hearing, that the proposed settlement would lead to a more expeditious cleanup of hazardous substances in compliance with the cleanup standards under RCW 70.105D.030(2)(d) and with any remedial orders issued by the department. A hearing shall be required only if at least ten persons request one or if the department determines a hearing is necessary.
4. Reaffirm the priority allocation for substance release grants relative to waste management grants, designating 50% of the full 1% allocation each to substance release grants and waste management grants;
5. Ecology shall form an advisory team to review and develop recommendations for improving the grant application form and other aspects of the grant selection process including consideration of a method for allowing emergency grant monies to be made available during the year for emergency situations at substance release sites. This team will be comprised of appropriate agency staff and 2-4 past grant recipients or applicants, an RCAC member (if

possible), and other interested individuals.

6. Authorize Ecology to provide for emergency grants which will be limited to no more than one per year and would be applied toward the annual maximum award;
7. Develop a three-year pilot ombudsperson approach to providing technical assistance for sites using a "new MTCA" approach. This position (either staff or contractor) will be housed at Ecology, with Ecology having fiduciary responsibility. Funding mechanism may be the increase of the overhead rate allowed on cost recovery. Criteria for selection of the ombudsperson program will be developed by representatives from industry, citizens groups and Ecology. Proposals will be reviewed and selected by a committee comprised of citizens and Ecology representatives. A three-year review will be conducted by an advisory committee comprised of representatives from industry, citizens groups and Ecology;
8. Grant awards should be increased to a maximum of $60,000 and include an inflation increase. Amend RCW 70.105D.070(5) as follows: (5) One percent of the monies deposited into the state and local toxics control accounts shall be allocated only for public participation grants to persons who may be adversely affected by a release or threatened release of a hazardous substance and to not-for-profit public interest organizations. The primary purpose of these grants is to facilitate the participation by persons and organizations in the investigation and remedying of releases or threatened releases of hazardous substances and to implement the state's solid and hazardous waste management priorities. No grant may exceed ~~fifty~~ sixty thousand dollars except that, beginning July 1, 1998, the director may increase the maximum grant award annually to account for inflation. ~~through~~ it Grants may be renewed annually. Monies appropriated for public participation from either account which are not expended at the close of any biennium shall revert to the state toxics control account.
9. Ecology will provide site-specific risk assessment training to public involvement staff.
10. Amend WAC 173-340-600(7) to read: Evaluation. As part of requiring or conducting a remedial action at any facility, the department shall evaluate public participation needs at the facility, including an identification of the potentially affected vicinity for the remedial action and, for sites where site-specific risk assessment is used, evaluate public interest in, significant public concerns regarding future site use, and values to be addressed with the public participation plan.
11. New WAC Subsection: The department shall determine if the variables proposed to be modified in a site-specific risk assessment or alternative reasonable maximum exposure scenario (RME) may affect the significant public concerns regarding future land uses and exposure scenarios. If the department finds that those concerns may be affected, then Ecology shall assure appropriate public involvement and comment opportunities will occur as identified in the public participation plan.
12. Amend WAC 173-340-310(4) to read: If the department determines that (a) an emergency remedial action is required; (b) or an interim action is required, then notification of the threat to the potentially affected vicinity may be required. The method and nature of notification and the individuals to be notified will be determined on a case-by-case basis by the department. Such notification will be the responsibility of the site owner or operator if required in writing by the department.

3.2.22 Priority Issue #22: Plume Clause

Summary - Ecology currently has a policy of nonenforcement against owners of property that overlie a contaminated groundwater plume if the property is not a source of the contamination and the landowner does not contribute to the release of contamination and meets certain conditions concerning access and institutional controls. Since this is a policy, it does not provide an exemption from liability or contribution protection. The PAC recommends that exemption from liability be created under certain conditions, similar to Ecology's policy.

The following is the recommendation as agreed to by the PAC:

The PAC recommends that the MTCA definition of "owner or operator" be revised consistent with a modified form of Policy 540A as follows:

RCW 70.105D.020

(11) "Owner or operator" means:

(a) Any person with any ownership interest in the facility or who exercises any control over the facility; or

(b) In the case of an abandoned facility, any person who had owned, or operated, or exercised control over the facility any time before its abandonment;

The term does not include:

(iii) any person who has any ownership interest in, operates, or exercises control over real property where a hazardous substance has come to be located solely as a result of migration of the hazardous substance to the real property through the groundwater from a source off the property, provided:

(A) The person can demonstrate that the hazardous substance has not been used, placed, managed or otherwise handled on the property in a manner likely to cause or contribute to a release of the hazardous substance that has migrated onto the property.

(B) Such person has not caused or contributed to the release of the hazardous substance

(C) Such person does not engage in activities that damage or interfere with the operation of remedial actions installed on the person's property, or engage in activities that result in exposure of humans or the environment to the contaminated groundwater that has migrated onto the property.

(D) If requested, such person allows the department, potentially liable persons who are subject to an order, agreed order, or consent decree, and the authorized employees, agents, or contractors of each, access to the property to conduct remedial actions required by the department. The person may attempt to negotiate an access agreement prior to allowing access.

(E) Legal withdrawal of groundwater shall not disqualify a person from this exemption.

3.2.23 Priority Issue #23: Transferability of Covenants Not to Sue

Summary - Owners or operators of contaminated property who settle their liability with the State under a consent decree can receive a covenant not to sue. This covenant precludes future enforcement of MTCA against the owner or operator as long as the requirements of the decree are met and the conditions of the "reopener clause" required by RCW 70.105D.040(4)(c) are not triggered. The consent decree also provides protection from contribution lawsuits. Under current law, if the property is transferred, the covenant and contribution protection do not automatically apply to the new owner/operator; those persons must become a party to the decree. The PAC recommends that these protections automatically apply to successor owners and operators, within certain constraints.

The following is the recommendation as agreed to by the PAC:

Under RCW 70.105D.040(4), insert subparagraphs (e) and (f):

(e) If the state has entered into a consent decree with an owner or operator under this section, the state shall not enforce this chapter against any owner or operator who is a successor in interest to the settling party unless under the terms of the consent decree the state could enforce against the settling party, provided that:

(i) the successor owner or operator is liable with respect to the facility solely due to that person's ownership interest or operator status acquired as a successor in interest to the owner or operator with whom the state has entered into a consent decree; and

(ii) this stay of enforcement shall not apply where the consent decree was based on circumstances unique to the settling party that do not exist with regard to the successor in interest, such as financial hardship. For consent decrees entered into prior to the effective date of this subparagraph, at the request of a settling party or a potential successor owner or operator, the attorney general shall issue a written opinion on whether a consent decree contains such unique circumstances. For all other consent decrees, such unique circumstances shall be specified in the consent decree.

(f) Any person who is not subject to enforcement by the state under paragraph (e) of this subsection shall not be liable for claims for contribution regarding matters addressed in the settlement.

Amend RCW 70.105D.080:

Except as provided in RCW 70.105D.040(4)(d) and (f), a person may bring a private right of action, including a claim for contribution or for declaratory relief, against any other person liable under RCW 70.105D.040 for the recovery of remedial action costs. . .

3.2.24 Additional Issue: Release Reporting

Summary - WAC 173-340-300(2) requires owners or operators who have information that a hazardous substance has been released to the environment which may be a threat to human health and the environment (other than releases from underground storage tanks, which are governed by RCW 90.76 and WAC 173-340-450) to report such information within 90 days of discovery.

While RCW 70.105D.030(2)(c) touches on this issue, it arguably does not provide the Department with clear authority to enforce this requirement.

The following is the recommendation as agreed to by the PAC:

Amend RCW 70.105D.030(c) as follows:

(c) Provide for the following:
  (i) Require the reporting by an owner or operator of releases of hazardous substances to the environment which may be a threat to human health or the environment within 90 days of discovery, including such exemptions from reporting as the department deems appropriate, provided that this requirement shall not modify any existing requirements provided for under other laws; and
  (ii) Establish reasonable deadlines not to exceed ninety days for the Department to initiate an investigation of a hazardous waste site after the department receives such notice or otherwise receives information that the site may pose a threat to human health or the environment and other reasonable deadlines for remedying releases or threatened releases at the site;

3.2.25 Additional Issue: Probabilistic Risk Assessment

Summary - MTCA risk assessment currently relies primarily on deterministic methods. Some PAC members believe that probabilistic risk assessment, as an option, better addresses uncertainty.

The following is the recommendation as agreed to by the PAC:

The PAC recommends Ecology conduct a review of probabilistic risk assessment methods for possible future incorporation in MTCA. This review should be completed by December 31, 1997. In the interim, Ecology should allow the opportunity for probabilistic techniques to be used on an informational basis for evaluating alternative remedies at sites where PLPs are willing to pay for the additional oversight costs. Such probabilistic techniques should not be used to replace cleanup standards and remediation levels derived using deterministic methods until adequate technical protocols and policies have been derived, including appropriate revisions to the regulations.

Minority View Presented by Laurie Valeriano

See minority view on site-specific risk assessment (Section 3.2.1).

3.2.26 Additional Issue: Guidance and Training for Interested Persons and Public

Summary - The MTCA process is difficult and complex, yet many of the people who are either responsible for compliance or may be affected by contaminated sites are relatively unfamiliar

with relevant technical and regulatory matters. Guidance is sometimes not available on technical topics, or it is written in "bureaucratese," or it is difficult to locate.

The following is the recommendation as agreed to by the PAC:

The PAC recommends that Ecology place an emphasis on the development of appropriate guidance, and on providing training and educational opportunities regarding MTCA procedural and technical requirements. In carrying out these activities, the PAC recommends that Ecology emphasize the following:

- Ecology should prepare policy/guidance material as soon as possible after the department identifies the emergence of new administrative or technical issues which are legally appropriate for clarification through those methods. (Nothing in this recommendation is intended to alter the rulemaking requirements of the Administrative Procedures Act.) These documents should be written to reach effectively the appropriate audience they are intended to reach. The quality and quantity of policy/guidance documents should be reviewed by Ecology on a periodic basis. At least twice yearly, Ecology should publish in the Site Register a comprehensive listing of all guidance or other documents which are relied upon by agency staff as precedential, including, where appropriate, such documents as internal agency memoranda, letters, and model documents. Ecology should also consider other appropriate means to inform interested persons about the availability of these publications, including providing them to libraries which serve as information repositories for site file information.

- Ecology should continue to place emphasis on training and educating potentially liable persons, and other interested persons, about the procedural and technical requirements of MTCA. This should include such activities as publishing policy and guidance documents; participation by Ecology staff in conferences on the subject of hazardous waste cleanup; sponsoring or co-sponsoring workshops and conferences; sponsoring an annual MTCA update meeting (see earlier PAC recommendation on dispute resolution); and meeting with business and trade associations.

3.2.27 Additional Issue: Contribution

Summary - When only a few PLPs at a site participate in a cleanup, these parties incur the economic burden of moving forward with the remediation process, without participation by other potentially liable parties. Their only redress is to seek contribution through the courts pursuant to the private right of action granted them under RCW 70.105D.080. Inclusion of more PLPs at the outset and providing incentives for early participation could reduce the need for lengthy contribution suits and reduce the economic burden shared by only a few PLPs.

The following is the recommendation as agreed to by the PAC:

The director of Ecology is encouraged to use reasonable and timely effort to identify potentially liable persons and determine their status as such. The PAC encourages Ecology to explore

increased use of measures to resolve allocation matters early in the process.

3.2.28 Additional Issue: Toxics Control Account

Summary - The PAC believes that the MTCA spending authorizations stated in RCW 70.105D.070 are too broad. Approximately $145 million per biennium is spent on activities, some of which some PAC members believe are only tangentially related to the main purposes of MTCA.

The PAC has observed that, over the years, MTCA funds have been increasingly used for non-MTCA purposes, including some programs allocated to other agencies. The PAC believes that the funds in the toxics control accounts should be more clearly dedicated to the primary purposes of MTCA, such as cleaning up sites and preventing future hazards.

The PAC recommends that the Legislature review the MTCA spending authorizations in RCW 70.105D.070. Specifically, RCW 70.105D.070(2) and (3) should be examined, prioritized, and funded proportionately to their relationship to the primary purposes of the MTCA cleanup program.

Minority View Presented by Mike Sciacca

I support the PAC's recommendation but do not feel it goes far enough. In my view, there are fundamental problems with MTCA spending. I believe the problems stem from the fact that MTCA spending is driven by revenue, not by needs. In my view, MTCA spending authorities should be significantly narrowed and re-focused to the primary purposes of MTCA.

4.0 RECOMMENDATIONS TO LEGISLATURE FOR STATUTORY CHANGE

A number of the PAC's recommendations require statutory revisions in order to be implemented successfully. Those have been extracted from the total set of recommendations and are listed below:

PRIORITY ISSUE #9: AREA-WIDE CONTAMINATION/BROWNFIELDS

Prospective Purchaser Agreements

The PAC recommends additional education/outreach, evaluating, streamlining, increasing availability and a statutory revision that would amend RCW 70.105D.040(5) as follows:

(5) In addition to the settlement authority provided under subsection (4) of this section, the attorney general may agree to a settlement with a person not currently liable for remedial action at a facility who proposes to purchase, redevelop, or reuse the facility, provided that:

(a) ~~The settlement will provide a substantial public benefit, including but not limited to the reuse of a vacant or abandoned manufacturing or industrial facility, or the development of a facility by a governmental entity to address and important public purpose;~~

(e) The settlement will yield substantial new resources to facilitate cleanup;

~~(e)~~ The settlement will expedite remedial action consistent with the rules adopted under this chapter; and

~~(d)~~ Based on available information, the department determines that the redevelopment or reuse of the facility is not likely to contribute to the existing release or threatened release, interfere with remedial actions that may be needed at the site, or increase health risks to persons at or in the vicinity of the site.

The legislature recognizes that the state does not have adequate resources to participate in all property transactions involving contaminated property. The primary purpose of this subsection is to promote the cleanup and reuse of vacant or abandoned commercial or industrial contaminated property. The attorney general and the department may give priority to settlements that will provide a substantial public benefit, including, but not limited to the reuse of a vacant or abandoned manufacturing or industrial facility, or the development of a facility by a governmental entity to address an important public purpose.

PRIORITY ISSUE #10: ENHANCED TECHNICAL ASSISTANCE

Amend RCW 70.105D.030(1) by adding a new paragraph (i) and moving current (i) to (j), as follows:

(i) Provide informal advice and assistance to persons regarding the administrative and technical requirements of this chapter. This may include site-specific advice to persons who are conducting or otherwise interested in independent remedial actions. Any such advice or assistance shall be advisory only, and shall not be binding on the department. As a part of providing this advice and assistance for independent remedial actions, the department may

prepare written opinions regarding whether the independent remedial actions or proposals for those actions meet the substantive requirements of this chapter and/or whether the department believes further remedial action is necessary at the facility. The department is authorized to collect, from persons requesting advice and assistance, the costs incurred by the department in providing such advice and assistance; provided, however, that the department shall, where appropriate, waive collection of costs in order to provide an appropriate level of technical assistance in support of public participation. The state, the department, and officers and employees of the state shall be immune from all liability and no cause of action of any nature shall arise from any act or omissions in providing, or failing to provide, informal advice and assistance.

~~(i)~~(j) Take any other actions necessary to carry out. . . .

Amend RCW 70.105D.020 by adding a new paragraph (8) and renumbering thereafter, as follows:

(8) "Independent Remedial Actions" means remedial actions conducted without department oversight or approval, and not under an order or decree.

Amend RCW 70.105D.030(1)(f) as follows:

(f) Issue orders or enter into consent decrees or agreed orders that include, or issue written opinions under RCW 70.105D.030(1)(i) that may be conditioned upon, deed restrictions where necessary to protect human health and the environment from a release or threatened release of a hazardous substance from a facility. Prior to establishing a deed restriction under this subsection, the department shall notify and seek comment from a city or county department with land use planning authority for real property subject to a deed restriction.

PRIORITY ISSUE #17: TAX POLICY

The PAC affirms the existing Department of Revenue policy, except that the sales tax exemption in the current DOR policy should be applied to all remedial actions, whether or not officially designated waste sites. The state's tax laws in Chapter 82 RCW should be amended to accomplish this. The mechanics of implementation could be developed in coordination with the Department of Revenue, to be consistent with existing practices for contractors working on sales tax-exempt projects. The procedures should include some guidance from Ecology regarding what actions constitute remedial actions under MTCA in order to prevent abuse by property owners conducting other activities on their properties.

PRIORITY ISSUE #20: TOXICS CLEANUP PROGRAM BUDGET

Recommend to the Legislature that PAC recommendations be given priority funding within the Toxics Control Account during the biennium. Such funding shall be in addition to the amount requested by Ecology for the Toxics Cleanup Program budget for FY 97/99. Implementation of the PAC's recommendations will require the use of Ecology's existing resources and the addition of new resources. It is estimated that an appropriation in the range of $1.8 to 3.1 million is needed to fully implement all of the PAC's recommendations. Of this amount, approximately $1.1 to $2.4 million can be recovered from potentially liable persons through the recovery of Ecology's

oversight costs and the payment of fees for technical assistance received by potentially liable persons. The balance of approximately $700,000 is non-recoverable money. We further recommend the Legislature consider reallocating or reappropriating funds to meet this need from the following: 1) interest accrued from the Toxics Control Account which currently accrues in the "general fund," 2) appropriate supplemental funds to directly support this recommendation, and/or 3) reappropriation of the $300,000 originally allocated to implement the PAC during the last biennium.

PRIORITY ISSUE #21: PUBLIC PARTICIPATION AND COMMUNITY INVOLVEMENT

Amend RCW 70.105D.040(4)(a) as follows: a) The attorney general may agree to a settlement with any potentially liable person only if the department finds, after public notice and <u>any required</u> hearing, that the proposed settlement would lead to a more expeditious cleanup of hazardous substances in compliance with the cleanup standards under RCW 70.105D.030(2)(d) and with any remedial orders issued by the department. <u>A hearing shall be required only if at least ten persons request one or if the department determines a hearing is necessary.</u>

Amend RCW 70.105D.070(5) as follows: (5) One percent of the monies deposited into the state and local toxics control accounts shall be allocated only for public participation grants to persons who may be adversely affected by a release or threatened release of a hazardous substance and to not-for-profit public interest organizations. The primary purpose of these grants is to facilitate the participation by persons and organizations in the investigation and remedying of releases or threatened releases of hazardous substances and to implement the state's solid and hazardous waste management priorities. No grant may exceed ~~fifty~~ <u>sixty</u> thousand dollars except that, beginning July 1, 1998, the director may <u>increase the maximum grant award annually to account for inflation</u>. ~~through~~ it <u>Grants</u> may be renewed annually. Monies appropriated for public participation from either account which are not expended at the close of any biennium shall revert to the state toxics control account.

PRIORITY ISSUE #22: PLUME CLAUSE

The PAC recommends that the MTCA definition of "owner or operator" be revised consistent with a modified form of Policy 540A as follows:

RCW 70.105D.020

(11) "Owner or operator" means:

(a) Any person with any ownership interest in the facility or who exercises any control over the facility; or

(b) In the case of an abandoned facility, any person who had owned, or operated, or exercised control over the facility any time before its abandonment;

The term does not include:

(iii) <u>any person who has any ownership interest in, operates, or exercises control over real property where a hazardous substance has come to be located solely as a result of migration of</u>

the hazardous substance to the real property through the groundwater from a source off the property, provided:

(A) The person can demonstrate that the hazardous substance has not been used, placed, managed or otherwise handled on the property in a manner likely to cause or contribute to a release of the hazardous substance that has migrated onto the property.

(B) Such person has not caused or contributed to the release of the hazardous substance

(C) Such person does not engage in activities that damage or interfere with the operation of remedial actions installed on the person's property, or engage in activities that result in exposure of humans or the environment to the contaminated groundwater that has migrated onto the property.

(D) If requested, such person allows the department, potentially liable persons who are subject to an order, agreed order, or consent decree, and the authorized employees, agents, or contractors of each, access to the property to conduct remedial actions required by the department. The person may attempt to negotiate an access agreement prior to allowing access.

(E) Legal withdrawal of groundwater shall not disqualify a person from this exemption.

PRIORITY ISSUE #23: TRANSFERABILITY OF COVENANTS NOT TO SUE

Under RCW 70.105D.040(4), insert subparagraphs (e) and (f):

(e) If the state has entered into a consent decree with an owner or operator under this section, the state shall not enforce this chapter against any owner or operator who is a successor in interest to the settling party unless under the terms of the consent decree the state could enforce against the settling party, provided that:

(i) the successor owner or operator is liable with respect to the facility solely due to that person's ownership interest or operator status acquired as a successor in interest to the owner or operator with whom the state has entered into a consent decree; and

(ii) this stay of enforcement shall not apply where the consent decree was based on circumstances unique to the settling party that do not exist with regard to the successor in interest, such as financial hardship. For consent decrees entered into prior to the effective date of this subparagraph, at the request of a settling party or a potential successor owner or operator, the attorney general shall issue a written opinion on whether a consent decree contains such unique circumstances. For all other consent decrees, such unique circumstances shall be specified in the consent decree.

(f) Any person who is not subject to enforcement by the state under paragraph (e) of this subsection shall not be liable for claims for contribution regarding matters addressed in the settlement.

Amend RCW 70.105D.080:

Except as provided in RCW 70.105D.040(4)(d) and (f), a person may bring a private right of action, including a claim for contribution or for declaratory relief, against any other person liable under RCW 70.105D.040 for the recovery of remedial action costs. . .

ADDITIONAL ISSUE: RELEASE REPORTING

Amend RCW 70.105D.030(c) as follows:

(c) Provide for the following:

(i) Require the reporting by an owner or operator of releases of hazardous substances to the environment which may be a threat to human health or the environment within 90 days of discovery, including such exemptions from reporting as the department deems appropriate, provided that this requirement shall not modify any existing requirements provided for under other laws; and

Establish reasonable deadlines not to exceed ninety days for the Department to initiate an investigation of a hazardous waste site after the department receives such notice or otherwise receives information that the site may pose a threat to human health or the environment and other reasonable deadlines for remedying releases or threatened releases at the site;

ADDITIONAL ISSUE: TOXICS CONTROL ACCOUNT

The PAC recommends that the Legislature review the MTCA spending authorizations in RCW 70.105D.070. Specifically, RCW 70.105D.070(2) and (3) should be examined, prioritized, and funded proportionately to their relationship to the primary purposes of the MTCA cleanup program.

5.0 RECOMMENDATIONS TO ECOLOGY FOR RULEMAKING AND POLICY/GUIDANCE CHANGE

The PAC concluded that sufficient statutory authority exists in the Model Toxics Control Act for many of the PAC's recommendations, but changes to MTCA's implementing regulations will be required. In all cases, the PAC recognizes that the requirements of the Administrative Procedures Act (APA) will need to be followed for rulemaking. However, the PAC believes that its consensus process was enhanced by agreeing in some cases on specific suggested language for a new rule. Members fully recognize that the rulemaking process will proceed with broad public input, agency analysis, and legal review. They are confident, however, that the suggested language presented below will provide a solid, PAC-consensus starting point for the rulemaking process.

Recommendations on the priority issues that call for rulemaking or guidance include the following:

PRIORITY ISSUE #1: SITE-SPECIFIC RISK ASSESSMENT

Allow use of site-specific risk assessment in setting cleanup levels, remedial action levels, or in making remedial action decisions under MTCA with the limitations and requirements established by the PAC in the accompanying documentation. The following pages reflect PAC recommendations on revisions to MTCA sections -702 and-708. These sections specify the burden of proof/quality of information required for use of site-specific information in establishing cleanup levels and remediation levels, and the limitations on use of site-specific information. The memorandum dated December 10, 1996 from Pete Kmet, that follows, reflects PAC recommendations on land use considerations within the new requirements outlined in revised MTCA sections -702 and -708.

The PAC further recommends that the MTCA regulations be amended to:

- require that commercial sites use the MTCA residential exposure scenarios as the default scenarios, but allow them to establish cleanup and remediation levels through a site-specific risk assessment in accordance with WAC 173-340-708; and
- eliminate the commercial scenario and the requirement that commercial sites attain cleanup levels as close as practicable to residential cleanup levels; and
- for the types of sites noted below, Ecology shall, where appropriate, allow for the use of alternative exposure scenarios as provided for in WAC 173-340-708.

Also, it is the PAC's expectation that many types of commercial sites may, where appropriate, qualify for alternative exposure scenarios under 708(3) since contaminated soil at these sites is typically characterized by a cover of buildings, pavement, and landscaped areas. Examples of these types of sites include:

- commercial properties removed from a single family, duplex, or subdivided individual lots,
- private and public recreational facilities when access is physically controlled,
- urban residential sites (i.e., upper-story residential over lower-story commercial), and

offices, restaurants, and other facilities primarily devoted to support administrative functions of a commercial/industrial nature

Amend WAC 173-340-702 and -708 as follows:

WAC 173-340-702 General policies.

(1) Purpose. This section defines the policies and principles that the department shall utilize to ensure that cleanup standards, cleanup levels and remediation levels under this chapter are established and implemented in a scientifically and technically sound manner.

(2) Relationship to federal cleanup law . . .

(3) Regulation update . . .

(4) Institutional controls . . .

(5) Burden of proof . . .

(6) New scientific information . . .

(7) **Quality of Information**. (a) The intent of this subsection is to establish minimum criteria to be considered when evaluating information submitted to Ecology proposing to modify the methods or factors specified in this chapter or proposing methods or factors not specified in this chapter for calculating cleanup levels and remediation levels. This subsection does not establish a burden of proof or alter the burden of proof provided for elsewhere in this chapter.

(b) When deciding whether to approve modifications to the default methods or factors specified in this chapter for establishing cleanup levels and remediation levels or when deciding whether to approve alternative or additional methods or factors, the Department shall consider information submitted by all interested persons and the quality of that information. When evaluating the quality of the information the Department shall consider the following factors, as appropriate for the type of information submitted:

(i) Whether the information is based on a theory or technique that has wide spread acceptance within the relevant scientific community;

(ii) Whether the information was derived using standard testing methods or other widely accepted scientific methods;

(iii) Whether a review of relevant information both in support of and not in support of the proposed modification has been provided along with the rationale explaining the reasons for the proposed modification;

(iv) Whether the assumptions used in applying the information to the facility are valid and would assure the proposed modification would err on behalf of protection of human health and the environment;

(v) Whether the information adequately addresses populations that are more highly exposed than the population as a whole and are reasonably likely to be present at the site; and

(vi) Whether adequate quality assurance and quality control procedures have been used, any significant anomalies are adequately explained, the limitations of the information are identified, and the known or potential rate of error is acceptable.

The department shall prepare guidance, where appropriate, to facilitate implementation of this subsection.

WAC 173-340-708 Human health risk assessment procedures.

(1) Purpose. This section defines the risk assessment framework that the department will utilize to establish cleanup levels and remediation levels. As used in this section, cleanup levels and remediation levels means the human health risk assessment component of these levels.

This chapter defines certain default values and methods to be used in calculating cleanup levels and remediation levels. This section allows varying from these default values and methods under certain circumstances. When deciding whether to approve alternate values and methods the department shall ensure that the use of alternative values and methods will not significantly delay site cleanups.

(2) Selection of indicator hazardous substances . . .

(3) Reasonable maximum exposure. (a) Cleanup levels and remediation levels shall be based on estimates of current and future resource uses and reasonable maximum exposures expected to occur under both current and potential future site use conditions.

(b) The reasonable maximum exposure is defined as the highest exposure that is reasonably expected to occur at a site under current and potential future site use. WAC 173-340-720 through 173-340-760 define the reasonable maximum exposures for ground water, surface water, soil, and air. These reasonable maximum exposures will apply to most sites where individuals or groups of individuals are or could be exposed to hazardous substances. For example, the reasonable maximum exposure for most ground water is defined as exposure to hazardous substances in drinking water and other domestic uses.

(c) Persons performing cleanup actions under this chapter may utilize the evaluation criteria in WAC 173-340-720 through 173-340-760 to demonstrate that the reasonable maximum exposure scenarios specified in those sections are not appropriate for cleanup levels for a particular site. The use of an alternate exposure scenario shall be documented by the person performing the cleanup action. Documentation for the use of alternate exposure scenarios under this provision shall be based on the results of investigations performed in accordance with WAC 173-340-350.

(d) Persons performing cleanup actions under this chapter may also use alternate reasonable maximum exposure scenarios to assess the protectiveness of a remedy that uses engineered controls and/or institutional controls to limit exposure to the contamination remaining on the site. An alternate reasonable maximum exposure scenario shall reflect the highest exposure that is reasonably expected to occur under current and potential future site exposure considering, among other appropriate factors, the potential for institutional controls to fail and the extent of the time period of failure under these scenarios.

For example, if a cap (with appropriate institutional controls) is the proposed remedy at a commercial site, the reasonable maximum exposure scenario for assessing the protectiveness of the cap with regard to direct soil contact could be changed from a child living on the site to a construction or maintenance worker and child trespasser scenario.

~~(d)~~ (e) Individuals or groups of individuals may be exposed to hazardous substances through more than one exposure pathway. For example, a person may be exposed to hazardous substances from a site by drinking contaminated ground water, eating contaminated fish, and breathing contaminated air. At sites where the same individuals or groups of individuals are or could be consistently exposed through more than one pathway, the reasonable maximum exposure shall represent the total exposure through all of those pathways. At such sites, the cleanup levels and remediation levels derived for individual pathways under WAC 173-340-720 through 173-340-760 and WAC 173-340-360 shall be adjusted downward to take into account multiple exposure pathways.

(4) Cleanup levels and remediation levels for individual hazardous substances. Cleanup levels for individual hazardous substances will generally be based on a combination of requirements in applicable state and federal laws and risk assessment. Remediation levels will generally be based on a variety of factors described in WAC 173-340-360, including risk assessment considerations.

(5) Multiple hazardous substances.

(a) Cleanup levels for individual hazardous substances established under methods B and C and remediation levels shall be adjusted downward to take into account exposure to multiple hazardous substances. Adverse effects resulting from exposure to two or more hazardous substances with similar types of toxic response are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(b) Cancer risks resulting from exposure to two or more carcinogens are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(c) For purposes of establishing cleanup levels for noncarcinogens under methods B and C, and for remediation levels the health threats resulting from exposure to two or more hazardous substances with similar types of toxic response may be apportioned between those hazardous substances in any combination as long as the hazard index does not exceed one (1).

(d) For purposes of establishing cleanup levels for carcinogens under methods B and C, and for remediation levels, the cancer risks resulting from exposure to multiple hazardous substances may be apportioned between hazardous substances in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand.

(e) The department may require biological testing to assess the potential interactive effects associated with chemical mixtures.

(6) Multiple pathways of exposure.

(a) Estimated doses of individual hazardous substances resulting from more than one pathway of exposure are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(b) Cleanup levels and remediation levels based on one pathway of exposure shall be adjusted downward to take into account exposures from more than one exposure pathway. The number of exposure pathways considered at a given site shall be based on the reasonable maximum exposure scenario as defined in WAC 173-340-708(3).

(c) For purposes of establishing cleanup levels for noncarcinogens under methods B and C, and remediation levels, the health threats associated with exposure via multiple pathways may be apportioned between exposure pathways in any combination as long as the hazard index does not exceed one (1).

(d) For purposes of establishing cleanup levels for carcinogens under methods B and C, and for remediation levels, the cancer risks associated with exposure via multiple pathways may be apportioned between exposure pathways in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand.

(7) Reference doses.

(a) The chronic reference dose and the developmental reference dose shall be used to establish cleanup levels and remediation levels under this chapter. Cleanup levels and remediation levels shall be established using the value which results in the most protective concentration.

(b) Inhalation reference doses shall be used in WAC 173-340-750. Where the inhalation reference dose is reported as a concentration in air, that value shall be converted to a corresponding inhaled intake (mg/kg-day) using a human body weight of 70 kg and an inhalation rate of 20 m^3/day.

(c) A subchronic reference dose may be utilized to evaluate potential noncarcinogenic effects resulting from exposure to hazardous substances over short periods of time. This value may be used in place of the chronic reference dose where it can be demonstrated that a particular hazardous substance will degrade to negligible concentrations during the exposure period.

(d) For purposes of establishing cleanup levels and remediation levels for hazardous substances under this chapter, a reference dose established by the United States Environmental Protection Agency and available through the "integrated risk information system" ("IRIS") data base shall be used. If a reference dose is not available through the "IRIS" data base, a reference dose from the U.S. EPA "HEAST" data base shall be used.

(e) If a reference dose is available through the "IRIS" or "HEAST" data bases, it shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of this value is inappropriate.

~~(e)~~ (f) If a reference dose is not available through the "integrated risk information system" data base or the "HEAST" data base or is demonstrated to be inappropriate under ~~(d)~~ (e) of this subsection, a reference dose shall be established utilizing the methods described in Risk Assessment Guidance for Superfund. Human Health Evaluation Manual, Part A. (October 1989.)

~~(f)~~ (g) In estimating a reference dose for a hazardous substance under (e) or (f) of this subsection, the department shall consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

(g) Where a reference dose other than those established under (d) of this subsection is used to establish a cleanup level or remediation level at individual sites, the department shall summarize the scientific rationale for the use of those values in the cleanup action plan. The department shall

provide the opportunity for public review and comment on this value in accordance with the requirements of WAC 173-340-360 and 173-340-600.

(8) Carcinogenic potency factor.

(a) For purposes of establishing cleanup levels and remediation levels for hazardous substances under this chapter, a carcinogenic potency factor established by the United States Environmental Protection Agency and available through the "integrated risk information system" "IRIS" data base shall be used. If a cancer potency factor is not available from the "IRIS" data base, a cancer potency factor from the "HEAST" data base shall be used.

(b) If a cancer potency factor is available from the "IRIS" or "HEAST" data bases it shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of this value is inappropriate.

~~(b)~~ (c) If a carcinogenic potency factor is not available through the "integrated risk information system" database or the "HEAST" data base or is demonstrated to be inappropriate under ~~(a)~~ (b) of this subsection, one of the following methods shall be utilized to establish a carcinogenic potency factor:

(i) The carcinogenic potency factor may be derived from appropriate human epidemiology data on a case-by-case basis; or

(ii) The carcinogenic potency factor may be derived from animal bioassay data using the following procedures:

(A) All carcinogenesis bioassays shall be reviewed and data of appropriate quality shall be used for establishing the carcinogenic potency factor.

(B) The linearized multistage extrapolation model shall be utilized to estimate the slope of the dose-response curve unless the department determines that there is clear and convincing scientific data which demonstrates that the use of an alternate extrapolation model is more appropriate;

(C) All doses shall be adjusted to give an average daily dose over the study duration; and

(D) An interspecies scaling factor shall be used to take into account differences between animals and humans. This scaling factor shall be based on the assumption that milligrams per surface area is an equivalent dose between species unless the department determines there is clear and convincing scientific data which demonstrates that an alternate procedure is more appropriate. The slope of the dose response curve for the test species shall be multiplied by this scaling factor in order to obtain the carcinogenic potency factor, except where such scaling factors are incorporated into the extrapolation model under (B) of this subsection. Where adequate pharmacokinetic and metabolism studies are available, data from these studies may be utilized to adjust the interspecies scaling factor.

~~(c)~~ (d) In estimating a carcinogenic potency factor for a hazardous substance under ~~(b)~~ (c) of this subsection, the department shall consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

~~(d)~~ (e) Where a carcinogenic potency factor other than that established under (a) of this subsection is used to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of that value in the cleanup action plan. The department shall provide the opportunity for public review and comment on this value in accordance with the requirements of WAC 173-340-360 and 173-340-600.

(9) Bioconcentration factors.

(a) For purposes of establishing cleanup levels and remediation levels for a hazardous substance under WAC 173-340-730, a bioconcentration factor established by the United States Environmental Protection Agency and utilized to establish the ambient water quality criterion for that substance under section 304 of the Clean Water Act shall be used unless the department determines that there is ~~clear and convincing~~ adequate scientific data which demonstrates that the use of an alternate value is more appropriate for the conditions present at the site.

(b) When utilizing a bioconcentration factor other than that utilized to establish the ambient water quality criterion, the department ~~shall~~ may, as appropriate, consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

(c) Where a bioconcentration factor other than that established under (a) of this subsection is used to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of that factor in the draft cleanup action plan. The department shall provide the opportunity for public review and comment on the value in accordance with the requirements of WAC 173-340-360 and 173-340-600.

(10) Exposure parameters.

(a) As a matter of policy, the department has defined in WAC 173-340-720 through 760 ~~the~~ default values for exposure parameters to be used when establishing cleanup levels and remediation levels under this chapter. ~~With the exception of the parameters identified~~ Except as provided for in (b) and (c) of this subsection ~~or~~ and in WAC 173-340-720 through 760, these ~~parameters~~ default values shall not be ~~modified~~ changed for individual hazardous substances or sites. ~~in a manner which results in a less stringent cleanup level. The scientific and technical basis for these parameters shall be reviewed when updating this chapter under WAC 173-340-704(3).~~

~~(b) The department may approve the use of values other than those specified in WAC 173-340-720 through 173-340-760 where there is clear and convincing scientific data which demonstrates that one or more of the following parameters should be modified for an individual hazardous substance or site:~~

~~(i) Gastrointestinal absorption rate;~~

~~(ii) Inhalation correction factor;~~

~~(iii) Bioconcentration factor; or~~

~~(iv) Inhalation absorption rate.~~

(b) Exposure parameters that are primarily a function of the exposed population characteristics (such as body weight and lifetime) and those that are primarily a function of human behavior that cannot be controlled through an engineering or institutional control (such as: fish consumption rate; soil ingestion rate; drinking water ingestion rate; and, breathing rate) are not expected to vary on a site by site basis. The default values for these exposure parameters shall not be changed when calculating cleanup levels. For remediation levels the default values for these exposure parameters may only be changed when an alternate reasonable maximum exposure scenario is used, as provided for in WAC 173-340-708(3)(d), that reflects a different exposed population such as using an adult instead of a child exposure scenario. Other exposure parameters may be changed only as follows:

(i) For calculation of cleanup levels, the types of exposure parameters that may be changed are those that are: (A) Primarily a function of reliably measurable characteristics of the hazardous substance, soil, hydrologic or hydrogeologic conditions at the site and, (B) Are not dependent on the success of engineered controls or institutional controls for controlling exposure of persons to the hazardous substances at the site. The default values for these exposure parameters may be changed where there is adequate scientific data to demonstrate that use of an alternative or additional value would be more appropriate for the conditions present at the site.

Examples of exposure parameters for which the default values may be changed under this provision are as follows: contaminate leaching and transport variables* (such as the soil organic carbon content, aquifer permeability and soil sorption coefficient); inhalation correction factor; fish bioconcentration factor; soil gastrointestinal absorption rate; and, inhalation absorption percentage.

(ii) For calculation of remediation levels, in addition to the exposure parameters that may be changed under paragraph (b)(i) above, the types of exposure parameters that may be changed from the default values are those where a demonstration can be made that the proposed remedy uses engineered controls and/or institutional controls that can be successfully relied on, for the reasonably foreseeable future, to control contaminant mobility and/or exposure to the contamination remaining on the site.

In general, exposure parameters that may be changed under this subdivision are those that define the exposure frequency, exposure duration and exposure time. The default values for these exposure parameters may be changed where there is adequate scientific data to demonstrate that use of an alternative or additional value would be more appropriate for the conditions present at the site.

Examples of exposure parameters for which the default value changed under this provision are as follows: infiltration rate*; frequency of soil contact; duration of soil exposure; duration of drinking water exposure; duration of air exposure; drinking water fraction*; and, fish diet fraction.

*New terms to be added to MTCA equations.

(c) When the modifications provided for in (b) of this subsection result in significantly higher values for cleanup levels or remediation levels than would be calculated using the default values for exposure parameters, the risk from other potentially relevant pathways of exposure shall be ~~evaluated~~ **addressed under the procedures provided for in WAC 173-340-720 through 173-340-760.** For exposure pathways and parameters for which default values are not specified in this chapter the framework provided for by this subsection, along with the quality of information requirements in (WAC 173-340-702),shall be used to establish appropriate or additional assumptions for these parameters and pathways.

(d) Where the department approves the use of exposure parameters other than those established under WAC 173-340-720 through 173-340-760 to establish cleanup levels or remediation

levels at individual sites, the department shall summarize the scientific rationale for the use of those parameters in the cleanup action plan. The department shall provide the opportunity for public review and comment on those values in accordance with the requirements of WAC 173-340-360 and 173-340-600. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

DEPARTMENT OF ECOLOGY

December 10, 1996

TO: MTCA Policy Advisory Committee

FROM: Pete Kmet

SUBJECT: Proposal for addressing land use considerations under MTCA.

This memorandum describes the approach the MTCA PAC recommends for handling land use considerations under MTCA.

General

This memorandum addresses cleanup levels and remediation levels for soils. Other media cleanup levels and remediation levels such as for ground water, surface water and air are not a function of surface land use and are not addressed by this proposal.

This approach would require restructuring the MTCA regulations to provide tables & formulas for cleanup levels for soils for two types of land use: unrestricted land use (URSLA) & industrial. URSLA would be based on a single family residential use scenario and would keep Method A tables and method B formulas. Industrial land use levels would be based on a worker exposure scenario and would keep Method A (industrial) tables and method C formulas for industrial sites. Other pathways (dermal, dust, food, vapor) will need to be examined to determine if additional formulas and default assumptions should be added to the rule.

[NOTE: This memo refers to rulemaking here and at a number of places. The PAC has not reached a consensus that rulemaking will be required in all of these instances.]

Unrestricted land use would be the starting presumption at all sites except for sites qualifying as "industrial" under WAC 173-340-745. This approach would allow land use considerations to be

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Relevant portions of this land use memo have been incorporated in the PAC recommendation in site-specific risk assessment. The full memo itself does not represent a PAC recommendation.

used (along with other requirements) in establishing remediation (cleanup action) levels for soils at sites. Definitions and criteria may need to be added to the rules.

Acceptable Level of Risk

MTCA will continue to use a 1 in a million acceptable level of cancer risk for individual carcinogens and 1 in a 100,000 additive risk due to multiple carcinogens for child exposure or involuntary adult exposure scenarios. Where the exposure is for workers, MTCA would use a 1 in a 100,000 acceptable cancer risk for individual carcinogens and 1 in 100,000 for the additive risk for multiple carcinogens, as is currently used for industrial land uses.

MTCA will continue to use the same level of protection for noncarcinogens.
That is, for both adult and child exposure scenarios a hazard quotient 1.0 would be used for individual chemicals and a hazard index (HI) of 1.0 for multiple chemicals with similar health effects.

[NOTE: The PAC has not reached a consensus on the acceptable level of risk to be used at contaminated sites. Any discussion of risk here or elsewhere in this memo is not a consensus PAC recommendation.]

Evaluation of the Protectiveness of Caps

In all these land uses (except certain types of residential as noted below), where the cap is the selected remedy, the evaluation of whether the cap is protective of human health would need to be done.

This may include using a maintenance/construction adult worker exposure scenario plus, a child "trespasser" scenario during the time contaminated soil was exposed by maintenance/construction activities. The maintenance/construction worker scenario would use a worker acceptable level of risk, the trespasser scenario would use a child acceptable level of risk. The assumptions used in these exposure scenarios would likely be different for different land uses (such as a higher potential for child exposure in a park setting than a commercial property well removed from residential areas) and would need to consider nearby land uses (such as a higher potential for child exposure at a commercial site near residential areas vs. commercial properties well removed from residential areas).

Ecology would work with the SAB and appropriate stakeholders to develop exposure scenarios and assumptions for conducting evaluation of a cap. This would be adopted by rule.

Note that before a cap could be selected, it would also have to meet the other remedy selection criteria in WAC 173-340-360.

[NOTE: The PAC has not reached a consensus on how an evaluation of caps for protectiveness would be conducted. The discussion here is for illustrative purposes only.]

Childcare Facilities & Schools

Keep as is in WAC 173-340-740 (1)(d). i.e. handle the same as residential land use.

Residential Land Use

Keep essentially as is in WAC 173-340-740. That is:

Require the use of URSLA cleanup levels be applied to all residential areas.
Use the same level of risk.
Method A table
Method B equations with default assumptions that can be varied as per 708(10).

May need to add food exposure pathway to address residential gardens. If so, Ecology will work with the SAB and appropriate stakeholders to develop appropriate exposure scenarios and assumptions. These would be adopted by rule.

The evaluation of capping alternatives for residential areas will need careful evaluation. It is expected one could demonstrate remediation levels under a cap are protective for multifamily housing and mixed use situations if appropriate institutional controls are part of remedy. For single family, duplex or other situations where the land is subdivided into individual lots that the owner can alter, the use of capping alternatives would need more scrutiny, if not eliminated entirely as an option. Ecology will work with the SAB to examine this issue in more detail. Any specific requirements would be adopted by rule.

[NOTE: The PAC has not reviewed the method A table or assumptions used in the method B equations and the approach discussed above does not mean the PAC has reached consensus on the values in table A or assumptions in the method B equations.]

Industrial Land Use

Keep as is in WAC 173-340-745. That is:

- Allow for consideration of industrial land use in setting cleanup levels as well as remediation levels.
- Use same criteria for determining eligible sites.
- Use same level of risk and worker exposure scenario
- Method A table
- Method C equations with default assumptions that can be varied as per 708(10).

[NOTE: The PAC has not reviewed the method A industrial table or assumptions used in the method C equations and the approach discussed above does not mean the PAC has reached consensus on the values in table A or assumptions in the method C equations.]

Commercial Land Use

Eliminate commercial land use as an option for adjusting cleanup levels under WAC 173-340-740.

Allow consideration of commercial land use in setting remediation levels. This would start from the presumption for URSLA and allow modifications to the default exposure assumptions to reflect commercial land use in setting remediation levels as per new 708(10). A default set of exposure assumptions for setting remediation levels at commercial gasoline stations will be added to the rule.

Eliminate the "as close as practicable" requirement for remediation levels for commercial land uses.

Ecology would work with the SAB and appropriate stakeholders to develop exposure scenarios and assumptions at commercial properties. The exposure scenarios would need to consider the land use of the property itself as well as nearby land uses. These would be adopted by rule.

Recreational Land Use

Eliminate recreational land use as an option for adjusting cleanup levels under WAC 173-340-740.

Allow the consideration of recreational land use in setting remediation levels as follows:

- For uncontrolled access recreational lands i.e. parks and open space--start from the presumptions for URSLA and allow modifications to the default exposure assumptions as per 708(10).

- For private & public recreational facilities where access is controlled by fencing and payment of fees, i.e. golf courses, outdoors sports complexes, health clubs, shooting ranges, amusement parks, etc., start from the presumptions for URSLA and allow modifications to the default exposure assumptions as per new 708 (10). Because access is controlled the child trespasser exposure scenario could use less conservative assumptions than in an uncontrolled access facility.

Eliminate the commercial method C "cap" for cleanup levels and remediation levels for recreational land uses.

Ecology would consult with SAB and appropriate stakeholders to develop exposure scenarios and assumptions for recreational properties. These would need to consider the nature of the recreational facility (e.g. public vs. restricted access private; neighborhood vs. regional park). The exposure scenarios would need to consider the land use of the property itself as well as nearby land uses. These would be adopted by rule.

PRIORITY ISSUE #3: PETROLEUM CLEANUP

Long-Term Policy

The PAC will monitor, participate in, and expedite other efforts with the intention of supporting the outcome of the effort. The PAC will also examine the need for interim policies for TPH cleanups and may recommend appropriate actions to Ecology and the Legislature.

Interim Policy

Ecology should revise the TPH focus sheet to allow cleanup levels to be established using Method B (and Method C at appropriate sites), as provided under current MTCA regulations. Ecology should apply the surrogate approach similar to that developed by the National TPH Criteria Working Group to the petroleum mixture found at the site. Other approaches may also be needed to protect pathways or concerns which may not be addressed by the surrogate approach. The interim guidance shall address all appropriate pathways and receptors currently addressed under the MTCA rule. Ecology will submit a draft of the guidance to the PAC and other interested parties, to allow further review of the work done by the National TPH Criteria Working Group and Ecology (See Priority Issue #3 in Appendix C).

In addition, Ecology should evaluate the need to prepare guidance to assist in the determination under current rules as to whether (1) groundwater is a current or potential future source of drinking water, and (2) it is unlikely that a hazardous substance will be transported from contaminated groundwater to groundwater that is a current or potential future source of drinking water at concentrations which exceed groundwater quality criteria.

Commercial Default Retail Gasoline Station Scenario

In addition, the PAC recommends a new commercial retail gasoline station scenario for use when appropriate. The following is the recommendation as agreed to by the PAC:

Amend regulations to:

1. define a default exposure scenario for commercial retail gasoline station remediation levels, applicable to direct contact with soil, which shall apply to commercial retail gasoline stations in lieu of WAC 173-340-740(1)(c) (See Priority Issue #3 in Appendix C for specifics on default exposure scenario); address other pathways, as appropriate, in consultation with existing groups; and allow commercial retail gasoline stations to establish cleanup levels through a site-specific risk assessment in accordance with WAC 173-340-708; and
2. apply land use restrictions and any other appropriate institutional and/or engineering controls to any property cleaned to remediation levels based on the default exposure scenario for commercial retail gasoline stations to prevent uses that could result in a higher level of exposure.

PRIORITY ISSUE #4: ECOLOGICALLY-BASED CLEANUP STANDARDS

1. Recommend that the flowchart and the guidance be used as templates for finalizing guidance and initiating rulemaking addressing protection of ecological receptors. The PAC would not adopt the flowchart and the guidance word-for-word, as they are works in progress and are subject to refinement during the process of finalizing guidance/rulemaking, but the PAC expects that the flowchart and the guidance will substantially conform to the structure that has been developed to date and will be further refined through further work.
2. Recommend a process to finalize the flowchart and the guidance (for purposes of addressing (at least) the 13 issues listed in the issue template in Appendix C), and testing its practicability and readiness to support rulemaking. Include the following:
   a. Ecology finish the draft flowchart and guidance.
   b. Provide for SAB technical review of the flowchart and guidance, as well as the issues listed above.
   c. Ecology circulate the proposed final flowchart and guidance to PAC members and other interested persons for review and comment.
   d. Ecology circulate the proposed final flowchart and guidance to eco-risk workgroup members and other interested persons for review and comment.
3. Recommend that Ecology conduct a pilot project to test the "final" flowchart and guidance to assess their ease of use, practicability, economic impact and comprehensiveness, and to identify recommended revisions. As part of the pilot, Ecology should prepare a report of the pilot's results and agency recommendations. The pilot project should involve a review by a voluntary group that includes, to the extent possible, a cross-section of the persons/entities potentially subject to the ecological risk assessment process, including at least 10 small businesses, 3 large businesses, public and private entities, and urban and rural/agricultural locations. The pilot should also include at least 5 persons/entities conducting an independent remedial action. Ecology shall also test the tiered eco-risk approach as appropriate to supplement the pilot project. Funding must be made available for completing this pilot project.
4. Recommend rulemaking, as follows:
   a. Rulemaking supplemented by a pilot project as described in Option 3.
   b. Rulemaking which considers and addresses whether, and/or to what extent, the tiered eco-risk system should apply:
      (1) to independent remedial actions;
      (2) to previously completed remedial actions.
5. Recommend process schedules, as follows:
   a. Ecology/SAB finalize draft guidance and flowchart
      (2) by the end of April 1997.
   b. Ecology circulate (under option 2c and 2d above) draft guidance and flowchart for 30-day comment once draft is final.
   c. Ecology finalize guidance and flowchart for pilot or rulemaking within 30 days after comment period ends.
   d. Ecology conducts and completes pilot project (in conjunction with pilot rules), including preparation of a report of results and recommendations for public review and comment, within one year after the draft guidance and flowchart are finalized.

e. Ecology initiates rulemaking, as provided in RCW 34.05, Part III (Rule-Making Procedures):
   (1) Ecology must not:
      (A) Close the public comment period for proposed rules until at least 60 days after the completion of the pilot, including publication for comment of the final agency report on the pilot.
      (B) Finalize any analysis under RCW 34.05.328 regarding cost-benefit or burden imposed by the proposed rule, or regarding alternatives until after completion of the pilot.

6. Recommend a periodic review period for rules adopted to incorporate the tiered eco-risk system into the MTCA regulations. The review would be to assure timely modifications to improve the original process.
   a. Ecology conduct internal review and solicit public comment to review rules every two years.

Note: This applies only to soil media, and does not apply to sediments, air, groundwater or surface water.

PRIORITY ISSUE #5: REMEDY PERMANENCE, FUTURE LAND USE, WASTE MANAGEMENT HIERARCHY, LONG-TERM EFFECTIVENESS, GROUNDWATER CONTAMINATION, REMEDY COST

It was recommended that a conceptual framework for Section 360 rule changes be developed, reviewed, and approved by the PAC. Some guidance may also be needed. Ecology will then rewrite the rule (consistent with the framework) in accordance with the legal requirements for rule making. The framework describes changes in WAC 173-340-360, i.e., role of the hierarchy, steps in the remedy selection process and the test for comparing costs and benefits.

The language in the framework is not intended as specific regulatory language, although the PAC may recommend specific rule language or key provisions. Nor is the intent necessarily to eliminate language in the existing rule section simply because it is not described in the framework.

In addition, the use of quantitative risk assessment will now be allowed in the remedy selection process with the constraints described in WAC 173-340-700 through 760. While "risk assessment" has been used in the past in the remedy selection process, it has been a qualitative assessment or evaluation of the human health risks or potential risks at the site. This issue is also addressed in the framework.

Revised Remedy Selection Framework

A cleanup level means the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure assumptions. This level is determined by Methods A, B, or C. Cleanup levels are initially identified early in the remedy selection process - generally before or at the same time as the initial remedial investigation activities. These levels are compared to the concentration of

hazardous substances at the site. If site concentrations levels do not exceed the cleanup levels, there is no need for further action at the site. Otherwise, it is necessary to evaluate and select a cleanup action.

A remediation level is a concentration of a hazardous substance that, in conjunction with a given action or set of remedial actions, is protective of human health and the environment. Remediation levels can further be differentiated as treatment levels, capping levels, excavation/disposal levels, etc.

Risk Assessment in Remedy Selection

Risk assessment may be used in the remedy selection process. The primary purpose of a risk assessment used in remedy selection is helping to evaluate cleanup alternatives at the site by: 1) documenting the magnitude of the risk remaining, if any, after the implementation of actions that must be taken in conjunction with the remediation levels, and 2) documenting the magnitude of risk, if any, created by implementation of remedial actions.

This assessment may be quantitative or qualitative and the scope of the assessment should be commensurate with the information needed to make remedy decisions at the site. This assessment could include but is not necessarily limited to: calculation of concentrations from the Method B or C equations with parameters altered as defined in the proposed WAC 173-340-702 and 708, and calculation of the risk to ground water using methods established for evaluating the soil-to-ground water pathway.

The results of the risk assessment are considered during the evaluation of alternative cleanup actions and are one way that remediation levels may be established. The risk assessment will provide information that is particularly relevant in evaluating protectiveness, long term effectiveness, short-term risks and permanence to the maximum extent practicable. A residual risk of 10E-5 (for voluntary adult worker); 10E-6 (for residential) and a HI less than 1.0 are used to define protectiveness of long-term human health.

Hierarchy

The hierarchy of treatment technologies will be removed as a stand-alone criteria for remedy selection. It will be used as a guide to long term effectiveness of various alternatives and as a list of remedial options to evaluate, as appropriate, at the site.

- Reuse or recycling
- Destruction or detoxification
- Immobilization or solidification
- On-site or off-site disposal in an engineered, lined and monitored facility
- On-site containment
- Institutional controls

Criteria

The criteria for selecting a remedy are:

- Protectiveness of human health and the environment.
- Permanence.
- Cost.
- Effectiveness over the long term.
- Management of short term risks.
- Technical and administrative implementability.
- Consideration of public concerns.

These criteria should be defined in Section 360. In particular, cost should be defined to include: the actual cost of construction and the net present value of any long term costs; including any operation and maintenance costs, monitoring costs, equipment replacement costs, and agency costs which are cost-recoverable.

Analysis of Alternatives

Only reasonable remedial alternatives should be analyzed in the feasibility study. In conducting an evaluation of alternative cleanup actions, a phased or iterative approach may be needed. The goal is to eliminate options clearly unsuitable for the site without excessive study. These alternatives are combinations of technologies or methods taken from the list given above (i.e. the former hierarchy) and shall include:

1) a permanent remedy. This will not be required for landfills or other sites where a model remedy exists, a permanent remedy is not technically possible, or the costs are so clearly disproportionate that a more detailed analyses is not necessary. The permanent remedy shall be the baseline against which the other alternatives shall be evaluated for the purpose of determining whether the remedy is permanent to the maximum extent practicable.

2) Other reasonable alternatives for the site.

These alternatives shall be analyzed for each of the remedy selection criteria.

Permanent to the Maximum Extent Practicable

The preference for permanence shall be effectuate by comparing the costs and benefits of different alternatives or remediation methods. The test for selecting a remedy shall be a "disproportionate cost" test. In other words, the cost of an alternative (or remediation method) is disproportionate if the incremental cost of the alternative (or method) over that of a lower cost alternative (or method) exceeds the incremental degree of benefits achieved by the alternative (or method) over that of the lower cost alternative (or method). The cost and benefits to be compared are all of those defined in the remedy selection criteria above.

Language will be added to Section 360 to clarify the understanding that these costs and benefits will frequently be non-quantitative, and that the comparison of the costs and benefits will often involve best professional judgment. In particular, the benefits of a remedial alternative are often difficult to quantify and, thus, Ecology should have discretion to favor or disfavor those qualitative benefits and use that information in selecting a remedy.

The meaning of the work "substantial" as originally defined in the rule is subsumed in the work "disproportionate". However, if Ecology and the PLP agree that the incremental costs of a more permanent remedy are not substantial, a disproportionate cost analyses is not mandatory and the more permanent remedy may be selected.

Changes made to the role of the hierarchy and to the phrase "substantial and disproportionate" are not meant to change the statutory requirement for "permanent to the maximum extent practicable".

Where two or more remedial alternatives are equal in benefits, Ecology must select the alternative that costs the least. The cost and benefits to be compared are all of the those defined in the remedy selection criteria above.

Process

Steps* in the remedy selection process are:

- Conduct the remedial investigation
- Identify cleanup levels
- Compare site concentrations to cleanup levels
- Conduct an interim action if necessary
- Use a model remedy if appropriate
- Identify cleanup technologies and approaches using list
- Define cleanup action alternatives (combinations of technologies and approaches)
- Determine remediation levels
- Evaluate cleanup action alternatives using criteria above
- Identify proposed cleanup action
- Categorize site
- Issue cleanup action plan (CAP)
- Implement CAP

* May occur at differing points in the process.

Institutional Controls (Also see revised in 708(3)(d) in Priority Issue #1 Section 5.0 and Appendix C)

Section 360 and 440 should be clarified to ensure that institutional controls are judged by the same remedy selection standards, including protectiveness and long-term effectiveness, as are used to judge other cleanup actions. Ecology should continue its effort to compile information on institutional controls. Ecology should evaluate the effectiveness of institutional controls used to date and issue guidance to improve them, if necessary. Possible ways to improve the long-term effectiveness of institutional controls include: better record keeping by Ecology, verification of recording of deed restrictions, and use of financial assurance mechanisms.

The PAC recommends that statutory and regulatory language be adjusted to strengthen institutional controls where they are appropriately used. The following specific improvements to the system for managing institutional controls are suggested:

1. Ecology should maintain a list of sites which are subject to institutional controls.
2. Ecology should assure regular (five-year) reviews of compliance with institutional control requirements for sites which are subject to those requirements.
3. As provided in the current MTCA regulations, Ecology should, where appropriate, mandate financial assurance mechanisms be put in place for sites which are subject to engineering controls and institutional controls. It is presumed that financial assurance mechanisms will be required unless the PLP can demonstrate that sufficient financial resources are available and in place to provide for the long-term effectiveness of engineering and institutional controls adopted. Site decision documents should contain concrete proof that sufficient financial assurances have been provided. The RCRA program provides an excellent model for the shape and design of those financial assurance requirements.
4. The institutional controls should demonstrably reduce risks at the site to ensure a protective remedy. PLPs should be required to demonstrate the effectiveness of the institutional controls applied to the site. This demonstration should be based on a quantitative, scientific analysis where appropriate.
5. Institutional controls should provide for both short-term and long-term protection at the site, as appropriate for the remedy selected.
6. Ecology should ensure that in the event that institutional controls are no longer effective, or the site is altered or developed in a way which is inconsistent with applicable institutional control requirements or so as to render institutional controls unlikely to be effective, the PLP remains responsible for conducting a reassessment of the site's residual risk and, if necessary, appropriate additional remediation activities.
7. Ecology, in consultation with interested parties, should make other conforming changes to Ecology's regulations to assure that the changes in the regulations occasioned by the approval of site-specific risk assessment changes are coordinated with the institutional controls and regulations.

Point of Compliance

The regulations and Ecology practice should be clarified so that when groundwater discharges to surface water, a monitoring well for compliance measurement may be located upland of the groundwater/surface water interface, as close as technically practicable to the point or points where the groundwater flows into the surface water. These revisions should also allow an estimate of the dilution that occurs between the upland monitoring well and the point of discharge to surface water to be used to calculate the cleanup level at the point of compliance. Because estimating the dilution that may occur between an upland monitoring well and nearby surface water may be difficult, Ecology should consult with affected stakeholders in identifying appropriate procedures. Ecology should also consult with affected stakeholders in developing regulatory language and guidance.

The regulations should be revised so that when groundwater containing contamination from a single property discharges into surface water after flowing under property not owned by the PLP, if the PLP obtains agreement to do so from down-gradient property owners and appropriate institutional controls are implemented, a conditional point of compliance may be established as provided for in (a) above. Furthermore, Ecology should work with the Department of Natural Resources to establish an appropriate policy that adequately protects the land they manage.

Ecology should amend WAC 173-340-720(6) to allow the approval of final cleanup actions at "areawide brownfield" sites with commingled plumes where the groundwater cannot practicably be remediated to meet cleanup levels at the property boundary. These cleanups must still meet all other requirements of MTCA, including the remedy selection requirements of Section 360. They must also include appropriate institutional controls, such as deed restrictions or land use overlays, to ensure that human health and the environment are not threatened by the contamination that is allowed to remain.

When amending the regulation, Ecology should adopt criteria for determining which sites will be considered to be "areawide brownfields" sites for purposes of this provision. The PAC recommends that the criteria should apply to those sites with multiple property owners, multiple sources of groundwater contamination, or a combination of the two, which make it impracticable to meet a point of compliance at each property boundary. For example, the criteria should be designed to cover appropriate portions of the Duwamish industrial area in Seattle and the Yakima Railroad Area.

Sites which do not qualify as "areawide brownfields" sites should continue to be subject to the current requirements of WAC 173-340-720(6). Where Ecology determines that no remedy meeting these requirements is practicable under Section 360, then Ecology should continue its current practice of approving interim cleanup actions.

The PAC also recommends that Ecology delete WAC 173-340-720(b)(d)(ii), and prepare guidance, or rules if necessary, to clarify when treatment to the maximum extent practicable as determined through the WAC 173-340-360 process meets the AKART requirement to the extent it applies to contaminated sites as an ARAR under WAC 173-340-710. The PAC recommends that Ecology

seek to limit, to the extent allowed by law, the instances when an AKART analysis must be conducted in addition to the remedy selection analyses required by WAC 173-340-360.

PRIORITY ISSUE #7: CLEANUP ACTION LEVELS

At many sites, the cleanup action will be designed to achieve the "cleanup levels" applicable to the hazardous substances present at the site. However, it is also possible to use the requirements of this section to select a remedy that leaves hazardous substances at the site in concentrations above the cleanup levels. Such a remedy will be implemented by developing site-specific "cleanup action levels" (remediation levels) for the hazardous substances at the site. A cleanup action is considered to be protective of human health and the environment even though it may leave hazardous substances at the site in concentrations above cleanup levels, so long as it complies with the other requirements of this section.

Ecology should prepare amendments to Sections 360, 120, and 200, and perhaps other sections of the regulations, to authorize and explain the use of "cleanup action (remediation) levels." At a minimum, the amendment should authorize the use of remediation levels to implement remedy selection. Preferably, the amendment should explain better how remediation levels are established. The application of remediation levels and their relationship to point of compliance (however defined), as well as what it means to achieve remediation levels or cleanup levels, will be addressed later by the PAC. [See recommended framework for Section 360 for language change to "remediation levels," Priority Issue #5.]

PRIORITY ISSUE #9: AREA-WIDE CONTAMINATION/BROWNFIELDS

Areawide Contamination/Brownfields

In addition to recommendations agreed to by the PAC concerning transferability of covenants not to sue, a plume clause, the rewriting of Rule 360, and site-specific technical assistance, the following additional changes are recommended:

1. The remedy selection provisions of WAC 173-360 should be revised to include language to allow the Department to identify or develop model remedies for common categories of facilities, types of contamination, types of media and geographic areas.
2. Ecology and the Attorney General's office should undertake a study of prior settlements, including but not limited to the Thea Foss settlement, to identify options for addressing area-wide cleanups involving multiple land owners. Ecology should undertake appropriate outreach and education initiatives to better inform PLPs and local governments regarding mechanisms for addressing areawide cleanups.
3. Ecology should undertake rulemaking to revise WAC 173-340-720(6)(c) (which currently limits conditional groundwater points of compliance to property boundaries), for the purpose of facilitating areawide cleanups which may be complicated by current provisions (e.g., groundwater contamination involving overlapping plumes and multiple properties). (See Priority Issue #5 for point of compliance discussion).

4. Ecology and the Attorney General's office should analyze the need for rulemaking, guidance, and outreach to address whether local toxics fund monies may be utilized by a local government to perform an areawide cleanup or RI/FS. The analysis should include mechanisms for allowing participation by potentially liable parties, and PLP contribution of funds to partially reimburse grant expenditures. Additionally, community-based redevelopment projects led by local governments using local toxics account grant monies should develop public participation goals that include taking into account sustainable economic development and environmental justice, as appropriate.

Orchard Lands

The PAC recommends that a combination of the options below be put in place. Resources for these options should be sought from a variety of sources. Ecology is not a research arm of state government and does not have staff in place to conduct bioavailability studies. However, if resources become available, Ecology, Health, and Agriculture should participate in locally driven efforts to both scope and conduct these studies. Ecology and Health will convene a work group consisting of local stakeholders to develop approaches to Options 1, 4, 5 and 7.

Ecology should take the lead in:

I. providing technical assistance to persons requesting such help (Option 2)
II. outreach activities (Option 7)
III. evaluation of new scientific information if it becomes available (Option 5)
IV. adoption of developed BMPs and presumptive remedies, as appropriate (Option 6)

The Washington Department of Agriculture and/or the WSU Tree Fruit Research Center should take the lead in development of soil amendments and other economic farming practices (Option 4).

1. Maintaining the status quo will do nothing to protect human health and the environment when contaminated orchard property is converted to residential use, nor does it address potential risks to owners of property already converted to residential use. Similarly, a status quo approach does not address the uncertainty issues surrounding property transfer.
2. The true extent of contamination in central Washington has only been estimated. It may be that many of the orchard lands are only mildly contaminated, if they are contaminated at all. The issue should be framed on the basis of fact rather than conjecture. The first step should include a summary of existing data, an assessment of the data gaps, and a sampling plan if appropriate. The potential areas to be sampled should be determined in consultation with the local communities (landowners, local government, developers, lenders, buyers) and should include current residential properties located on former orchard lands. The data would be used to evaluate the reasonableness of available remedies, and could focus future agency work in areas where exposure is likely to be highest. It is anticipated that this work will be funded and carried out by local interests with technical assistance from Health and Ecology.
3. The MTCA PAC has already endorsed the concept of allowing Ecology to provide site-specific technical assistance to persons conducting independent cleanup actions. This approach will be effective in protecting human health and the environment and reducing uncertainty, but would only do so on a case by case basis.
4. Summarize available information on lead and arsenic bioavailability from soils and identify data gaps. Develop appropriate methods for testing lead and arsenic bioavailability, with particular attention given to soil types found in orchards in central Washington. This task

should be developed in conjunction with appropriate local entities and should include development of all potential funding sources (i.e. WA Dept. of Agriculture, WSU extension, EPA, Washington Horticultural Association, US Dept. of Agriculture).

5. If the bioavailability studies indicate that soil amendments or other farming practices can significantly reduce future site risks, Ecology and Health will work with Department of Agriculture, the WSU-extension and other appropriate local entities to provide this information to affected orchardists.
6. Using information developed by outside sources, Ecology may reevaluate the technical basis for Method A and Method B cleanup levels for lead and arsenic. The standard for such evaluations will be consistent with the PAC recommendations for introduction of new scientific information.
7. Best Management Practices (BMPs) and presumptive remedies can be developed for lead-arsenate contaminated soils to provide guidance to persons conducting cleanups. The scope of this effort will be affected by the extent of contamination actually found. If there are few high-risk sites, but many acres of low-risk sites, the BMPs and presumptive remedies will be much different than if the opposite is found to be true.
8. Educational materials should be developed in conjunction with appropriate local entities (e.g. Local Health Dept., Central Regional Citizens Advisory Committee, Horticultural Association, etc.) that describe state and local resources available to interested parties. They should also describe cleanup expectations and liabilities. Supplemental information from any of the above efforts should also be included as it becomes fully developed.
9. Health effects studies were discussed but are not considered appropriate at this time because they generally require very intensive data collection and evaluation and may require significant resources. In addition, these studies may not provide data which will be useful in reducing risk or liability. After the extent of contamination and bioavailability work have been completed, exposure studies may become appropriate.

PRIORITY ISSUE #10: ENHANCED TECHNICAL ASSISTANCE

Funding for Enhanced Technical Assistance

Direct Ecology to review alternative mechanisms for paying for technical assistance, and if appropriate, to develop rules and/or guidance establishing fees for technical assistance for independent cleanups. As far as practicable, the mechanism should accomplish the following:

- generally make fees proportional to staff time spent on technical assistance
- recognize a concept of de minimis services for which no charges would be made (The expectation is that the current level of free technical assistance would continue to be provided.)
- integrate enhanced technical assistance and IRAP programs in a logical fashion, for example, avoiding double charging for the same services, and avoiding creating inappropriate disincentives. As part of the integration, Ecology should consider revising the IRAP fee structure to correlate to staff time expended rather than the cost of the remediation.
- establish factors that Ecology may consider if a waiver is requested, and procedures for handling such requests. The Department shall, where appropriate, waive collection of costs

in order to provide an appropriate level of technical assistance in support of public participation. The Department shall also recognize a preference for providing free assistance to small entities, with consideration of their ability to pay.

PRIORITY ISSUE #13: INDEPENDENT CLEANUP AUDITS/QUALITY CONTROL

Direct Ecology to develop a program for review of all ranked sites for which a final independent cleanup report was submitted after the Site Hazard Assessment had been performed. Such review should be conducted as expeditiously as possible, with priority given to higher ranked sites. The review will evaluate whether those sites can be removed from the hazardous sites list as required in WAC 173-340 - 330(4) or whether further action is required. Ecology shall conduct a review of the SHA and site investigation procedures, to ensure that both delegated counties and Ecology are properly reviewing the adequacy of independent cleanups. The Legislature and/or Ecology shall make funding available to implement this recommendation.

PRIORITY ISSUE #15: NEUTRAL APPEAL/DISPUTE RESOLUTION

The following tools should be used as appropriate for avoiding or resolving disputes that arise at any point during the cleanup process:

1. Clarify expectations between Ecology and PLP (and other interested persons) at the time a PLP is named, and prior to beginning any negotiation process. This includes providing every PLP and any interested party information about all of the channels available to them for resolving issues, concerns, and disputes about site cleanup. (Tell them plainly that disputes will arise, and here are the ways to handle them. Include specific information about the informal dispute resolution process.)
2. Match skills and knowledge of site manager to the site, consideration should be given to such items as: The type of site (landfill, LUST, wood treat facility, etc.), complexity of the site, and whether the PLP has multiple sites throughout region or state. Designate a mentor for inexperienced site managers.
3. Establish a peer review team, as appropriate, to provide feedback to the site manager. This may include intra-and inter-office staff. It should always include the section supervisor.
4. Publish guidance documents on topics such as disproportionate costs and remedy selection. Provide these guidance documents to the PLPs and other interested parties.
5. Train site managers on technical, project management, dispute resolution and other related topics.
6. Host an annual workshop for the purpose of educating PLPs, consultants, lending institutions, and others regarding implementation of the MTCA and any new developments in the technical area of site cleanup activities. Also provide an opportunity for general comments about MTCA budget, technical or policy issues.
7. Provide access to information related to cleanup action plans and site remediation designs.
8. Develop an informal dispute resolution process which can be initiated at any time by PLP or Ecology to resolve disputes in a timely manner. Parties may include the site manager's peer review team, other agency experts, the section supervisor and/or the TCP program manager. Informal appeals may be elevated at any time to successive levels of Ecology management

beginning with the unit supervisor, section manager and then program manager, if necessary. Public access to the informal appeal process could occur during the public comment process, and could include a request to elevate the dispute within the Department. Informal dispute resolution process may also involve a neutral third party mutually agreed upon by all parties.

After a two-year time period, Ecology shall conduct a formal review of the foregoing measures, with input and participation from PLPs, the public, and interested persons. Part of that review shall include consideration of additional or alternative measures.

PRIORITY ISSUE #21: PUBLIC PARTICIPATION AND COMMUNITY INVOLVEMENT

1. Clarify the restriction on conflict of interest regarding applicant eligibility through regulatory modification (including specific language);
2. Change the Regional Citizens' Advisory Committees' charter in WAC 173-340-610 to read "Advise Ecology of community concerns about the Cleanup Program's activities and develop proposals for addressing these concerns. Committees may use site-specific issues as a foundation for understanding regional issues."
3. Reaffirm the priority allocation for substance release grants relative to waste management grants, designating 50% of the full 1% allocation each to substance release grants and waste management grants;
4. Ecology shall form an advisory team to review and develop recommendations for improving the grant application form and other aspects of the grant selection process including consideration of a method for allowing emergency grant monies to be made available during the year for emergency situations at substance release sites. This team will be comprised of appropriate agency staff and 2-4 past grant recipients or applicants, an RCAC member (if possible), and other interested individuals.
5. Authorize Ecology to provide for emergency grants which will be limited to no more than one per year and would be applied toward the annual maximum award;
6. Develop a three-year pilot ombudsperson approach to providing technical assistance for sites using a "new MTCA" approach. This position (either staff or contractor) will be housed at Ecology, with Ecology having fiduciary responsibility. Funding mechanism may be the increase of the overhead rate allowed on cost recovery. Criteria for selection of the ombudsperson program will be developed by representatives from industry, citizens groups and Ecology. Proposals will be reviewed and selected by a committee comprised of citizens and Ecology representatives. A three-year review will be conducted by an advisory committee comprised of representatives from industry, citizens groups and Ecology;
7. Ecology will provide site-specific risk assessment training to public involvement staff.
8. Amend WAC 173-340-600(7) to read: Evaluation. As part of requiring or conducting a remedial action at any facility, the department shall evaluate public participation needs at the facility, including an identification of the potentially affected vicinity for the remedial action and, for sites where site-specific risk assessment is used, evaluate public interest in, significant public concerns regarding future site use, and values to be addressed with the public participation plan.

9. New WAC Subsection: The department shall determine if the variables proposed to be modified in a site-specific risk assessment or alternative reasonable maximum exposure scenario (RME) may affect the significant public concerns regarding future land uses and exposure scenarios. If the department finds that those concerns may be affected, then Ecology shall assure appropriate public involvement and comment opportunities will occur as identified in the public participation plan.
10. Amend WAC 173-340-310(4) to read: If the department determines that (a) an emergency remedial action is required; (b) or an interim action is required, then notification of the threat to the potentially affected vicinity may be required. The method and nature of notification and the individuals to be notified will be determined on a case-by-case basis by the department. Such notification will be the responsibility of the site owner or operator if required in writing by the department.

ADDITIONAL ISSUE: PROBABILISTIC RISK ASSESSMENT

The PAC recommends Ecology conduct a review of probabilistic risk assessment methods for possible future incorporation in MTCA. This review should be completed by December 31, 1997. In the interim, Ecology should allow the opportunity for probabilistic techniques to be used on an informational basis for evaluating alternative remedies at sites where PLPs are willing to pay for the additional oversight costs. Such probabilistic techniques should not be used to replace cleanup standards and remediation levels derived using deterministic methods until adequate technical protocols and policies have been derived, including appropriate revisions to the regulations.

ADDITIONAL ISSUE: GUIDANCE AND TRAINING FOR INTERESTED PERSONS AND PUBLIC

The PAC recommends that Ecology place an emphasis on the development of appropriate guidance, and on providing training and educational opportunities regarding MTCA procedural and technical requirements. In carrying out these activities, the PAC recommends that Ecology emphasize the following:

- Ecology should prepare policy/guidance material as soon as possible after the department identifies the emergence of new administrative or technical issues which are legally appropriate for clarification through those methods. (Nothing in this recommendation is intended to alter the rulemaking requirements of the Administrative Procedures Act.) These documents should be written to reach effectively the appropriate audience they are intended to reach. The quality and quantity of policy/guidance documents should be reviewed by Ecology on a periodic basis. At least twice yearly, Ecology should publish in the Site Register a comprehensive listing of all guidance or other documents which are relied upon by agency staff as precedential, including, where appropriate, such documents as internal agency memoranda, letters, and model documents. Ecology should also consider other appropriate means to inform interested persons about the availability of these publications, including providing them to libraries which serve as information repositories for site file information.

- Ecology should continue to place emphasis on training and educating potentially liable persons, and other interested persons, about the procedural and technical requirements of MTCA. This should include such activities as publishing policy and guidance documents; participation by Ecology staff in conferences on the subject of hazardous waste cleanup; sponsoring or co-sponsoring workshops and conferences; sponsoring an annual MTCA update meeting (see earlier PAC recommendation on dispute resolution); and meeting with business and trade associations.

ADDITIONAL ISSUE: CONTRIBUTION

The director of Ecology is encouraged to use reasonable and timely effort to identify potentially liable persons and determine their status as such. The PAC encourages Ecology to explore increased use of measures to resolve allocation matters early in the process.

6.0 WHAT ELSE IS NEEDED?

MTCA operates in a highly technical arena where scientific knowledge is not perfect and environmental protection is frequently a matter of debate. The MTCA PAC members have developed a good understanding of the critical interrelationship of various statutory and regulatory provisions. One seemingly minor alternation can have a profound effect on the cleanup program and adversely impact cleanup effectiveness. Members have endeavored to keep that reality before us as decisions were made.

In response to the Legislature's inquiry in Section 2(3) of ESHB 1810, the MTCA PAC does not recommend it formally continue in existence. However, members are committed to remain available to the Legislature and Ecology to assist in either implementing the MTCA PAC recommendations or responding to inquiries about our decisions. The PAC urges the Legislature and Ecology to avail themselves of this offer. MTCA and its regulations, guidance, policies, and implementation have historically reflected a delicate balance of the pertinent interest groups. The MTCA PAC, as a consensus-seeking body, is no different from that historical context. In fact, it even more clearly reflects a delicate balance by virtue of the intense effort and consistent high level of participation over 18 months. The members do not claim to have all the answers to making MTCA more effective, but do respectfully request that the group's efforts receive a presumption of well-developed, thoughtful, and comprehensive statutory and regulatory analysis and policy review.

Ecology has committed to implementation of these recommendations consistent with its rulemaking legal obligations, which include the opportunity for further public review. The PAC members look forward to working with Ecology and the legislature as they exercise their respective responsibilities in response to this final report.

APPENDIX A

ESHB 1810

CERTIFICATION OF ENROLLMENT

ENGROSSED SUBSTITUTE HOUSE BILL 1810

Chapter 359, Laws of 1995

54th Legislature
1995 Regular Session

MODEL TOXICS CONTROL ACT--CLEANUP STANDARDS

EFFECTIVE DATE: 7/23/95

Passed by the House April 20, 1995
Yeas 92 Nays 2

CLYDE BALLARD

Speaker of the
House of Representatives

Passed by the Senate April 14, 1995
Yeas 47 Nays 0

JOEL PRITCHARD

President of the Senate

Approved May 16, 1995

MIKE LOWRY

Governor of the State of Washington

CERTIFICATE

I, Timothy A. Martin, Chief Clerk of the House of Representatives of the State of Washington, do hereby certify that the attached is ENGROSSED SUBSTITUTE HOUSE BILL 1810 as passed by the House of Representatives and the Senate on the dates hereon set forth.

TIMOTHY A. MARTIN

Chief Clerk

FILED

May 16, 1995 - 11:09 a.m.

Secretary of State
State of Washington

ENGROSSED SUBSTITUTE HOUSE BILL 1810

AS AMENDED BY THE SENATE

Passed Legislature - 1995 Regular Session

State of Washington 54th Legislature 1995 Regular Session

By House Committee on Agriculture & Ecology (originally sponsored by Representatives Chandler, Honeyford, Thompson and L. Thomas)

Read first time 03/01/95.

AN ACT Relating to the authority of the state for cleanup standards under the model toxics control act; creating new sections; and providing an expiration date.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. Sec. 1. (1) The department of ecology shall establish a policy advisory committee to provide advice to the legislature and the department on administrative and legislative actions to more effectively implement the model toxics control act, chapter 70.105D RCW. The committee shall consist of the following members:

(a) Four legislative members selected as provided in subsection (2) of this section;

(b) Four representatives of citizen and environmental organizations;

(c) Four representatives of business, including two representatives of small business and two representatives of large business;

(d) One representative of counties;

(e) One representative of cities;

(f) One representative of ports;

(g) One member of the scientific advisory board created under RCW 70.105D.030(4);

(h) One representative of an environmental consulting firm engaged in the remediation of contaminated sites;

(i) Not more than three additional members selected by the department from recommendations provided by the committee; and

(j) The directors of the departments of ecology and health or their designees.

(2) The president of the senate and the speaker of the house of representatives may each appoint one member from each major caucus in the senate and the house of representatives, respectively, to serve as members of the committee.

(3) In making appointments under subsection (1) (b), (c), (d), (e), (f), (g), and (h) of this section, the department shall select from the lists of recommendations submitted by recognized regional or state-wide organizations representing the interests of that category.

(4) The initial meeting of the committee shall be scheduled no later than August 1, 1995. At the initial meeting the members shall select a presiding officer and adopt procedures for carrying out their duties under sections 2 and 3 of this act. In conducting its review the committee shall, wherever possible, operate on a consensus basis and, when consensus is not possible to achieve, the committee should encourage the development of recommendations that are broadly supported within the committee. Where consensus is not achieved, other views within the committee shall be included in any reports required by sections 2 and 3 this act.

(5) The committee may divide itself into subcommittees. The committee should seek input from people who are interested in its work and who will, in the committee's view, bring experience or technical or interdisciplinary insight to a thoughtful consideration of the issues before the committee.

(6) The department shall provide staffing and other assistance to the committee, including facilitators from within or outside of state government if requested. Such assistance shall include information in response to reasonable requests from the committee, provided that the information is not protected by attorney-client privilege.

(7) Legislative members of the committee shall be reimbursed for travel expenses as provided in RCW 44.04.120. If other members would not be able to participate in the committee's activities because o

travel expenses or other financial limitations on the ability to participate fully, the department shall certify the members as entitled to reimbursement for travel expenses as provided in RCW 43.03.050 and 43.03.060.

(8) At the initial meeting attended by a committee member, the member shall identify the nature of his or her interest in the outcome of matters before the committee. This information shall include the type of organization to which the member belongs and the general nature of the membership and/or business interest of that organization. Thereafter, a committee member shall disclose any potential conflicts of interest or bias that subsequently arise or of which the committee member subsequently becomes aware. A member shall refrain from participating in any matter that the member for any reason cannot act fairly, objectively, and in the public interest with regard to that matter.

NEW SECTION. Sec. 2. (1) The policy advisory committee shall review, provide advice, and develop recommendations on the following subjects, at a minimum:

(a) Clean-up standards and clean-up levels, including the use of site-specific risk assessment;

(b) Policies, rules, and procedures, including the use of cost, current and future land use, and other criteria in the selection of clean-up remedies;

(c) How the department carries out the clean-up program in practice, including training, and accountability for clean-up decisions and their implementation;

(d) Improving the clean-up process to provide additional incentives to potentially liable parties to fully and expeditiously fund cleanups;

(e) The need for adoption of and recommended levels for ecologically based clean-up standards; and

(f) A review of the effectiveness of independent cleanups.

(2) The committee shall begin meeting no later than August 1, 1995, to review the model toxics control act and its implementation to date. The committee is encouraged to submit recommendations on policies of state-wide or regional significance to the department at any point during its review. The committee shall submit a preliminary report not later than December 15, 1995, to the appropriate legislative committees, that identifies priority questions and issues that the

committee intends to address. The preliminary report shall identify the schedule and approach planned for analyzing these priority issues. The committee shall develop a procedure to allow other interested parties to propose additional questions and issues for review. Any questions and issues the committee chooses to address shall be of regional or state-wide significance. It is not the intent that this committee become engaged in site-specific clean-up decisions at pilot projects or any other sites.

(3) The committee shall submit a final report to the department and the appropriate legislative committees not later than December 15, 1996, on the priority issues it has identified for review. In addition to action recommendations, the final report may identify issues and priorities for further study, including a recommendation as to whether the committee should continue in existence.

(4) The department shall assist the committee's review under this section by preparing case studies of a variety of site cleanups involving differing contaminants, quantities of contaminants, media affected, populations exposed, present and future land and resource uses, and other factors. The committee shall seek input from the affected community, potentially liable persons involved in the cleanup and other participants in the clean-up process at the site and include this input in the information included on the case study. The case studies, along with the other information gathered in the review, shall be used by the committee to provide advice and develop recommendations on the questions and issues addressed by the committee.

NEW SECTION. Sec. 3. (1) Not later than October 1, 1995, the policy advisory committee shall select two pilot projects from a list of proposed pilot project sites provided by the department. The purpose of the pilot projects is to evaluate alternative methods for accomplishing faster, less-expensive, and an equally protective degree of cleanup at complex sites, within the framework provided by the model toxics control act and the rules adopted under the model toxics control act. Pilot projects shall comply with the model toxics control act and the rules adopted under the model toxics control act. Public participation in the clean-up process for these sites shall be as provided in such rules. In order to be eligible for a pilot project, a site shall be conducting remedial actions under an order, agreed order, or consent decree under the model toxics control act and there

shall not be significant opposition from the public potentially affected by the site. In addition, the following criteria shall be used by the department and the committee when recommending and selecting a site as a pilot project site:

(a) The presence of multiple parties at the site and the willingness of these persons to participate in a pilot project;

(b) The source of contamination at the site. Sites contaminated as a result of current or past industrial activities shall be given a preference over other sites;

(c) The stage of cleanup at the site. Sites that are in the process of preparing or for which there is recently completed a remedial investigation/feasibility study shall be given preference over other sites; and

(d) The degree of community support for selecting a site as a pilot project site. To determine the degree of community support, the department shall first consult with interested community and environmental groups. Thereafter, before proposing a site as a pilot project the department shall issue a public notice identifying the site and seeking public comment on the potential for the site to be a pilot project site.

(2) In the pilot projects the department shall include with the remedial investigation/feasibility study required under the model toxics control act any additional or alternative risk assessments or other analyses that potentially liable persons may wish to prepare at their expense for the purpose of exploration of improved methods to accomplish cleanup under the model toxics control act. The department shall provide technical assistance to identify an appropriate scope for such supplemental analyses, so that the analyses may prove useful in considering improvements to existing practices, policies, rules, and procedures. The department may establish a reasonable schedule for the preparation of any supplemental analyses. The preparation and evaluation of any supplemental analyses shall not result in a delay in remedial actions at the pilot sites. The analyses shall be included in the remedial investigation/feasibility study regardless of whether the department fully concurred in their scope. The department may simultaneously prepare or commission its own supplemental analyses at its own expense, as distinct from department-conducted or department-commissioned or contracted technical review of supplemental analyses

prepared by potentially liable persons, which shall remain subject to cost recovery under the model toxics control act.

(3) In consultation with the potentially liable persons and affected public for each site, the department's site managers shall to the fullest extent possible use the administrative principles set forth, for both the clean-up process and for clean-up standards, as well as other flexible tools available in the rules adopted under the model toxics control act.

(4) In order to avoid misunderstanding and promote constructive dialogue, the public participation plan for each site shall be designed or revised to educate and involve the public on the nature of the pilot project, the specific issues being explored at the site, and the purpose and scope of any alternative or supplemental analyses.

(5) The department shall prepare a report on each pilot project highlighting any policy issues raised as a result of the pilot project and providing a copy of the remedial investigation/feasibility study and any supplemental analyses and public comments received for each pilot project to the policy advisory committee. The report shall be submitted to the committee within ninety days after the comment period ends on the remedial investigation/feasibility study for that site. The department shall also keep the committee informed about decisions made regarding the pilot project sites and progress made in implementation of cleanup at these sites. The intent is for the committee to use the information acquired from the pilot projects to supplement other information used in developing policy recommendations under section 2 of this act. The department shall submit a status report to the policy advisory committee no later than March 31, 1996, including an estimated schedule for reporting on each pilot project.

(6) Nothing in this act shall be construed to prevent or limit the department from fully employing all procedures and standards available under the model toxics control act or the rules adopted to implement the model toxics control act with respect to any site, whether or not it is being considered as a possible pilot project under this section.

NEW SECTION. **Sec. 4.** If specific funding for the purposes of this act, referencing this act by bill number, is not provided by June 30, 1995, in the omnibus appropriations act, this act is null and void.

NEW SECTION. **Sec. 5.** This act shall expire January 15, 1997.

Passed the House April 20, 1995.
Passed the Senate April 14, 1995.
Approved by the Governor May 16, 1995.
Filed in Office of Secretary of State May 16, 1995.

APPENDIX B

SUBCOMMITTEE DESCRIPTIONS

SUMMARY: RISK ASSESSMENT SUBCOMMITTEE

Julie Wilson, GeoEngineers, Chair

The risk assessment subcommittee met 16 times between September 1995 and November 1996. Thirty-seven individual issues related to risk assessment and its use under the MTCA were identified by the PAC; four priority issues were identified for the subcommittee to evaluate first:

1) Should site-specific risk assessment be used to set cleanup levels and make remedial action decisions under the MTCA as compared with current practice?
2) Do allowable risk values in the MTCA cleanup regulations appropriately balance the public's desire for protecting individuals with the need for cleanups to proceed at a reasonable cost? Should the allowable risk values for carcinogens in the MTCA cleanup regulations be amended, for example, to match federal risk range values under CERCLA (the federal Superfund program) in the National Contingency Plan?
3) Should an alternative method for evaluating risk and establishing cleanup levels be identified under the MTCA for petroleum?
4) Is there a need for ecologically based cleanup standards (i.e., protection of plants and animals) in addition to cleanup standards based on protection of human health?

Relatively early in the PAC process, the risk assessment subcommittee recommended the PAC proceed to develop policy frameworks in support of issues 3 and 4. Broad support was voiced by the PAC to proceed in this manner. An ecological risk subgroup was convened to develop a draft framework for assessing ecological impacts from contaminated sites in response to issue 4. The framework has been presented to the PAC and is under review. With respect to issue 3, the PAC reached consensus in support of development of an alternative method for evaluating petroleum contamination. The PAC supports the long-term effort currently in progress with the Department of Ecology and the Duwamish Coalition TPH Policy Oversight Group in developing a comprehensive, statewide approach for evaluating petroleum contamination. The PAC also supports development of an interim approach that can be used until work on the comprehensive approach is complete. An interim TPH policy subgroup was convened to develop methods for this approach, which is in progress.

Significant background work was required for the subcommittee to evaluate and develop recommendations on issue 1. Hypothetical case study sites were developed, and cleanup levels for these sites were identified using methods currently allowed under MTCA and by using a site-specific risk assessment based approach. Evaluation of case study results allowed the subcommittee to explore factors that had the most significant impact on risk and cleanup level outcomes. Many of the other thirty-three issues identified by the PAC in the area of risk assessment are linked to the use of site-specific risk assessment methods. To reach informed resolution on issue 1, these "linked" issues were identified, and addressed individually in an effort to reduce issue 1 to component parts that could be more easily understood by the PAC. Addressing each of the linked issues individually, with the allowance for the PAC to develop qualified resolution statements to each issue contingent on the outcome of the entire package of issues, allowed the subcommittee to progressively move toward resolution of issue 1. The result was broad support by the PAC for expansion of use of site-specific risk assessment methods in

establishing cleanup levels and remedial action levels, with specific limitations on these methods outlined in rule language.

Neither consensus nor broad support was reached on issue 2. Given the time and resources required by the subcommittee to adequately address the other priority issues, issue 2 was not discussed at length within the subcommittee or PAC.

SUMMARY: REMEDY SELECTION SUBCOMMITTEE

Rod Brown, Washington Environmental Council, Chair

The Remedy Selection Subcommittee was established in late 1995 to study and make recommendations about the procedures and criteria for selecting remedies at MTCA sites. The Subcommittee included regular participation by approximately twenty PAC members and other interested parties. The Subcommittee focused on the following issues:

1. Better definition of cleanup levels and compliance with cleanup levels (WAC 173-340-200).
2. Definition of cleanup action level (WAC 173-340-200), and clarification in WAC 173-340-36- explaining the differences between cleanup levels and cleanup action levels.
3. Simplify the WAC 173-340-360 language on "permanence" (particularly the hierarchy, the two subsections on permanence, the discussion of containment, and the statement of expectations).
4. Integrate risk assessment and remedy selection. At a minimum, revise WAC 173-340-360 to state that risk assessment parameters which have too much uncertainty to be included in cleanup levels should be evaluated semi-quantitatively or qualitatively in remedy selection.
5. Recommend that Ecology finalize its "substantial and disproportionate" guidance. Clarify the role of cost in WAC 173-340-360.
6. Recommend strengthening the selection and implementation of institutional controls. At a minimum, require that institutional controls must meet the same tests of short-term and long-term effectiveness as any other cleanup action. The regulation or a guidance document could also provide more examples of "long-term monitoring" (other than just chemical sampling and analyses) and other institutional controls that are appropriate for long-term maintenance of sites where a minimal cleanup action was needed to prevent exposure.
7. Revise various portions of the regulations to make it easier to clean up "brownfield" sites (that is, wide areas of historic industrial contamination).

Broad consensus was reached on recommendations for each of these topics, and the recommendations were forwarded to the PAC for decision.

SUMMARY: INDEPENDENT CLEANUP SUBCOMMITTEE

Sharon Metcalf, City of Seattle, Chair

The Independent Cleanups Subcommittee was constituted in the fall of 1995 to develop issue statements and then recommendations on a cluster of priority issues relating to independent cleanups under MTCA. "Independent cleanups" is a term used for cleanups which are performed voluntarily, and without significant oversight by the Department of Ecology. In fact, the great majority of sites in the state of Washington are cleaned up independently, and the PAC early on set its focus on developing recommendations which would improve the quality and quantity of such cleanups.

PAC participating included representatives of both small and large businesses, and the environmental community. Ecology and Attorney General's Office representatives, environmental consultants, and citizen activists participated regularly as well. Meetings were held at least monthly from the fall of 1995 to the summer of 1996.

Enhanced technical assistance

It quickly became apparent that subcommittee members believed that increasing the amount of technical assistance which Ecology could provide in connection with independent cleanups was key to improving their quality. Ecology expressed its view that both resource constraints and lack of clear statutory authority were barriers. Accordingly, the subcommittee developed, and the PAC endorsed, a recommendation for a statutory amendment clarifying Ecology's authority to provide technical assistance and also authorizing the department to collect costs incurred in providing the assistance. The proposed amendment states clearly that such assistance is informal and non-binding, available to the affected public as well as to liable parties (with a potential fee waiver provision), and shall not subject the state to liability for acts or omissions in providing the assistance.

After further discussion, the subcommittee recommended, and the PAC endorsed, language explicitly authorizing Ecology to provide assistance that is site-specific, including written opinions on whether proposed or completed actions meet the substantive requirements of MTCA, and whether further remedial action is necessary.

Finally, late in the PAC process, an additional recommendation was approved by the PAC giving further direction to Ecology on funding enhanced technical assistance. Ecology is to review alternative mechanisms and establish a fee structure that is proportional to staff time spent on the site, recognizes a de minimis level of free assistance roughly equal to what is currently being provided, integrates these charges with those applied in the Department's IRAP program, and establishes factors for consideration in responding to fee waiver requests.

Quality control

The second major issue addressed by the subcommittee was how to ensure that independent cleanups are being done properly, consistent with MTCA requirements. After considering the feasibility of a new "audit" type program, the subcommittee chose instead to recommend that

Ecology take various actions to tighten up its already-established procedures for reviewing site cleanups. Specifically, the subcommittee recommended, and the PAC approved, direction to Ecology to review all ranked sites for which a final independent cleanup report is submitted after the Site Hazard Assessment has been performed. The reviews are to be conducted as expeditiously as possible, with priority given to higher ranked sites, and are to determine whether the site can be removed from the hazardous sites list, or whether further action is required. In addition, Ecology is directed to review its procedures for conducting Hazard Assessments and site investigations.

Guidance and training

As an additional vehicle for improving the quality and quantity of independent cleanups that are being performed, the subcommittee recommended, and the PAC endorsed, direction to Ecology to place an emphasis on developing appropriate guidance and providing training and educational opportunities to both liable parties and the public. The measure included specific recommendations to ensure that guidance (where it is legally appropriate) is developed in timely fashion, is written in appropriate language to reach its intended audience, is clearly identified and comprehensively listed, and is made readily available. The recommendation on training included a list of examples of useful activities such as focused workshops and annual program update meetings.

Other

The subcommittee considered a suggestion that perhaps a consultant certification program would improve the quality of independent cleanups, but there was inadequate support to formulate a proposal. Finally, the subcommittee discussed whether other improvements to the IRAP program should be recommended, but no proposals came forward beyond the measures described above.

SUMMARY: IMPLEMENTATION SUBCOMMITTEE

Eric Johnson, Washington Public Ports Association, Chair

The Implementation Subcommittee of the MTCA PAC worked very hard on a variety of issues throughout 1996. Subcommittee meetings were very well attended, and represented a significant cross-section of PAC members and viewpoints. Visitors were accommodated at several meetings, particularly when public participation issues were on the agenda.

After some early organizing and prioritization, the subcommittee began to address issues. The highest priority issues were: 1. Dispute Resolution, 2. Establishing a "Plume Clause" for groundwater, 3. Transferability of settlement agreements, 4. Tax inequity, and 5. Public participation. The Subcommittee also discussed how to address budget issues, and liability reform.

There were a range of opinions as to whether the subcommittee should spend substantial time addressing liability, including changing liability standards or creating equitable factors. After some discussion, the subcommittee decided to focus on the first list of issues, and then see if there was a willingness to continue. Several members of the subcommittee were wary of using valuable time to address an issue that was unlikely to approach consensus or broad support.

With this general plan in place, the group met on a very ambitious schedule -- generally twice per month -- for most of the spring, summer and fall. As time progresses, the subcommittee reached general agreement on the plume clause and transferability issues. There was less consensus, but a willingness to still work hard on tax inequity and dispute resolution. (The final status of these issues will not be repeated in detail here, since they are reported on at length in the PAC report.)

On the issue of dispute resolution, there were also a series of very fruitful meetings between the subcommittee chair and the line staff of the Department for the two Western Washington regions. These meetings helped dispel some serious emerging concerns by Department staff about the direction of the PAC. The final dispute resolution recommendations fell short of what some PAC members had hoped, but useful recommendations were still made.

On the issue of public participation, a smaller group of the implementation subcommittee began to meet to work out continued public participation issues. This group put together what became the final PAC public participation recommendations, and they are to be commended for their diligence.

Regarding budget issues and equitable factors, the full PAC addressed these issues late in the year, and made some limited progress towards recommendations. The budget issues will continue to be discussed in the 1997 Legislative session and beyond.

APPENDIX C

PRIORITY ISSUE TEMPLATES

Priority Issue #1: Site-Specific Risk Assessment

Should site-specific risk assessment be used to set cleanup levels and make remedial action decisions under the MTCA as compared with current practice?

Recommendation (Broad Support - Laurie Valeriano Opposed)

Allow use of site-specific risk assessment in setting cleanup levels, remedial action levels, or in making remedial action decisions under MTCA with the limitations and requirements established by the PAC in the accompanying documentation. The pages following dated December 10, 1996 from Pete Kmet reflects PAC recommendations on revisions to MTCA sections -702 and -708. These sections specify the burden of proof/quality of information required for use of site-specific information required for use of site-specific information in establishing cleanup levels and remediation levels, and the limitations on use of site-specific information. A memorandum dated December 10, 1996 from Pete Kmet reflects PAC recommendations on land use considerations within the new requirements outlined in revised MTCA sections -702 and -708. The memorandum dated November 13 from Julie Wilson summarizes the changes reflected in both of Pete Kmet's memos[1].

The PAC further recommends that the MTCA regulations be amended to:

- require that commercial sites use the MTCA residential exposure scenarios as the default scenarios, but allow them to establish cleanup and remediation levels through a site-specific risk assessment in accordance with WAC 173-340-708; and
- eliminate the commercial scenario and the requirement that commercial sites attain cleanup levels as close as practicable to residential cleanup levels; and
- for the types of sites noted below, Ecology shall, where appropriate, allow for the use of alternative exposure scenarios as provided for in WAC 173-340-708.

Also, it is the PAC's expectation that many types of commercial sites may, where appropriate, qualify for alternative exposure scenarios under 708(3) since contaminated soil at these sites is typically characterized by a cover of buildings, pavement, and landscaped areas. Examples of these types of sites include:

- commercial properties removed from a single family, duplex, or subdivided individual lots,
- private and public recreational facilities when access is physically controlled,
- urban residential sites (i.e., upper- story residential over lower- story commercial), and
- offices, restaurants, and other facilities primarily devoted to support administrative functions of a commercial/industrial nature

Other Risk-Related Issues Addressed to Some Extent in this Issue Resolution Paper

A number of other risk assessment issues are related to the above priority risk assessment issue. A complete listing of these related issues can be found in the original risk assessment subcommittee issue paper included in the December 15, 1995 report to the legislature. The issues directly related to use of site-specific risk assessment under MTCA have been addressed in arriving at resolution to the priority risk issue, and their resolution is reflected in separate issue resolution papers, or in meeting notes of the PAC and/or PAC risk assessment subcommittee. This issue resolution paper presents the options and proposed resolution only for the priority issue.

Issue Description

MTCA cleanup regulations currently allow for some site-specific risk assessment, although its use has been limited. MTCA specifies the framework for using risk assessment to set site cleanup levels, and allows only a few exposure parameters to be changed to reflect site-specific conditions. MTCA regulations [WAC 173-340-350(6)(d)] also suggest that a more complete risk assessment (more comparable to the types of analyses performed for Superfund sites) may be included as one component of an RI/FS that is conducted for a MTCA site. Ecology guidance, however, indicates that site-specific risk assessment may not be used to set cleanup levels, but allows site-specific risk assessment considerations during remedy selection.

In practice, site-specific data and considerations are often not being used even in areas where their use is allowed, no guidance is available on their use in areas where allowed to ensure consistent application, and current constraints on their use may result in site cleanups that are not appropriate for site-specific conditions.

If additional use of site-specific risk assessment under MTCA is determined to be appropriate, it could occur at any of several points in the site evaluation and remedy selection process. It would not necessarily replace current methods under MTCA but could supplement them, and in effect create a tiered approach to risk assessment. Rule language and regulatory guidance regarding use of site-specific information would be established. The results of a site-specific risk assessment would be considered a valid basis for cleanup decisions only if the risk assessment is conducted in accordance with the rule language and guidance.

Contaminant fate and transport modeling may be applied within a risk assessment to estimate exposure. Such modeling can also be applied to determine cleanup levels based on protection against cross-media contamination (e.g., soil concentrations that are protective of underlying groundwater). Cleanup levels based on protection from cross-media contamination, those based on ARARs, and those that are risk-based are all recognized as possible site cleanup levels within the current MTCA framework and are interrelated. Therefore, both aspects of use of contaminant fate and transport modeling (i.e., its use in evaluating risks and cross-media protection) are ~~is~~ considered as part of site-specific risk assessment for the purposes of this issue resolution paper.

Issue Resolution Options

1. Do nothing. Status quo is acceptable.
2. Allow use of site-specific risk assessment in setting cleanup levels, remedial action levels, or in making remedial action decisions under MTCA.

2A. Recommend that an option for establishing cleanup levels under MTCA based on use of site-specific risk assessment be adopted, and that rule language and regulatory guidance be developed that informs both Ecology and the regulated community on how site-specific risk assessment be done and used in establishing cleanup levels; and/or

2B. Recommend that use of site-specific risk assessment to set remediation levels be formally acknowledged and rule language and regulatory guidance be developed; and/or

2C. Recommend that use of site-specific risk assessment in remedy selection be formally acknowledged in rule language and that regulatory guidance be developed.

Option Analysis

Option 1 is unacceptable, because current allowances for use of site-specific risk assessment are not being used as effectively and consistently as intended, and because additional allowance for use of site-specific risk assessment may lead to more effective (from the standpoint of results and cost) and appropriate cleanups. Option 2 would allow use of site-specific risk assessment at one or more points during the site remedial decision-making process. Option 2A would allow cleanup levels to be set for a site based on site-specific information. These cleanup levels would be recognized as legally applicable to a site under the conditions of exposure assumed. In Options 2B and 2C, cleanup levels remain as defined under MTCA; however, use of site-specific risk assessment is formally recognized as appropriate for use as a basis for identifying remedial action levels that may be less stringent than cleanup levels (Option 2B), and/or as a basis for identifying the most practical and cost effective remedy for a site (Option 2C). Options 2B and 2C differ in that Option 2B uses a quantitative basis for establishing cleanup action levels, while Option 2C may be limited to qualitative application of the results of the site-specific risk assessment in remedy selection.

December 10, 1996 DRAFT by Pete Kmet, Ecology

AMEND WAC 173-340-702 as follows:

WAC 173-340-702 General policies.

(1) Purpose. This section defines the policies and principles that the department shall utilize to ensure that cleanup standards, cleanup levels and remediation levels under this chapter are established and implemented in a scientifically and technically sound manner.

(2) Relationship to federal cleanup law....

(3) Regulation update....

(4) Institutional controls....

(5) Burden of proof....

(6) New scientific information....

(7) Quality of Information. (a) The intent of this subsection is to establish minimum criteria to be considered when evaluating information submitted to Ecology proposing to modify the methods or factors specified in this chapter or proposing methods or factors not specified in this chapter for calculating cleanup levels and remediation levels. This subsection does not establish a burden of proof or alter the burden of proof provided for elsewhere in this chapter.

(b) When deciding whether to approve modifications to the default methods or factors specified in this chapter for establishing cleanup levels and remediation levels or when deciding whether to approve alternative or additional methods or factors, the Department shall consider information submitted by all interested persons and the quality of that information. When evaluating the quality of the information the Department shall consider the following factors, as appropriate for the type of information submitted:

(i) Whether the information is based on a theory or technique that has wide spread acceptance within the relevant scientific community;

(ii) Whether the information was derived using standard testing methods or other widely accepted scientific methods;

(iii) Whether a review of relevant information both in support of and not in support of the proposed modification has been provided along with the rationale explaining the reasons for the proposed modification;

(iv) Whether the assumptions used in applying the information to the facility are valid and would assure the proposed modification would err on behalf of protection of human health and the environment;

(v) Whether the information adequately addresses populations that are more highly exposed than the population as a whole and are reasonably likely to be present at the site; and

(vi) Whether adequate quality assurance and quality control procedures have been used, any significant anomalies are adequately explained, the limitations of the information are identified, and the known or potential rate of error is acceptable.

The department shall prepare guidance, where appropriate, to facilitate implementation of this subsection.

WAC 173-340-708 Human health risk assessment procedures.

(1) Purpose. This section defines the risk assessment framework that the department will utilize to establish cleanup levels and remediation levels. As used in this section, cleanup levels and remediation levels means the human health risk assessment component of these levels.

This chapter defines certain default values and methods to be used in calculating cleanup levels and remediation levels. This section allows varying from these default values and methods under certain circumstances. When deciding whether to approve alternate values and methods the department shall ensure that the use of alternative values and methods will not significantly delay site cleanups.

(2) Selection of indicator hazardous substances. (no changes)

(3) Reasonable maximum exposure. (a) Cleanup levels and remediation levels shall be based on estimates of current and future resource uses and reasonable maximum exposures expected to occur under both current and potential future site use conditions.

(b) The reasonable maximum exposure is defined as the highest exposure that is reasonably expected to occur at a site under current and potential future site use. WAC 173-340-720 through 173-340-760 define the reasonable maximum exposures for ground water, surface water, soil, and air. These reasonable maximum exposures will apply to most sites where individuals or groups of individuals are or could be exposed to hazardous substances. For example, the reasonable maximum exposure for most ground water is defined as exposure to hazardous substances in drinking water and other domestic uses.

(c) Persons performing cleanup actions under this chapter may utilize the evaluation criteria in WAC 173-340-720 through 173-340-760 to demonstrate that the reasonable maximum exposure scenarios specified in those sections are not appropriate for cleanup levels for a particular site. The use of an alternate exposure scenario shall be documented by the person performing the cleanup action. Documentation for the use of alternate exposure scenarios under this provision shall be based on the results of investigations performed in accordance with WAC 173-340-350.

(d) Persons performing cleanup actions under this chapter may also use alternate reasonable maximum exposure scenarios to assess the protectiveness of a remedy that uses engineered controls and/or institutional controls to limit exposure to the contamination remaining on the site. An alternate reasonable maximum exposure scenario shall reflect the highest exposure that is reasonably expected to occur under current and potential future site exposure considering, among other appropriate factors, the potential for institutional controls to fail and the extent of the time period of failure under these scenarios.

For example, if a cap (with appropriate institutional controls) is the proposed remedy at a commercial site, the reasonable maximum exposure scenario for assessing the protectiveness of the cap with regard to direct soil contact could be changed from a child living on the site to a construction or maintenance worker and child trespasser scenario.

~~(d)~~ (e) Individuals or groups of individuals may be exposed to hazardous substances through more than one exposure pathway. For example, a person may be exposed to hazardous substances from a site by drinking contaminated ground water, eating contaminated fish, and breathing contaminated air. At sites where the same individuals or groups of individuals are or could be consistently exposed through more than one pathway, the reasonable maximum exposure shall represent the total exposure through all of those pathways. At such sites, the cleanup levels and remediation levels derived for individual pathways under WAC 173-340-720 through 173-340-760 and WAC 173-340-360 shall be adjusted downward to take into account multiple exposure pathways.

(4) Cleanup levels and remediation levels for individual hazardous substances. Cleanup levels for individual hazardous substances will generally be based on a combination of requirements in applicable state and federal laws and risk assessment. Remediation levels will generally be based on a variety of factors described in WAC 173-340-360, including risk assessment considerations.

(5) Multiple hazardous substances.

(a) Cleanup levels for individual hazardous substances established under methods B and C and remediation levels shall be adjusted downward to take into account exposure to multiple hazardous substances. Adverse effects resulting from exposure to two or more hazardous substances with similar types of toxic response are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(b) Cancer risks resulting from exposure to two or more carcinogens are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(c) For purposes of establishing cleanup levels for noncarcinogens under methods B and C, and for remediation levels the health threats resulting from exposure to two or more hazardous substances with similar types of toxic response may be apportioned between those hazardous substances in any combination as long as the hazard index does not exceed one (1).

(d) For purposes of establishing cleanup levels for carcinogens under methods B and C, and for remediation levels, the cancer risks resulting from exposure to multiple hazardous substances may be apportioned between hazardous substances in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand.

(e) The department may require biological testing to assess the potential interactive effects associated with chemical mixtures.

(6) Multiple pathways of exposure.

(a) Estimated doses of individual hazardous substances resulting from more than one pathway of exposure are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(b) Cleanup levels and remediation levels based on one pathway of exposure shall be adjusted downward to take into account exposures from more than one exposure pathway. The number of exposure pathways considered at a given site shall be based on the reasonable maximum exposure scenario as defined in WAC 173-340-708(3).

(c) For purposes of establishing cleanup levels for noncarcinogens under methods B and C, and remediation levels, the health threats associated with exposure via multiple pathways may be apportioned between exposure pathways in any combination as long as the hazard index does not exceed one (1).

(d) For purposes of establishing cleanup levels for carcinogens under methods B and C, and for remediation levels, the cancer risks associated with exposure via multiple pathways may be apportioned between exposure pathways in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand.

(7) Reference doses.

(a) The chronic reference dose and the developmental reference dose shall be used to establish cleanup levels and remediation levels under this chapter. Cleanup levels and remediation levels shall be established using the value which results in the most protective concentration.

(b) Inhalation reference doses shall be used in WAC 173-340-750. Where the inhalation reference dose is reported as a concentration in air, that value shall be converted to a corresponding inhaled intake (mg/kg-day) using a human body weight of 70 kg and an inhalation rate of 20 m^3/day.

(c) A subchronic reference dose may be utilized to evaluate potential noncarcinogenic effects resulting from exposure to hazardous substances over short periods of time. This value may be used in place of the chronic reference dose where it can be demonstrated that a particular hazardous substance will degrade to negligible concentrations during the exposure period.

(d) For purposes of establishing cleanup levels and remediation levels for hazardous substances under this chapter, a reference dose established by the United States Environmental Protection Agency and available through the "integrated risk information system" ("IRIS") data base shall be used. If a reference dose is not available through the "IRIS" data base, a reference dose from the U.S. EPA "HEAST" data base shall be used.

(e) If a reference dose is available through the "IRIS" or "HEAST" data bases, it shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of this value is inappropriate.

~~(e)~~ (f) If a reference dose is not available through the "integrated risk information system" data base or the "HEAST" data base or is demonstrated to be inappropriate under ~~(d)~~ (e) of this subsection, a reference dose shall be established utilizing the methods described in Risk Assessment Guidance for Superfund. Human Health Evaluation Manual, Part A. (October 1989.)

~~(f)~~ (g) In estimating a reference dose for a hazardous substance under (e) or (f) of this subsection, the department shall consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

(g) Where a reference dose other than those established under (d) of this subsection is used to establish a cleanup level or remediation level at individual sites, the department shall summarize the scientific rationale for the use of those values in the cleanup action plan. The department shall

provide the opportunity for public review and comment on this value in accordance with the requirements of WAC 173-340-360 and 173-340-600.

(8) Carcinogenic potency factor.

(a) For purposes of establishing cleanup levels and remediation levels for hazardous substances under this chapter, a carcinogenic potency factor established by the United States Environmental Protection Agency and available through the "integrated risk information system" "IRIS" data base shall be used. If a cancer potency factor is not available from the "IRIS" data base, a cancer potency factor from the "HEAST" data base shall be used.

(b) If a cancer potency factor is available from the "IRIS" or "HEAST" data bases it shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of this value is inappropriate.

~~(b)~~ (c) If a carcinogenic potency factor is not available through the "integrated risk information system" database or the "HEAST" data base or is demonstrated to be inappropriate under ~~(a)~~ (b) of this subsection, one of the following methods shall be utilized to establish a carcinogenic potency factor:

(i) The carcinogenic potency factor may be derived from appropriate human epidemiology data on a case-by-case basis; or

(ii) The carcinogenic potency factor may be derived from animal bioassay data using the following procedures:

(A) All carcinogenesis bioassays shall be reviewed and data of appropriate quality shall be used for establishing the carcinogenic potency factor.

(B) The linearized multistage extrapolation model shall be utilized to estimate the slope of the dose-response curve unless the department determines that there is clear and convincing scientific data which demonstrates that the use of an alternate extrapolation model is more appropriate;

(C) All doses shall be adjusted to give an average daily dose over the study duration; and

(D) An interspecies scaling factor shall be used to take into account differences between animals and humans. This scaling factor shall be based on the assumption that milligrams per surface area is an equivalent dose between species unless the department determines there is clear and convincing scientific data which demonstrates that an alternate procedure is more appropriate. The slope of the dose response curve for the test species shall be multiplied by this scaling factor in order to obtain the carcinogenic potency factor, except where such scaling factors are incorporated into the extrapolation model under (B) of this subsection. Where adequate pharmacokinetic and metabolism studies are available, data from these studies may be utilized to adjust the interspecies scaling factor.

~~(c)~~ (d) In estimating a carcinogenic potency factor for a hazardous substance under ~~(b)~~ (c) of this subsection, the department shall consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

~~(d)~~ (e) Where a carcinogenic potency factor other than that established under (a) of this subsection is used to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of that value in the cleanup action plan. The department shall provide the opportunity for public review and comment on this value in accordance with the requirements of WAC 173-340-360 and 173-340-600.

(9) Bioconcentration factors.

(a) For purposes of establishing cleanup levels and remediation levels for a hazardous substance under WAC 173-340-730, a bioconcentration factor established by the United States Environmental Protection Agency and utilized to establish the ambient water quality criterion for that substance under section 304 of the Clean Water Act shall be used unless the department determines that there is ~~clear and convincing~~ adequate scientific data which demonstrates that the use of an alternate value is more appropriate for the conditions present at the site.

(b) When utilizing a bioconcentration factor other than that utilized to establish the ambient water quality criterion, the department ~~shall~~ may, as appropriate, consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

(c) Where a bioconcentration factor other than that established under (a) of this subsection is used to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of that factor in the draft cleanup action plan. The department shall provide the opportunity for public review and comment on the value in accordance with the requirements of WAC 173-340-360 and 173-340-600.

(10) Exposure parameters.

(a) As a matter of policy, the department has defined in WAC 173-340-720 through 760 ~~the~~ default values for exposure parameters to be used when establishing cleanup levels and remediation levels under this chapter. ~~With the exception of the parameters identified~~ Except as provided for in (b) and (c) of this subsection ~~or~~ and in WAC 173-340-720 through 760, these ~~parameters~~ default values shall not be ~~modified~~ changed for individual hazardous substances or sites. ~~in a manner which results in a less stringent cleanup level. The scientific and technical basis for these parameters shall be reviewed when updating this chapter under WAC 173-340-704(3).~~

~~(b) The department may approve the use of values other than those specified in WAC 173-340-720 through 173-340-760 where there is clear and convincing scientific data which demonstrates that one or more of the following parameters should be modified for an individual hazardous substance or site:~~

~~(i) Gastrointestinal absorption rate;~~

~~(ii) Inhalation correction factor;~~

~~(iii) Bioconcentration factor; or~~

~~(iv) Inhalation absorption rate.~~

(b) Exposure parameters that are primarily a function of the exposed population characteristics (such as body weight and lifetime) and those that are primarily a function of human behavior that cannot be controlled through an engineering or institutional control (such as: fish consumption rate; soil ingestion rate; drinking water ingestion rate; and, breathing rate) are not expected to vary on a site by site basis. The default values for these exposure parameters shall not be changed when calculating cleanup levels. For remediation levels the default values for these exposure parameters may only be changed when an alternate reasonable maximum exposure scenario is used, as provided for in WAC 173-340-708(3)(d), that reflects a different exposed population such as using an adult instead of a child exposure scenario. Other exposure parameters may be changed only as follows:

(i) For calculation of cleanup levels, the types of exposure parameters that may be changed are those that are: (A) Primarily a function of reliably measurable characteristics of the hazardous substance, soil, hydrologic or hydrogeologic conditions at the site and, (B) Are not dependent on the success of engineered controls or institutional controls for controlling exposure of persons to the hazardous substances at the site. The default values for these exposure parameters may be changed where there is adequate scientific data to demonstrate that use of an alternative or additional value would be more appropriate for the conditions present at the site.

Examples of exposure parameters for which the default values may be changed under this provision are as follows: contaminate leaching and transport variables* (such as the soil organic carbon content, aquifer permeability and soil sorption coefficient); inhalation correction factor; fish bioconcentration factor; soil gastrointestinal absorption rate; and, inhalation absorption percentage.

(ii) For calculation of remediation levels, in addition to the exposure parameters that may be changed under paragraph (b)(i) above, the types of exposure parameters that may be changed from the default values are those where a demonstration can be made that the proposed remedy uses engineered controls and/or institutional controls that can be successfully relied on, for the reasonably foreseeable future, to control contaminant mobility and/or exposure to the contamination remaining on the site.

In general, exposure parameters that may be changed under this subdivision are those that define the exposure frequency, exposure duration and exposure time. The default values for these exposure parameters may be changed where there is adequate scientific data to demonstrate that use of an alternative or additional value would be more appropriate for the conditions present at the site.

Examples of exposure parameters for which the default value changed under this provision are as follows: infiltration rate*; frequency of soil contact; duration of soil exposure; duration of drinking water exposure; duration of air exposure; drinking water fraction*; and, fish diet fraction.

*New terms to be added to MTCA equations.

(c) When the modifications provided for in (b) of this subsection result in significantly higher values for cleanup levels or remediation levels than would be calculated using the default values for exposure parameters, the risk from other potentially relevant pathways of exposure shall be ~~evaluated~~ addressed under the procedures provided for in WAC 173-340-720 through 173-340-760. For exposure pathways and parameters for which default values are not specified in this chapter the framework provided for by this subsection, along with the quality of information requirements in (WAC 173-340-702),shall be used to establish appropriate or additional assumptions for these parameters and pathways.

(d) Where the department approves the use of exposure parameters other than those established under WAC 173-340-720 through 173-340-760 to establish cleanup levels or remediation levels

at individual sites, the department shall summarize the scientific rationale for the use of those parameters in the cleanup action plan. The department shall provide the opportunity for public review and comment on those values in accordance with the requirements of WAC 173-340-360 and 173-340-600. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702(7).

DEPARTMENT OF ECOLOGY

December 10, 1996

TO: MTCA Policy Advisory Committee

FROM: Pete Kmet

SUBJECT: Proposal for addressing land use considerations under MTCA.

This memorandum describes the approach the MTCA PAC recommends for handling land use considerations under MTCA.

General

This memorandum addresses cleanup levels and remediation levels for soils. Other media cleanup levels and remediation levels such as for ground water, surface water and air are not a function of surface land use and are not addressed by this proposal.

This approach would require restructuring the MTCA regulations to provide tables & formulas for cleanup levels for soils for two types of land use: unrestricted land use (URSLA) & industrial. URSLA would be based on a single family residential use scenario and would keep Method A tables and method B formulas. Industrial land use levels would be based on a worker exposure scenario and would keep Method A (industrial) tables and method C formulas for industrial sites. Other pathways (dermal, dust, food, vapor) will need to be examined to determine if additional formulas and default assumptions should be added to the rule.

[NOTE: This memo refers to rulemaking here and at a number of places. The PAC has not reached a consensus that rulemaking will be required in all of these instances.]

Unrestricted land use would be the starting presumption at all sites except for sites qualifying as "industrial" under WAC 173-340-745. This approach would allow land use considerations to be used (along with other requirements) in establishing remediation (cleanup action) levels for soils at sites. Definitions and criteria may need to be added to the rules.

Acceptable Level of Risk

MTCA will continue to use a 1 in a million acceptable level of cancer risk for individual carcinogens and 1 in a 100,000 additive risk due to multiple carcinogens for child exposure or involuntary adult exposure scenarios. Where the exposure is for workers, MTCA would use a 1

Relevant portions of this land use memo have been incorporated in the PAC recommendation in site-specific risk assessment. The full memo itself does not represent a PAC recommendation.

in a 100,000 acceptable cancer risk for individual carcinogens and 1 in 100,000 for the additive risk for multiple carcinogens, as is currently used for industrial land uses.

MTCA will continue to use the same level of protection for noncarcinogens.
That is, for both adult and child exposure scenarios a hazard quotient 1.0 would be used for individual chemicals and a hazard index (HI) of 1.0 for multiple chemicals with similar health effects.

[NOTE: The PAC has not reached a consensus on the acceptable level of risk to be used at contaminated sites. Any discussion of risk here or elsewhere in this memo is not a consensus PAC recommendation.]

Evaluation of the Protectiveness of Caps

In all these land uses (except certain types of residential as noted below), where the cap is the selected remedy, the evaluation of whether the cap is protective of human health would need to be done.

This may include using a maintenance/construction adult worker exposure scenario plus, a child "trespasser" scenario during the time contaminated soil was exposed by maintenance/construction activities. The maintenance/construction worker scenario would use a worker acceptable level of risk, the trespasser scenario would use a child acceptable level of risk. The assumptions used in these exposure scenarios would likely be different for different land uses (such as a higher potential for child exposure in a park setting than a commercial property well removed from residential areas) and would need to consider nearby land uses (such as a higher potential for child exposure at a commercial site near residential areas vs. commercial properties well removed from residential areas).

Ecology would work with the SAB and appropriate stakeholders to develop exposure scenarios and assumptions for conducting evaluation of a cap. This would be adopted by rule.

Note that before a cap could be selected, it would also have to meet the other remedy selection criteria in WAC 173-340-360.

[NOTE: The PAC has not reached a consensus on how an evaluation of caps for protectiveness would be conducted. The discussion here is for illustrative purposes only.]

Childcare Facilities & Schools

Keep as is in WAC 173-340-740 (1)(d). i.e. handle the same as residential land use.

Residential Land Use

Keep essentially as is in WAC 173-340-740. That is:

Require the use of URSLA cleanup levels be applied to all residential areas.
Use the same level of risk.
Method A table
Method B equations with default assumptions that can be varied as per 708(10).

May need to add food exposure pathway to address residential gardens. If so, Ecology will work with the SAB and appropriate stakeholders to develop appropriate exposure scenarios and assumptions. These would be adopted by rule.

The evaluation of capping alternatives for residential areas will need careful evaluation. It is expected one could demonstrate remediation levels under a cap are protective for multifamily housing and mixed use situations if appropriate institutional controls are part of remedy. For single family, duplex or other situations where the land is subdivided into individual lots that the owner can alter, the use of capping alternatives would need more scrutiny, if not eliminated entirely as an option. Ecology will work with the SAB to examine this issue in more detail. Any specific requirements would be adopted by rule.

[NOTE: The PAC has not reviewed the method A table or assumptions used in the method B equations and the approach discussed above does not mean the PAC has reached consensus on the values in table A or assumptions in the method B equations.]

Industrial Land Use

Keep as is in WAC 173-340-745. That is:

- Allow for consideration of industrial land use in setting cleanup levels as well as remediation levels.
- Use same criteria for determining eligible sites.
- Use same level of risk and worker exposure scenario
- Method A table
- Method C equations with default assumptions that can be varied as per 708(10).

[NOTE: The PAC has not reviewed the method A industrial table or assumptions used in the method C equations and the approach discussed above does not mean the PAC has reached consensus on the values in table A or assumptions in the method C equations.]

Commercial Land Use

Eliminate commercial land use as an option for adjusting cleanup levels under WAC 173-340-740.

Allow consideration of commercial land use in setting remediation levels. This would start from the presumption for URSLA and allow modifications to the default exposure assumptions to reflect commercial land use in setting remediation levels as per new 708(10). A default set of

exposure assumptions for setting remediation levels at commercial gasoline stations will be added to the rule.

Eliminate the "as close as practicable" requirement for remediation levels for commercial land uses.

Ecology would work with the SAB and appropriate stakeholders to develop exposure scenarios and assumptions at commercial properties. The exposure scenarios would need to consider the land use of the property itself as well as nearby land uses. These would be adopted by rule.

Recreational Land Use

Eliminate recreational land use as an option for adjusting cleanup levels under WAC 173-340-740.

Allow the consideration of recreational land use in setting remediation levels as follows:

- For uncontrolled access recreational lands i.e. parks and open space--start from the presumptions for URSLA and allow modifications to the default exposure assumptions as per 708(10).

- For private & public recreational facilities where access is controlled by fencing and payment of fees, i.e. golf courses, outdoors sports complexes, health clubs, shooting ranges, amusement parks, etc., start from the presumptions for URSLA and allow modifications to the default exposure assumptions as per new 708 (10). Because access is controlled the child trespasser exposure scenario could use less conservative assumptions than in an uncontrolled access facility.

Eliminate the commercial method C "cap" for cleanup levels and remediation levels for recreational land uses.

Ecology would consult with SAB and appropriate stakeholders to develop exposure scenarios and assumptions for recreational properties. These would need to consider the nature of the recreational facility (e.g. public vs. restricted access private; neighborhood vs. regional park). The exposure scenarios would need to consider the land use of the property itself as well as nearby land uses. These would be adopted by rule.

Priority Issue #2: Allowable Risk/Risk Range

Do allowable risk values in the MTCA cleanup regulations appropriately balance the public's desire for protecting individuals with the need for cleanups to proceed at a reasonable cost? Should the allowable risk values for carcinogens in the MTCA cleanup regulations be amended, for example, to match federal risk range values under CERCLA (the federal Superfund program) in the National Contingency Plan?

The PAC did reach broad support for sending this issue to the Science Advisory Board for further study (Opposed by Loren Dunn and Laurie Valeriano). The PAC did not otherwise reach consensus or broad support for a recommendation.

Summary

Allowable or residual risk should be the final authority for all safety policies, MTCA included. Residual risk measures how safe the site is after remedial actions are complete.

For cleanup levels associated with exposures to a single chemical under MTCA Methods A and B, the target residual risk value for carcinogens is one in one million chance of developing cancer following a lifetime of exposure to the chemical at the cleanup concentration. For exposure to multiple chemicals, the residual risk range is one in a hundred thousand, which is also the range for individual chemicals under MTCA Method C. The National Contingency Plan sets a residual risk range of one in million to one in ten thousand. (The residual risk range for non-carcinogens is the same under MTCA and the federal program.) The MTCA range is narrower than the EPA risk range for CERCLA sites and is five orders of magnitude below the cancer incidence rate.

Options

1. Do nothing.
2. Specify the EPA/NCP carcinogenic risk range in the MTCA rules.
3. Specify the EPA/NCP carcinogenic risk range in the statute.

Analysis

1. Retaining the status quo is not acceptable. The absolute risk range of one in a million allows at maximum an increase in the cancer risks faced by a person exposed to materials remaining at a typical site from 0.250000 to 0.250001. Background radiation is 20,000 time as potent. Cleanups drive by this risk level cause other risks (so-called substitute risks), such as the chances that a back hoe operator will be injured or killed on the job or that a truck driver hauling contaminated soil will crash and injure him or herself or someone else. Retaining the status quo creates conflicts and inequities between state and federal cleanups.
2. Specifying EPA risk ranges in the MTCA regulations would be consistent with the current status. However, it could take as long as several years for the Department of Ecology to

change the residual risk levels in WAC 173-340-700(3)(b). Roadblocks seem inevitable and perhaps insurmountable.

3. Changing the acceptable risk level for cancer in the statute would be preferable to recommending that the agency change them because the change could take effect immediately. Such a provision might read:
   Add new section RCW 70.105D.010
   > (6) The maximum residual risk levels for cancer in any cleanup done pursuant to this chapter shall be the same as the residual risk levels used by the federal government in CERCLA (citation).

Supplemental Analysis from Ecology

Issue Analysis 1

Testimony at contaminated sites in Washington State and several national surveys have shown the public is concerned with even trace levels of contaminants. Risks due to natural background radiation can vary significantly depending on where a person lives and choices made such as whether to have x-rays taken. The general public generally view these risks differently than a risk imposed on them by chemical contamination. Similarly, the public generally views risks to workers conducting cleanups differently since such workers are viewed as having a choice of exposure while residents living near contaminated sites do not. While retaining the status quo creates perceived inequities between state and federal cleanup laws, under federal law, federal cleanups must comply with state law and thus the same standards apply.

Issue Analysis 2

Specifying EPA risk ranges in the MTCA regulations could be done under current statute. Ecology considered using the federal risk range during the original rulemaking and ultimately chose not to, based on state and federal experience with this range delaying cleanup decisions and because of substantial public opposition to the perceived less stringent standard. For these reasons it is unlikely an agreement could be reached via rulemaking.

Priority Issue #3: Petroleum Cleanup

Should an alternative method for evaluating risk and establishing cleanup levels be identified under the MTCA for petroleum?

Recommendation (Laurie Valeriano Abstained)

Long-Term Policy

The PAC will monitor, participate in and expedite other efforts with the intention of supporting the outcome of the effort. The PAC will also examine the need for interim policies for TPH cleanups and may recommend appropriate actions to Ecology and the Legislature.

Interim Policy

Ecology should revise the TPH focus sheet to allow cleanup levels to be established using Method B (and Method C at appropriate sites), as provided under current MTCA regulations. Ecology should apply the surrogate approach similar to that developed by the National TPH Criteria Working Group to the petroleum mixture found at the site. Other approaches may also be needed to protect pathways or concerns which may not be addressed by the surrogate approach. The interim guidance shall address all appropriate pathways and receptors currently addressed under the MTCA rule. Ecology will submit a draft of the guidance to the PAC and other interested parties, to allow further review of the work done by the National TPH Criteria Working Group and Ecology.

In addition, Ecology should evaluate the need to prepare guidance to assist in the determination under current rules as to whether (1) ground water is a current or potential future source of drinking water, and (2) it is unlikely that a hazardous substance will be transported from contaminated ground water to ground water that is a current or potential future source of drinking water at concentrations which exceed ground water quality criteria.

Commercial Default Retail Gasoline Station Scenario (Julie Wilson Abstained)

In addition, the PAC recommends a new commercial retail gas station scenario for use when appropriate. The following is the recommendation as agreed to by the PAC.

Amend regulations to:

1. define a default exposure scenario for commercial retail gasoline station remediation levels, applicable to direct contact with soil, which shall apply to commercial retail gasoline stations in lieu of WAC 173-340-740(1)(c) (See Commercial Default Retail Gasoline Station - Options for specific default exposure scenario); address other pathways, as appropriate, in consultation with existing groups; and allow commercial retail gasoline stations to establish cleanup levels through a site-specific risk assessment in accordance with WAC 173-340-708 (Option 2-page C-24); and

2. apply land use restrictions and any other appropriate institutional and/or engineering controls to any property cleaned to remediation levels based on the default exposure scenario for commercial retail gasoline stations to prevent uses that could result in a higher level of exposure (Option 3-page C-24).

Long-Term Policy - Issue Description

A large percentage of sites subject to cleanup actions under MTCA are contaminated by petroleum and related compounds as measured by the analyte known as Total Petroleum Hydrocarbons (TPH). The only existing numerical cleanup levels for TPH in soils under MTCA are the Method A and Method C cleanup levels specified in Ch. 173-340-740 and -745, Tables 2 and 3, respectively. These tables specify cleanup levels for gasoline, diesel, and "other" TPH contamination. These values are not risk-based, they are not representative of all petroleum products, and they do not account for changes in the petroleum product after release into the environment due to processes such as weathering and biodegradation. An alternative method for evaluating TPH contamination under MTCA is currently being researched the TPH Initiative Project Oversight Group (POG). The POG is looking at the work being done by the National TPH Criteria Working Group and the ASTM Risk-Based Corrective Action (RBCA) process, as well as other models, for potential use in Washington state.

Long-Term Policy - Options

1. Do nothing. Status quo is acceptable.
2. Undertake independent technical studies to identify alternate methodology.
3. Table and defer for results from other group.
4. Monitor, liaison with, participate in and expedite other efforts directed toward the issue to ensure progress is made toward issue resolution. Provide policy support as needed to facilitate POG efforts as indicated by PAC Risk Subcommittee case studies.
5. Use Option 4, and examine developing interim policy for TPH related cleanups.

Long-Term Policy - Option Analysis

Option 1 is unacceptable. Option 2 would require a high level of time and effort, and likely reproduce many of the efforts already made by the groups whose work is being reviewed by the POG. Resigning interest in the issue and deferring completely to the POG (Option 3) does not allow input to their progress. Following and participating (Option 4) in the efforts of the POG and ensuring that progress is made toward issue resolution would resolve the issue. This participation could take three forms. The PAC may receive regular POG updates, participate in scoping meetings, and provide support through policy recommendations. However, completion of the POG's work will take 1 to 3 years. An interim policy on TPH cleanups (Option 5) which incorporates the work done to date by the POG may be useful until completion of the work.

Interim Policy - Objective

The principal objective is to develop an alternative basis for establishing petroleum cleanup levels that protect human health, are realistic and risk-based, and reflect the current science. This objective shall be met by the development of an interim policy that is consistent with MTCA, requires no rule change, is easy to use and understand, and can be implemented as soon as possible.

Interim Policy - Background

Before a cleanup action may take place, it is first necessary to establish applicable cleanup levels. Under MTCA, petroleum cleanup levels are based on analytical methods resulting in measurements known as total petroleum hydrocarbons (TPH). The only existing numerical cleanup levels for TPH under MTCA are the Method A cleanup levels specified in WAC 173-340-702, -740, and -745 (tables 1, 2, and 3, respectively). These tables, and the LUST Matrix, specify cleanup levels for gasoline, diesel, and "other" TPH contamination. These values are not risk-based, the way Methods B and C are intended to be. These values protect human health, the environment, and aesthetic concerns.

Under MTCA, Method B and Method C formula cleanup levels are somewhat risk-based, although largely non-site-specific. In many cases, TPH cleanup levels established using Method B, and Method C at appropriate sites, would protect human health more cost-effectively than Method A. Generally, Method B and Method C cleanup levels are established by the use of simple formula laid out in the regulations. In fact, Ecology periodically publishes tables, known as the Cleanup Levels and Risk Calculations II (CLARC II) updates, that list Method B and Method C formula cleanup levels that result from the use of such formulas. Although the formulas generally apply, under the regulations, other pathways or receptors may require the use of a different cleanup level at a specific sites.

Although WAC 173-340-705 states that Method B applies to all sites, Ecology issued a focus sheet in 1994 that requires the use of Method A values for virtually all petroleum sites. Ecology's rationale was that there is insufficient information regarding the risk presented by petroleum releases. Ecology was particularly concerned because some risk-based approaches at that time proposed to ignore petroleum constituents in the higher carbon ranges, on the theory that these constituents did not pose a threat to human health. The focus sheet was developed as a temporary measure while Ecology considered alternatives for applying Method B to petroleum sites.

In the two years since Ecology issued the focus sheet, the TPH Criteria Working Group (TPHCWG) is conducting extensive research and analysis, and is developing a risk-based approach to establishing petroleum cleanup levels, using human health direct contact and/or fate and transport surrogates to represent the fractions of petroleum compounds. Under the surrogate approach, a cleanup level is based on the range of all the constituents of the petroleum mixture. The properties and characteristics of a given carbon range are based on those of the surrogate for that carbon range. No part of the petroleum mixture is ignored. This approach provides a means by which Method B and Method C cleanup levels may be established for petroleum releases for some

pathways. Not only is it consistent with the current MTCA framework, but it actually makes MTCA implementation more consistent with the regulations since Method B is intended to be applicable to all types of sites.

Petroleum cleanups also encounter difficulties arising from the distinction between potable and nonpotable groundwater. WAC 173-340-720(a) provides that ground water cleanup levels shall be based on the presumption that ground water's highest beneficial use is as drinking water, but that this presumption may be changed on the basis of specified criteria. Although the regulations provide criteria to identify nonpotable ground water, additional guidance is needed to clarify the meaning of this provision.

Alternative methods for evaluating petroleum releases are being examined by the Duwamish Brownfields TPH Project Oversight Group (POG). It is hoped that the POG's work will provide the basis for a protective, risk-based approach to setting petroleum cleanup levels. However, the POG will not complete its project until 1997. Therefore, any revisions to MTCA regulations that might arise out of the POG's recommendations probably will not be adopted for at least another two to three years. The interim policy recommended below provides immediate relief. It is a portion of the approached being examined by the POG, and strictly adheres to current MTCA regulations.

Interim Policy - Options

1. Do nothing. Wait for results from the POG.
2. Ecology should issue guidance that provides for the evaluation and closure of low-risk petroleum release sites.
3. Ecology should revise the TPH focus sheet to allow TPH cleanup levels to be established using (1) Method B, and Method C at appropriate sites, and (2) site-specific risk assessments in accordance with WAC 173-340-708. TPH cleanup levels would be established using the surrogate approach developed by the TPHCWG.
4. Ecology should revise and expand the LUST Matrix. Cleanup levels should be based on the risk of impacting potable ground water or surface water.
5. Ecology should issue guidance that identifies TPH cleanup action levels applicable to petroleum sites.

Interim Policy - Discussion

Ecology should revise the TPH focus sheet to allow cleanup levels to be established using Method B (and Method C at appropriate sites), as provided under current MTCA regulations. Ecology should apply the surrogate approach similar to that developed by the National TPH Criteria Working Group to the petroleum mixture found at the site. Other approaches may also be needed to protect pathways or concerns which may not be addressed by the surrogate approach. The interim guidance shall address all appropriate pathways and receptors currently addressed under the MTCA rule.

In addition, Ecology should evaluate the need to prepare guidance to assist in the determination under current rules as to whether (1) ground water is a current or potential future source of drinking water, and (2) it is unlikely that a hazardous substance will be transported from contaminated ground water to ground water that is a current or potential future source of drinking water at concentrations which exceed ground water quality criteria.

This recommendation is based on Option 3. It provides a mechanism to establish risk-based TPH cleanup levels, consistent with the current MTCA framework and regulations. It uses the most current available scientific approach (surrogates) to develop risk-based cleanup levels that are more realistic and are protective of human health.

This policy is an interim policy that is to be implemented as soon as possible. It is expected that the POG will make recommendations in 1997 that will provide the basis for a long term policy on petroleum releases. This interim policy is intended to apply to cleanup levels that are established prior to the implementation of a long term policy; cleanup levels that are established thereafter would be determined according to the long term policy.

In implementing this policy, Ecology should have the flexibility to use non-surrogate approaches as appropriate. For example, although the surrogates may be used to evaluate fate and transport, Ecology may find an approach that provides a better description of fate and transport. The policy should be adaptable to such alternative approaches.

Option 3 also contemplates the ability to use site-specific risk assessments to establish cleanup levels. The PAC is looking at this question as it pertains to MTCA generally and expects to issue recommendations on the use of site-specific risk assessment as part of its final report. The interim policy does not propose nor preclude the use of site-specific risk assessment at petroleum sites, including use of the RBCA process. The use of site-specific risk assessment at sites involving petroleum releases should not be subject to the same approach as other MTCA sites. Therefore, the resolution of this policy will await the PAC's final report.

As with other cleanups under MTCA, petroleum cleanups are required to be protective not only of human health, but of the environment as well. Generally, a subsurface petroleum release at a paved site, such as typically is encountered at a commercial service station, does not present a threat to the environment unless a specific pathway to an ecological receptor of concern is identified (e.g., the site is adjacent to a salmon spawning stream). At those sites where a petroleum release does present a threat to the environment, the cleanup action will need to address that threat. At this time, the surrogate approach developed by the TPHCWG primarily addresses protection of human health. This recommendation does not change the current approach to protection of the environment, nor does it preclude the application of a new approach.

Commercial Default Retail Gasoline Station Scenario - Issue Statement

Should additional specific exposure scenarios, such as commercial, agricultural, or recreational exposure be added to MTCA Method B to calculate cleanup levels for sites where these types of

exposures are more likely? Or, alternatively, should Methods A, B and C be eliminated, and cleanup levels be instead based on two broad categories: "unrestricted land use" and "restricted land use"?

Commercial Default Retail Gasoline Station Scenario - Options

1. Do nothing.
2. Define a default exposure scenario for commercial retail gasoline station remediation levels, applicable to direct contact with soil, which shall apply to commercial gasoline stations in lieu of WAC 173-340-740(1)(c). Address other exposure pathways (e.g., vapor, dermal, ground water) as appropriate in consultation with existing groups focused on petroleum issues (i.e., the Interim TPH Working Group and the Duwamish TPH/Brownfields Project Oversight Group). Allow cleanup levels at commercial retail gasoline stations to be established by a site-specific risk assessment.

   For non-carcinogenic effects, use the following formula and default exposure parameters for remediation levels:

   $$\text{Soil Cleanup Level [mg/kg]} = \frac{\text{RfD\_ABW\_UCF2\_HQ}}{\text{SIR\_AB!1\_FOC}}$$

   Where:
   RfD = reference dose (defined in WAC 173-340-708(7) [mg/kg-day])
   ABW = average body weight over the period of exposure (16 kg)
   UCF2 = units conversion factor (1,000,000 mg/kg)
   HQ = hazard quotient (1)
   SIR = soil ingestion rate (200 mg/day)
   AB1 = gastrointestinal absorption rate (1)
   FOC = frequency of contact (0.25)

   For carcinogenic effects, use the following formula and default exposure parameters for remediation levels:

   $$\text{Soil Cleanup Level [mg/kg]} = \frac{\text{RISK\_ABW\_LIFE\_UCF1}}{\text{CPF\_SIR\_AB1\_CUR\_FOC}}$$

   Where:
   RISK = acceptable cancer risk level (1 in 1,000,000)
   ABW = average body weight over the period of exposure (16 kg)
   LIFE = lifetime (75 years)
   UCF1 = unit conversion factor (1,000,000 mg/kg)
   CPF = carcinogenic potency factor (defined in WAC 173-340-708(8) [kg-day/mg])
   SIR = soil ingestion rate (200 mg/day)
   AB1 = gastrointestinal adsorption rate (1)
   DUR = duration of exposure (6 years)

FOC = frequency of contact (0.25)

3. Require that land use restrictions, and any other appropriate institutional and/or engineering controls, accompany any property cleaned to remediation levels based on the default exposure scenario for commercial retail gasoline stations to prevent uses that could result in a higher level of exposure.
4. Eliminate Methods A, B and C. Base cleanup levels on two broad categories: "unrestricted land use" and "restricted land use".

INTERIM TPH POLICY DECISIONS - ECOLOGY

Issue 1: What TPH fractions will be used for toxicity?

Two fractions: (1) aliphatic hydrocarbons and (2) aromatic hydrocarbons (including alkenes).

Issue 2: What surrogates and reference doses (RfDs) will be used?

Hexane (RfD = 0.06 mg/kg-day) for aliphatics and pyrene (RfD = 0.03 mg/kg-day) for aromatics.

Issue 3: What about carcinogens?

They will be determined by analysis for benzene and carcinogenic PAHs (defined in WAC 173-340-140). Either Method B/C formula values (when also using Method B/C for calculating soil to groundwater for fractions) or the Method A table values may be used.

Issue 4: Additivity

Aliphatics and aromatics will be considered like single substances with the same biologic endpoint(s). Thus, the hazard quotient for each cannot exceed 1.0 and the hazard index for the sum cannot exceed 1.0.

Issue 5: Are soils and groundwater computed similarly using the above determinations?

Method B/C direct contact cleanup levels for soils are calculated according to formulas presented in WAC 173-340-740 and -745. Groundwater Method B/C cleanup levels are calculated using formulas in WAC 173-340-720. Method A or Method B/C groundwater cleanup levels are protective and either may be used in the determination of groundwater cleanup levels and soil cleanup levels protective of groundwater, regardless of which method is used to determine direct contact cleanup levels for soils.

Issue 6: What about the inhalation correction factor for "volatile" chemicals that is used in the calculation for drinkable groundwater (possible exposure in showers, cooking, etc.)?

Fractions with equivalent carbons of 12 or less are considered as volatile with an INH factor of 2.0. All greater ones are 1.0 (this corresponds approximately with those currently used for other substances).

Issues 7: What fractions are used for soil-to-groundwater calculations?

For aliphatics, the 6 ranges used by the National TPH Criteria Working Group (NTPHCWG). For aromatics the NTPHCWG uses benzene for the 6 carbon fraction and toluene for the 7 carbon fraction plus 5 other ranges.

Issue 8: What formula is used to calculate soil-to-groundwater protection levels?

Raoult's Law (this takes into account the relative solubility of petroleum fractions). Levels calculated using Raoult's Law may need to be adjusted downward if a fraction of the petroleum exceeds residual saturation. Empirical determination of soil cleanup levels protective of groundwater may also be appropriate.

Issue 9: Are hazard quotients determined for each fraction and a hazard index for the total of hazard quotients when using the soil-to-groundwater calculations?

Yes. The groundwater value that may result from the soil levels must conform to the hazard quotient/hazard index requirements when Method B is used.

Issue 10: How do we determine when groundwater is considered as drinking water (WAC 173-340-720 (1))?

The criteria in the current rule will be used. However, clarification of it will be made separately from an interim TPH policy.

Issue 11: Is there an upper level for TPH determined by aesthetics or other criteria?

This policy does not completely address health effects of vapors nor does it provide cleanup levels that necessarily address residual odors.

Issue 12: What about vapors?

This will need to be a site-by-site determination for which additional guidance for determining protective levels will be necessary.

Issue 13: TPH analysis?

The state of Massachusetts has draft methods with final methods due in early 1997. Ecology plans to adapt the draft methods with changes only made to improve them. If additional changes appear appropriate as Ecology determines the need they will be made but significant changes will be avoided until at least the work of the Duwamish Coalition project is completed.

Issue 14: What will Ecology publish?

Ecology will publish the interim policy that incorporates all the policy and technical guidance needed--formulas, default values, and worksheet(s). Ecology expects to have these materials available by January 2, 1997. As additional data is available it will be added.

INTERIM TPH POLICY SCHEDULE

November 8	Complete outline of final policy components
November 15	Draft conceptual approach to fate and transport. Conference call on Massachusetts human health model.
November 20	Draft conceptual approach to potable groundwater component. Draft conceptual approach to remedy selection.
November 22	Draft conceptual approach to human health component.
November 26	Present interim TPH Policy approach to PAC.
December 6	Drat analytical approach.
December 20	Complete draft of final interim TPH policy.
December 30	Publish/issue interim policy.

Proposed Interim TPH Policy

Presented to the Department of Ecology
by the Interim TPH Policy Working Group

October 22, 1996

Contents

Introduction

On May 14, 1996, the MTCA Policy Advisory Committee recommended that the Department of Ecology (Ecology) adopt an interim TPH policy. As stated in the Issue Resolution paper, the principal objectives of the interim policy are (1) to develop a basis for using Method B and Method C to set risk-based petroleum cleanup levels, and (2) to assist in the determination of the current or potential future highest beneficial use of ground water. The interim TPH policy is to be consistent with existing MTCA regulations.

In June, Ecology invited interested parties to participate in a working group to assist in the development of the interim policy. Over a period of approximately five months, the working group has met seven times. In addition, various subgroups have met several times to discuss specific topics (toxicity, fate and transport, analytical issues, and ground water beneficial use). This document presents the recommendation of the working group to Ecology.

At this time, the proposal does not represent an Ecology policy or proposed policy. However, the working group has coordinated its development of this proposal with Ecology. It is the belief of the working group that this proposal provides Ecology with a technically-sound foundation for the interim TPH policy.

Background

In the past, Ecology has not allowed the use of Method B or Method C to establish petroleum cleanup levels because of the absence of adequate toxicity data regarding petroleum mixtures. Petroleum products are complex chemical mixtures that consist of hundreds of compounds. Although good toxicity data exist for some of these compounds, for many others there is no data or the data is inconclusive. Evaluation of the toxicity of petroleum released into the environment is further complicated by the fact that the chemical composition of a release changes over time due to weathering effects and natural degradation.

Recently, a significant effort has been mounted to develop a technically-sound approach to characterizing the toxicity of petroleum releases, using surrogate chemicals to represent the toxicological and fate and transport characteristics of specific petroleum fractions. In particular, the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG) is developing a surrogate-based approach that has received a great deal of attention. Although the TPHCWG has released draft documents with many of its conclusions, it has not yet completed its final report.

Ecology has a project to update MTCA cleanup standards for petroleum hydrocarbons. The U.S. Environmental Protection Agency (EPA) has awarded an Underground Storage Tank Program grant and a Brownfields grant to Ecology. King County, the City of Seattle, the Port of Seattle, and the City of Tukwila have contributed additional funding. With the Duwamish Coalition, these entities have formed a Project Oversight Group (POG) to manage the TPH/Brownfields Project. The POG, along with its consultants, will assess other state programs, the recommendations of the TPHCWG, the American Society for Testing and Materials (ASTM), and the MTCA Policy Advisory Committee. Issues to be addressed include human health, movement to other media ("fate and transport"), ecological effects, aesthetics, and analytical protocols. It is anticipated that draft guidance and recommendations for any rule changes will be available by August 1997. Rule adoption is unlikely prior to 1998, although technical improvements to the interim TPH

policy may be possible where rulemaking is not required. Any rules, guidance, or policy adopted by Ecology will supersede the interim TPH policy.

In addition, several states have adopted and are implementing surrogate approaches that are similar to that being developed by the TPHCWG. A program has been in effect in Massachusetts since 1994, and has been the subject of a substantial amount of review by the EPA, the Agency for Toxic Substances and Disease Registry (ATSDR), and the scientific community. The work of the TPHCWG and the experience of other states (particularly Massachusetts) provides the basis for much of this proposed policy.

In addition to addressing the question of appropriate cleanup levels, the proposed interim TPH policy clarifies the remedy selection process for petroleum release sites. For many sites, a combination of remedial methods may be used to address varying risks resulting from a petroleum release. Some petroleum phases are mobile (e.g., vapors, free product). These phases should be treated and/or removed. Other phases are less mobile and are amenable to use of containment and institutional controls if access to the material is technically difficult and/or costly.

The proposed interim TPH policy focuses on treatment of those fractions which present the greatest risk, considering both toxicity and exposure. For sites where contamination is migrating, in-situ treatment or soil removal and treatment or disposal generally will be expected. Commonly used remedial actions for petroleum-contaminated soils include bioremediation, thermal desorption, and landfilling. All three of these may be appropriate depending on the amount of contaminated soil, location of final disposal, type of contamination, concentrations of contaminants, and cost.

Under MTCA, Ecology is to give preference to permanent remedies to the maximum extent practicable. However, MTCA also recognizes the need for and use of containment, disposal, and institutional controls for those situations where technical difficulty and/or cost outweigh the additional benefit of treatment. In some situations, factors other than mobility may need to be evaluated to make remedy selection decisions which are protective.

Generally, under the proposed interim TPH policy, contamination which is not migrating, and is not likely to migrate, may be addressed by treatment, containment, or off-site disposal, depending on the amount of material, fraction of petroleum present, concentration of petroleum, cost, et cetera. Containment or off-site disposal may be selected if: (a) the remedy is protective of human health and the environment, (b) the cost for treatment or other higher preference technology is substantial and disproportionate to the incremental degree of protection it would achieve over containment or off-site disposal, and (c) institutional controls (e.g., deed restrictions) are used where appropriate. Sites selecting containment may reevaluate the need for institutional controls based on future regulatory changes regarding human health risk from direct contact.

Step-by-Step Description

Following is a step-by-step description of how a petroleum release is addressed under the proposed interim TPH policy:

Step 1: Remove Active Product Source—If the removal of a tank or other active product source is already planned or underway at the site, remove heavily contaminated soil as part of the project. (In areas with a high water table, conduct the project during periods of low ground water levels, if possible, to allow removal of any heavily contaminated "smear zone" soil.) The heavily contaminated soil should be treated or disposed of at a fully permitted facility that is authorized to accept such material.

Step 2: Conduct Interim Actions As Needed—Where an interim action is appropriate, it should focus on stopping free product or vapor migration. The goal is to eliminate or minimize migration beyond the property boundary or point of actual exposure, whichever is the closest to the source. Eliminate explosivity hazards and immediate inhalation risks, remove free product in the tank pit, stop any obviously on-going product releases, migration, et cetera.

Step 3: Characterize the Site—Site characterization should be commensurate with the site conditions and complexity. Enough data must be collected to complete the following steps. These may be done all at once or in phases (i.e., enough data is collected to select the next action, then additional data is collected as the need arises).

Step 4: Identify Cleanup Levels—Cleanup levels are determined by one of three methods: Method A, Method B, or Method C. If the statute or regulations are modified in the future to allow the use of site-specific risk assessment for the establishment of cleanup levels, that will represent a fourth available method.

Method A—Method A cleanup levels may be used at appropriate petroleum release sites, but they are not mandatory. Method A consists of look-up tables with media-specific TPH cleanup levels, as well as cleanup levels for certain individual constituents (i.e., BETX). MTCA Method A

	Cleanup Levels	
Substance	Ground Water [µg/L]	Soil [mg/kg]
TPH	1,000	
Gasoline		100.0
Diesel		200.0
Other		200.0
Benzene	5	0.5
Ethyl benzene	30	20.0
Toluene	40	40.0
Xylenes	20	20.0

Table 1. MTCA Method A Petroleum Cleanup Levels

cleanup levels for petroleum are shown in Table 1. The Method A lookup tables do not provide cleanup levels for surface water or air.

Method B and Method C—As noted above, a principal objective of the interim TPH policy is to enable the establishment of petroleum cleanup levels using Method B and Method C. To do this, it is necessary to evaluate the toxicity of a given petroleum release. The EPA has developed provisional dose-response values and cancer slope factors for some whole products (e.g., gasoline). However, these values are for fresh product and do not take into account the changes in the product due to weathering and natural degradation; thus, toxicity evaluations based on whole product values have large uncertainties. These uncertainties may be substantially reduced by evaluating the toxicity of the different carbon number fractions in a mixture (i.e., a surrogate approach).

The recommended surrogates, and their associated toxicity values, are shown in Table 2. Surrogates are used only to evaluate non-carcinogenic effects. They are not used to evaluate the carcinogenic risk posed by a petroleum release. Instead, carcinogenic risk is determined based on the presence of the indicator substance benzene, and, if appropriate, carcinogenic PAHs (cPAHs). This is the same procedure for evaluating the carcinogenic risks of a petroleum release as is used under current MTCA practices.

Carbon Fraction	Surrogate	RfD [mg/kg-day]	RfC [mg/m^3]
Aliphatics			
C5 - C8	n-Hexane	0.06	0.20
C9 - C12	n-Nonane	0.60	N/A
C9 - C18	n-Nonane	0.60	N/A
C19 - C35	Eicosane	6.00	N/A
Aromatics			
C5-C8	Toluene	0.20	0.40
C9 - C22	Pyrene	0.03	N/A

Table 2. Fraction-Specific Toxicity Values

Under MTCA, cleanup levels must be established for each impacted medium. Moreover, the cleanup level must be set at a level that not only is protective in the case of direct contact (e.g., ingestion of soil or water), but also accounts for exposure through other pathways (e.g., soil to ground water). In doing this, it may be necessary to take other considerations into account (e.g., chemical saturation levels).

The application of the proposed interim TPH policy to establish non-carcinogenic cleanup levels in each impacted medium is discussed below. (Cleanup levels for carcinogenic effects are set, as under existing practice, based on benzene and, if appropriate, cPAHs.)

(a) Impacted Soil

(i) Direct Contact: The procedure for establishing a cleanup level for direct contact with soil is outlined in the Box describing the Massachusetts surrogate approach. Once fraction-specific cleanup levels are established as described in the Box, there are two options for how to proceed. The first option is to apply these cleanup levels directly to the respective fractions found at the site. The second option, appropriate at relatively homogeneous and non-complex sites, is to adjust the fraction-specific cleanup levels based on each fraction's relative concentration in the mixture, and add together the adjusted fraction-specific cleanup levels to determine a single soil direct contact cleanup level.

(ii) Soil to Ground Water Pathway: Soil cleanup levels must account for soil to ground water migration unless (1) the release of hydrocarbons in soil has already reached ground water and ground water cleanup levels have not been exceeded at the point of compliance or receptor, or (2) the release has not reached the ground water and it consists of relatively immobile constituents and the ground water is relatively deep. Under Method B, this cleanup level is established by multiplying the applicable ground water cleanup level by 100, unless it can be demonstrated that a higher soil concentration is protective of ground water. The proposed interim TPH policy provides that this demonstration may be made as follows:

Soil/Water Partitioning Equation: The soil/water partitioning equation from EPA's

Massachusetts Surrogate Approach

For toxicological purposes, petroleum constituents may be broadly grouped either as aliphatics or aromatics. Aliphatics are straight-chained organic compounds. Aromatics are closed-ring organic compounds, including benzene, toluene, ethyl benzene, and xylenes (BETX), as well as polynuclear aromatic hydrocarbons (PAHs). Each group is then divided into fractions based on the number of carbon atoms associated with the various compounds, and a surrogate chemical is selected to represent the toxicological characteristics of the compounds within each fraction. Oral and inhalation dose-response values for each fraction are then established based on the characteristics of the surrogate chemical. The fraction-specific reference doses being evaluated for the proposed interim TPH policy are those applied in Massachusetts (except that the TPHCWG surrogate and reference dose is used for the C5 to C8 aromatic fraction). These are displayed in Table 2.

Fraction-specific toxicity values may be converted to fraction-specific cleanup levels by use of the appropriate Method B or Method C formula. For example, application of the Method B soil cleanup formula under MTCA provides the following fraction-specific equation for the C5 to C8 aliphatic fraction:

$$C_s = \frac{0.06\,mg/kg\text{-}day \times 16\,kg \times 1{,}000{,}000\,mg/kg \times 1}{200\,mg/day \times 1.0 \times 1.0}$$

$$C_s = 4{,}800\,mg/kg$$

Soil Screening Guidance may be used unless NAPLs are present at the site. It is based on the following simplifying and conservative assumptions:

- The source is infinite (i.e., steady-state concentrations will be maintained in ground water over the exposure period of interest).
- Contaminants are uniformly distributed throughout the zone of contamination.
- Soil contamination extends from the surface to the water table (i.e., adsorption sites are filled in the unsaturated zone beneath the area of contamination).
- There is no chemical or biological degradation in the unsaturated zone.
- Equilibrium soil/water partitioning is instantaneous and linear in the contaminated soil.
- The receptor well is at the edge of the source (i.e., there is no dilution from recharge down-gradient of the site) and is screened within the plume.
- The aquifer is unconsolidated and unconfined (surficial).
- Aquifer properties are homogeneous and isotropic.
- There is no attenuation (i.e., adsorption or degradation) of contaminants in the aquifer.
- NAPLs are not present at the site.

Under this approach, a soil cleanup level is established by application of the following equation:

$$C_s = (C_g DF)[(K_{oc} f_{oc}) + \frac{\theta_w + \theta_a H'}{\rho_b}]$$

where,

C_s = soil cleanup level [mg/kg];
C_g = ground water cleanup level [mg/L];
DF = dilution factor (20);
K_{oc} = soil organic carbon/water partition coefficient (chemical-specific) [L/kg];
f_{oc} = fraction organic carbon in soil (0.002 g/g);
θ_w = water-filled soil porosity (0.3 L_{water}/L_{soil});
θ_a = air-filled soil porosity (0.131 L_{air}/L_{soil});
H' = dimensionless Henry's law constant (chemical-specific); and
ρ_b = dry soil bulk density (1.5 kg/L).

This equation establishes the soil cleanup level (C_s) by first calculating a target soil leachate concentration (C_w), which is the applicable ground water cleanup level (C_g) multiplied by a conservative default dilution factor (20). This target leachate concentration is then converted to a soil concentration (i.e., cleanup level) by taking into account default soil parameters, as well as the soil-organic carbon/

Carbon Fraction	K_{oc} [L/kg]	H'
Aliphatics		
C5 - C8	2,265	54
C9 - C12	1.50e+05	65
C9 - C18	6.80e+05	69
C19 - C35	N/A	N/A
Aromatics		
C5-C8	891	1.6
C9 - C10	1,778	0.33
C11 - C22	5,012	0.03

Table 3. Fraction-Specific K_{oc} and H' Values

water partition coefficient (K_{oc}) and the dimensionless Henry's law constant (H'). Values for these latter two fraction-specific parameters, are taken from the work of the Massachusetts Department of Environmental Protection and are displayed in Table 3.

Although default parameters are provided for the soil/water partitioning equation, site-specific data may be used to provide a more accurate estimation of the applicable conditions. The parameter most likely to be varied on a site-specific basis is the fraction of organic carbon in the soil (f_{oc}).

It should be noted that the soil/water partition equation may not provide reliable results where concentration levels exceed the level of chemical saturation. Where this is the case, a cleanup level may be established either (1) at the chemical saturation level, (2) by means of an empirical demonstration (discussed below), or (3) through another method that is demonstrated to be protective of ground water at the site.

Empirical Demonstration: Alternatively, the partitioning of hydrocarbons from soil to ground water may be estimated by using a leach test instead of the soil/water partitioning equation. In using a leach test, it is not necessary to determine soil parameters, but a dilution factor must be calculated.

The leach test may be conducted either by a column study, or by use of the EPA's Synthetic Precipitation Leaching Procedure (SPLP) with respect to each fraction in the release. The fraction-specific concentrations of TPH found in the leachate are then added together, and the resulting concentration is divided by a site-specific dilution factor, which is calculated as follows:

$$Dilution\ factor = 1 + \frac{Kid}{IL}$$

where,

K = aquifer hydraulic conductivity [m/yr];
i = hydraulic gradient [m/m];
d = mixing zone depth [m] (see following equation);
I = infiltration rate [m/yr]; and
L = source length parallel to ground water flow [m].

The mixing zone depth is calculated as follows:

$$d = (0.0112L^2)^{0.5} + d_a\{1 - \exp[(-LI)/(Kid_a)]\}$$

where,

I = infiltration rate [m/yr];

d_a = aquifer thickness [m];
L = source length parallel to ground water flow [m];
K = aquifer hydraulic conductivity [m/yr]; and
i = hydraulic gradient [m/m].

If the total leachate concentration (divided by the dilution factor) does not exceed the ground water cleanup level, the soil to ground water pathway does not present a risk. Otherwise, (1) if there is sufficient distance from the base of the soil contamination and the top of the capillary fringe, vadose zone sentinel wells may be installed, or (2) a cleanup action shall be selected and implemented under Step 6.

Beneficial Use Not Drinking Water: If the highest beneficial use of the ground water is determined to be something other than drinking water, it is necessary to use the results of the soil fate and transport analysis as an assumed direct source to ground water, then to complete ground water fate and transport modeling to determine whether contaminants will reach a receptor or point of compliance at concentrations exceeding cleanup levels applicable to the receptor medium.

(iii) Soil to Confined Space Indoor Air Pathway: If there are subsurface structures nearby the residual-phase hydrocarbon source, and the residual hydrocarbon includes volatile constituents, cleanup levels must be established that address both short-term and long-term risks, as appropriate.

Short-term risks may exist where there is periodic short-term worker exposure (e.g., utility maintenance). The risks may relate to the vapor's potential for explosivity or flammability, as well as toxicity. If such short-term risks may exist, the air inside the structure should be measured (1) for the threshold limit value (TLV) by using an organic vapor detector, and (2) for explosivity and flammability by using a combustible gas indicator. If measurements indicate that the concentrations pose a risk, a cleanup action must be selected and implemented under Step 6.

Long-term risks may exist where occupants of the structure have repeated, long-term exposure over several years (e.g., a full residential basement). If such long-term risk may exist, an equilibrium equation is used to calculate a soil cleanup level (based on fraction-specific inhalation reference concentrations).

(b) Impacted Ground Water

Cleanup levels for ground water depend in the first instance on the highest beneficial use and reasonable maximum exposure expected to occur under both current and potential future site use conditions. Under MTCA, it is presumed that the highest beneficial use of

ground water is its use as drinking water, and that the reasonable maximum exposure occurs through ingestion and other domestic uses.

(i) Drinking Water: If the ground water is potable, cleanup levels are established using the same surrogate approach as described for cleanup levels for direct contact with soil, applying that approach to the ground water cleanup formula provided in WAC 173-340-720.

(ii) Nonpotable Ground Water: If it is demonstrated that the highest beneficial use of the ground water is something other than its direct use as a source of drinking water, it is necessary to determine the highest beneficial use. Alternative beneficial uses include discharge to surface water, agricultural uses, industrial uses, as well as discharge to another aquifer which is a current or potential future source of drinking water. Once the alternative beneficial use is determined, it is necessary to establish the cleanup level applicable to that use (e.g., surface water quality criteria for discharges to surface water).

If TPH concentrations in the ground water exceed the applicable receptor cleanup level, fate and transport mechanisms should be evaluated to determine whether concentrations will reach the receptor or point of compliance at levels exceeding the receptor cleanup level. This may be accomplished by completion of analytical or numerical modeling, or completion of a natural attenuation investigation.

Cleanup Levels Based on Site-Specific Risk Assessment—The MTCA Policy Advisory Committee expects to make specific recommendations regarding the use of site-specific risk assessment to establish cleanup levels. In recommending the adoption of an interim TPH policy, the Committee stated that the use of site-specific risk assessment at sites involving petroleum releases should be subject to the same approach as other MTCA sites. Therefore, the proposed interim TPH policy does not directly address the use of site-specific risk assessment. If future statutory or rule changes to MTCA allow the use of site-specific risk assessment to establish cleanup levels, the interim policy should be modified to reflect that policy.

Step 5: Compare Site Concentrations to Cleanup Levels—The media-specific cleanup levels determined under Step 4. are compared to the corresponding concentrations found at the site. If the concentrations at the site do not exceed the cleanup levels, no further action is required at the site. Otherwise, it is necessary to select and implement a cleanup action under Step 6.

Step 6: Select and Implement Cleanup Action (If Appropriate)—A cleanup action must protect human health and the environment. In addition, Ecology prefers cleanup actions which meet the cleanup levels without further action being required, other than approved disposal or treatment of wastes generated through the treatment process. This is

accomplished by selecting an action that, with respect to each impacted medium, either (1) reduces concentrations to the applicable cleanup levels, or (2) breaks the exposure pathway and provides assurance of continued protection over time. To the extent practicable, the cleanup action shall include the recovery of any free product at the site.

Step 6.1: Evaluate Alternatives—In accordance with WAC 173-340-360, evaluate alternative remedial actions.

Step 6.2: Select the Remedy for the Site—Ecology expects that a combination of methods will often be used. For example, in situ treatment or removal of material that is migrating and/or material causing the greatest risk might be used in combination with on-site containment (and associated institutional controls) for material which is not migrating or posing a risk to human health and the environment if it is contained.

Step 6.3: Implement the Remedy—Implement the remedial action selected for the site.

Step 7: Evaluate Cleanup Action—Once a cleanup action has been implemented (other than operation and maintenance and long-term monitoring), the action is evaluated to determine whether it provides the required protection of human health and the environment. If it does provide such protection, no further action is required (except for operation and maintenance and long-term monitoring activities if required). If it does not provide such protection, additional steps must be taken to assure protection. In any event, if the remedy results in petroleum remaining at the site at concentrations which exceed the cleanup level, or if conditional points of compliance have been established, Ecology is required to review the remedy at least once every five years.

Priority Issue #4: Ecologically-Based Cleanup Standards

Is there a need for ecologically based cleanup standards (i.e., protection of plants and animals) in addition to cleanup standards based on protection of human health?

Recommendation (Consensus)

1. Recommend that the flowchart and the guidance be used as templates for finalizing guidance and initiating rulemaking addressing protection of ecological receptors. The PAC would not adopt the flowchart and the guidance word-for-word, as they are works in progress and are subject to refinement during the process of finalizing guidance/rulemaking, but the PAC expects that the flowchart and the guidance will substantially conform to the structure that has been developed to date and will be further refined through further work.
2. Recommend a process to finalize the flowchart and the guidance for purposes of addressing (at least) the 13 issues listed below in the issue statement, and testing its practicability and readiness to support rulemaking. Include the following:
   a. Ecology finish the draft flowchart and guidance.
   b. Provide for SAB technical review of the flowchart and guidance, as well as the issues listed above.
   c. Ecology circulate the proposed final flowchart and guidance to PAC members and other interested persons for review and comment.
   d. Ecology circulate the proposed final flowchart and guidance to eco-risk workgroup members and other interested persons for review and comment.
3. Recommend that Ecology conduct a pilot project to test the "final" flowchart and guidance to assess their ease of use, practicability, economic impact and comprehensiveness, and to identify recommended revisions. As part of the pilot, Ecology should prepare a report of the pilot's results and agency recommendations. The pilot project should involve a review by a voluntary group that includes, to the extent possible, a cross-section of the persons/entities potentially subject to the ecological risk assessment process, including at least 10 small businesses, 3 large businesses, public and private entities, and urban and rural/agricultural locations. The pilot should also include at least 5 persons/entities conducting an independent remedial action. Ecology shall also test the tiered eco-risk approach as appropriate to supplement the pilot project. Funding must be made available for completing this pilot project.
4. Recommend rulemaking, as follows:
   a. Rulemaking supplemented by a pilot project as described in Option 3.
   b. Rulemaking which considers and addresses whether, and/or to what extent, the Tiered Eco-Risk System should apply:
      (1) to independent remedial actions;
      (2) to previously completed remedial actions.
5. Recommend process schedules, as follows:
   a. Ecology/SAB finalize draft guidance and flowchart
      (2) by the end of April 1997

b. Ecology circulate (under option 2c and 2d above) draft guidance and flowchart for 30 day comment once draft is final.

c. Ecology finalize guidance and flowchart for pilot or rulemaking within 30 days after comment period ends.

d. Ecology conducts and completes Pilot Project (in conjunction with pilot rules), including preparation of a report of results and recommendations for public review and comment, within one year after the draft guidance and flowchart are finalized.

e. Ecology initiates rulemaking, as provided in RCW 34.05, Part III (Rule-Making Procedures):

(1) Ecology must not:

(A) Close the public comment period for proposed rules until at least 60 days after the completion of the pilot, including publication for comment of the final agency report on the pilot.

(B) Finalize any analysis under RCW 34.05.328 regarding cost-benefit or burden imposed by the proposed rule, or regarding alternatives until after completion of the pilot.

6. Recommend a periodic review period for rules adopted to incorporate the Tiered Eco-Risk System into the MTCA regulations. The review would be to assure timely modifications to improve the original process.

a. Ecology conduct internal review and solicit public comment to review rules every two years.

Note: This applies only to soil media, and does not apply to sediments, air, groundwater, or surface water.

Background

HB 1810 required the MTCA Policy Advisory Committee to evaluate the need to adopt ecologically-based cleanup standards. The Eco-Risk Subcommittee, formed to address this issue, determined that it would be difficult to assess whether cleanups currently conducted under MTCA were sufficiently protective of ecological receptors. The Subcommittee did recognize, however, that current MTCA soil standards were generally developed based on protection of human-health, and that ecological receptors are more receptive to some chemicals at lower concentrations than humans. Accordingly, the Eco-Risk Subcommittee developed a three-tiered system for evaluating whether concentrations of hazardous substances in soils are protective of ecological receptors (the "Tiered Eco-Risk system"). The Tiered Eco-Risk System does not address surface water, sediment or wetland contamination, which are subject to separate standards applicable to those media which are intended to protect the environment.

Issue Statement

The Tiered Eco-Risk System developed by the Eco-Risk subcommittee is currently embodied in two documents -

1) A draft flowchart (3 pages, entitled "Tier I Ecological Evaluation", "Tier II Ecological Evaluation", and "Tier III Ecological Evaluation", dated 11/4/96) (the "Flowchart")
2) A draft guidance document entitled "Cleaning Up MTCA Sites to Protect the environment - A Guide to the Model Toxics Control Act Environmental Evaluation Process for Soil Contamination" (dated 11/5/96)(the "Guidance")

A number of technical and policy issues need to be resolved in order to finalize the Tiered Eco-Risk System for use in guidance and rulemaking, including the following:

1. How to integrate agricultural lands into the Tiered Eco-Risk System. An approach will need to be developed to identify which agricultural lands would be subject to ecological risk assessment requirements, when, and at what level.
2. How to integrate the concept of "area background" into the Tiered Eco-Risk System.
3. How to modify the ten-acre size criterion for Tier III sites to tie that criterion more closely to ecological concerns.
4. How to avoid unnecessary land use type controls or regulation on sites and avoid incentives for excessive paving.
5. How to identify what is needed regarding institutional controls for preventing exposures to ecological receptors, while staying within the framework of WAC 173-340-440.
6. How to flesh out what is meant by protection of soil productivity, and the circumstances in which soil productivity should be protected. For example, what soil biota are to be protected, what uses of the soil are to be supported, and whether a food web model is the best way to approach soil productivity protection.
7. How to define the species population which is to be protected; for example, how to define the home range of species which are subject to protection or which are serving as indicator species.
8. How to define significant effects on a population. That is, how to specify linkage between an observed effect on an individual and the effect of the contamination on the population. Preliminary, the Eco-Risk subcommittee concluded that an individual cancer is not necessarily to be viewed as a population effect, but reproductive effects are to be used as a surrogate for population-based effects.
9. How to ensure that TPH is dealt with under the Tiered Eco-Risk System consistently with whatever is done by the POG.
10. How to ensure the integration of the Tiered Eco-Risk System with methods A, B, and C in the human health risk assessment process and in remedy selection.
11. What are the appropriate chemical concentrations for the priority chemicals listed in Tier II.
12. What are the appropriate criteria for modifying the chemicals and concentrations in the Tier II priority chemicals list.
13. What organisms should be protected, to what degree, and in what locations under a Tier III ecological risk assessment.

The fundamental question is whether the PAC concurs that the Tiered Eco-Risk System, embodied in the two draft documents identified above (the flowchart and the guidance), should be used as templates for finalizing guidance and for initiating rulemaking addressing protection

of ecological receptors. If the PAC so concurs, then the second question is what the PAC prefers as a process for finalizing guidance and undertaking rulemaking.

Options

1. Recommend that the flowchart and the guidance be used as templates for finalizing guidance and initiating rulemaking addressing protection of ecological receptors. The PAC would not adopt the flowchart and the guidance word-for-word, as they are works in progress and are subject to refinement during whatever guidance/rulemaking process the PAC approves.
2. Recommend a process to finalize the flowchart and the guidance for purposes of addressing (at least) the 13 issues listed above for resolution, and testing its practicability and readiness to support rulemaking. Options include some or all of the following:
   a. Ecology finish the draft flowchart and guidance.
   b. Provide for SAB technical review of the flowchart and guidance, as well as the issues listed above.
   c. Ecology circulate the proposed final flowchart and guidance to PAC members and other interested persons for review and comment.
   d. Ecology circulate the proposed final flowchart and guidance to Eco-Risk subcommittee members and other interested persons for review and comment.
3. Recommend that Ecology conduct a pilot project to test the "final" flowchart and guidance to assess their ease of use, practicability, economic impact and comprehensiveness, and to identify recommended revisions. As part of the pilot, Ecology should prepare a report of the pilot's results and agency recommendations. The pilot project should involve a review by a volunteering group that includes, to the extent possible, a cross-section of the persons/entities potentially subject to the ecological risk assessment process, including at least 10 small businesses, 3 large businesses, public and private entities, and urban and rural/agricultural locations. The pilot should also include at least 5 persons/entities conducting an independent remedial action. Ecology shall also test the tiered Eco-Risk System as appropriate to supplement the pilot project. Funding must be made available for completing the pilot project.
4. Recommend rulemaking, as follows:
   a. Pilot-rulemaking as provided in RCW 34.05.313 including, as part of the Option 3 pilot, proposed rules for integrating the Tiered Eco-Risk system into the MTCA regulations.
   b. Rulemaking supplemented by a pilot project as described in Option 3.
   c. Rulemaking which considers and addresses whether, and/or to what extent, the Tiered Eco-Risk System should apply:
      (1) to independent remedial actions;
      (2) to previously completed remedial actions.
5. Recommend process schedules, as follows:
   a. Ecology/SAB finalize draft guidance and flowchart
      (1) by March 1997; or
      (2) by the end of April 1997.

b. Ecology circulate (under option 2c and/or 2d above) draft guidance and flowchart for 30 day comment once draft is final.

c. Ecology finalize guidance and flowchart for pilot or rulemaking within 30 days after comment period ends.

d. Ecology conducts and completes Pilot Project (in conjunction with pilot rules), including preparation of a report of results and recommendations for public review and comment, within one year after the draft guidance and flowchart are finalized.

e. Ecology initiates rulemaking, as provided in RCW 34.05, Part III (Rule-Making Procedures):

(1) Within 30 days after guidance and flowchart are "final".

(2) If a pilot project or pilot rulemaking is undertaken, Ecology must not:

(A) Close the public comment period for proposed rules until at least 60 days after the completion of the pilot, including publication for comment of the final agency report on the pilot.

(B) Finalize any analysis under RCW 34.05.328 regarding cost-benefit or burden imposed by the proposed rule, or regarding alternatives until after completion of the pilot.

6. Recommend a periodic review period for rules adopted to incorporate the Tiered Eco-Risk System into the MTCA regulations. The review would be to assure timely modifications to improve the original process. Options include:

a. Ecology conduct internal review and solicit public comment to review rules every two years.

b. Same as above, but every five years.

Analysis

1. The flowchart and guidance set forth a system which is intended to screen out the sites least likely to have significant impact on ecological receptors, requiring site-specific (Tier III) ecological risk assessment only when the potential impact requires greater analysis. The Tiered Eco-Risk System differs from EPA protocols by including standard screening in order to enhance practicality and to avoid unnecessary complexity, expense and delay in the cleanup process.

2. Options 2a (Ecology finishing flowchart and guidance) and 2b (SAB review) are critical to completion of the Tiered Eco-Risk System. Circulation of the flowchart and guidance to the PAC (Option 2c) would assure PAC member input on policy issues yet to be resolved. Circulation to the Eco-Risk subcommittee (Option 2d) would assure continuity in issue resolution. Circulation to interested persons (Options 2c and 2d) will enhance comprehensiveness.

3. Since the Tiered Eco-Risk System has not been patterned after any process currently utilized by any of the states or EPA, numerous persons have suggested a pilot to test the system. The pilot should include, as much as possible, a broad cross-section of entities to test it in a wide variety of situations.

4. Option 4a builds on Option 3, adding proposed rules to clarify how the Tiered Eco-Risk System will be integrated into the MTCA regulations. Option 4b rejects the need for a

pilot of any sort; however, support for this option might be due to concern over the length of time for rulemaking (see Option 5 regarding schedule options). Option 4c(1) addresses concerns regarding application of the Tiered-EcoRisk system to independent cleanups, such as uncertainties regarding the impact on Ecology resources in assuring adequate technical assistance (e.g., for Tier III site-specific assessments), the impact on the IRAP program, and the potential for calling into question the adequacy of independent cleanups which appear straightforward from a human health standpoint (e.g., cleanups that would otherwise use methods A, B or C). Option 4C(2) addresses concerns regarding the effect of new standards on previously completed cleanups.

5. Option 5a(1) is advocated by some. Option 5a(2) is supported by Nigel Blakley (Ecology) and Bruce Duncan (EPA, SAB). Options 5b and 5c are intended to provide for appropriate input on the "final" draft guidance and flowchart. Option 5d anticipates that establishing and conducting a pilot and preparing a pilot report with recommendations, will take 9 months to a year. Option 5e(1) would set a timeframe for rulemaking if no pilot is conducted. Option 5e(2) addresses concerns that certain rulemaking processes not be completed until pilot results are available.

6. Option 6a and 6b allow for checks on the system, with 2 year or 5 year reviews.

Priority Issue #5: Remedy Permanence, Future Land Use, Waste Management Hierarchy, Long-Term Effectiveness, Groundwater Contamination

There are a variety of related issues (see Issue #6 below) concerning the permanence of remedies, including (1) should the MTCA continue to require permanent solutions to the maximum extent practicable, and if so to what extent; (2) how should projections of future land use influence remedy selection, especially in determining protectiveness or in establishing the degree of permanence; (3) how should the waste management hierarchy influence remedy selection (MTCA defines a hierarchy of cleanup techniques, beginning with reuse or recycling as the most preferable remedy, and ranging to institutional controls and monitoring as the least preferable approach.); (4) how can long-term effectiveness for remedies which leave hazardous substances on site be assured; and (5) should there be additional recognition of the difficulty of remediating groundwater contamination and consideration of additional cleanup alternatives?

Priority Issue #6: Remedy Cost

To what extent should cost influence remedy selection? For example, should the cost of the remedy, and the incremental risk reduction achieved, be considered in remedy selection?

Recommendation (Consensus)

Revised Remedy Selection Framework

It was recommended that a conceptual framework for Section 360 rule changes be developed, reviewed, and approved by the PAC. Some guidance may also be needed. Ecology will then rewrite the rule (consistent with the framework, (see Issue #5 in Section 5.0) in accordance with the legal requirements for rule making. The framework describes changes in WAC 173-340-360, i.e., role of the hierarchy, steps in the remedy selection process and the test for comparing costs and benefits.

The language in the framework is not intended as specific regulatory language, although the PAC may recommend specific rule language or key provisions. Nor is the intent necessarily to eliminate language in the existing rule section simply because it is not described in the framework.

In addition, the use of quantitative risk assessment will now be allowed in the remedy selection process with the constraints described in WAC 173-340-700 through 760. While "risk assessment" has been used in the past in the remedy selection process, it has been a qualitative assessment or evaluation of the human health risks or potential risks at the site. This issue is also addressed in the framework.

Remedy Selection Framework:

Terminology

A cleanup level means the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure assumptions. This level is determined by Methods A, B, or C. Cleanup levels are initially identified early in the remedy selection process - generally before or at the same time as the initial remedial investigation activities. These levels are compared to the concentration of hazardous substances at the site. If site concentrations levels do not exceed the cleanup levels, there is no need for further action at the site. Otherwise, it is necessary to evaluate and select a cleanup action.

A remediation level is a concentration of a hazardous substance that, in conjunction with a given action or set of remedial actions, is protective of human health and the environment. Remediation levels can further be differentiated as treatment levels, capping levels, excavation/disposal levels, etc.

Risk Assessment in Remedy Selection

Risk assessment may be used in the remedy selection process. The primary purpose of a risk assessment used in remedy selection is helping to evaluate cleanup alternatives at the site by: 1) documenting the magnitude of the risk remaining, if any, after the implementation of actions that must be taken in conjunction with the remediation levels, and 2) documenting the magnitude of risk, if any, created by implementation of remedial actions.

This assessment may be quantitative or qualitative and the scope of the assessment should be commensurate with the information needed to make remedy decisions at the site. This assessment could include but is not necessarily limited to: calculation of concentrations from the Method B or C equations with parameters altered as defined in the proposed WAC 173-340-702 and 708, and calculation of the risk to ground water using methods established for evaluating the soil-to-ground water pathway.

The results of the risk assessment are considered during the evaluation of alternative cleanup actions and are one way that remediation levels may be established. The risk assessment will provide information that is particularly relevant in evaluating protectiveness, long term effectiveness, short-term risks and permanence to the maximum extent practicable. A residual risk of 10E-5 (for voluntary adult worker); 10E-6 (for residential) and a HI less than 1.0 are used to define protectiveness of long-term human health.

Hierarchy

The hierarchy of treatment technologies will be removed as a stand-alone criteria for remedy selection. It will be used as a guide to long term effectiveness of various alternatives and as a list

of remedial options to evaluate, as appropriate, at the site.

- Reuse or recycling
- Destruction or detoxification
- Immobilization or solidification
- On-site or off-site disposal in an engineered, lined and monitored facility
- On-site containment
- Institutional controls

Criteria

The criteria for selecting a remedy are:

- Protectiveness of human health and the environment.
- Permanence.
- Cost.
- Effectiveness over the long term.
- Management of short term risks.
- Technical and administrative implementability.
- Consideration of public concerns.

These criteria should be defined in Section 360. In particular, cost should be defined to include: the actual cost of construction and the net present value of any long term costs; including any operation and maintenance costs, monitoring costs, equipment replacement costs, and agency costs which are cost-recoverable.

Analysis of Alternatives

Only reasonable remedial alternatives should be analyzed in the feasibility study. In conducting an evaluation of alternative cleanup actions, a phased or iterative approach may be needed. The goal is to eliminate options clearly unsuitable for the site without excessive study. These alternatives are combinations of technologies or methods taken from the list given above (i.e. the former hierarchy) and shall include:

1) a permanent remedy. This will not be required for landfills or other sites where a model remedy exists, a permanent remedy is not technically possible, or the costs are so clearly disproportionate that a more detailed analyses is not necessary. The permanent remedy shall be the baseline against which the other alternatives shall be evaluated for the purpose of determining whether the remedy is permanent to the maximum extent practicable.

2) Other reasonable alternatives for the site.

These alternatives shall be analyzed for each of the remedy selection criteria.

Permanent to the Maximum Extent Practicable

The preference for permanence shall be effectuate by comparing the costs and benefits of different alternatives or remediation methods. The test for selecting a remedy shall be a "disproportionate cost" test. In other words, the cost of an alternative (or remediation method) is disproportionate if the incremental cost of the alternative (or method) over that of a lower cost alternative (or method) exceeds the incremental degree of benefits achieved by the alternative (or method) over that of the lower cost alternative (or method). The cost and benefits to be compared are all of those defined in the remedy selection criteria above.

Language will be added to Section 360 to clarify the understanding that these costs and benefits will frequently be non-quantitative, and that the comparison of the costs and benefits will often involve best professional judgment. In particular, the benefits of a remedial alternative are often difficult to quantify and, thus, Ecology should have discretion to favor or disfavor those qualitative benefits and use that information in selecting a remedy.

The meaning of the work "substantial" as originally defined in the rule is subsumed in the work "disproportionate". However, if Ecology and the PLP agree that the incremental costs of a more permanent remedy are not substantial, a disproportionate cost analyses is not mandatory and the more permanent remedy may be selected.

Changes made to the role of the hierarchy and to the phrase "substantial and disproportionate" are not meant to change the statutory requirement for "permanent to the maximum extent practicable".

Where two or more remedial alternatives are equal in benefits, Ecology must select the alternative that costs the least. The cost and benefits to be compared are all of the those defined in the remedy selection criteria above.

Process

Steps* in the remedy selection process are:

- Conduct the remedial investigation
- Identify cleanup levels
- Compare site concentrations to cleanup levels
- Conduct an interim action if necessary
- Use a model remedy if appropriate
- Identify cleanup technologies and approaches using list
- Define cleanup action alternatives (combinations of technologies and approaches)
- Determine remediation levels

* May occur at differing points in the process.

- Evaluate cleanup action alternatives using criteria above
- Identify proposed cleanup action
- Categorize site
- Issue cleanup action plan (CAP)
- Implement CAP

Recommendation on Institutional Controls (Consensus) (Also see revised 708(3)(d) in Issue #1 in Section 5.0 and Appendix C)

Section 360 and 440 should be clarified to ensure that institutional controls are judged by the same remedy selection standards, including protectiveness and long-term effectiveness, as are used to judge other cleanup actions. Ecology should continue its effort to compile information on institutional controls. Ecology should evaluate the effectiveness of institutional controls used to date and issue guidance to improve them, if necessary. Possible ways to improve the long-term effectiveness of institutional controls include: better record keeping by Ecology, verification of recording of deed restrictions, and use of financial assurance mechanisms.

The PAC recommends that statutory and regulatory language be adjusted to strengthen institutional controls where they are appropriately used. The following improvements to the system for managing institutional controls are suggested:

1. Ecology should maintain a list of sites which are subject to institutional controls.
2. Ecology should assure regular (five year) reviews of compliance with institutional control requirements by sites which are subject to those requirements.
3. As provided in the current MTCA regulations, Ecology should, where appropriate, mandate financial assurance mechanisms be put in place for sites which are subject to engineering controls and to institutional controls. It is presumed that financial assurance mechanisms will be required unless the PLP can demonstrate that sufficient financial resources are available and in place to provide for the long-term effectiveness of engineering and institutional controls adopted. Site decision documents should contain concrete proof that sufficient financial assurances have been provided. The RCRA program provides an excellent model for the shape and design of those financial assurance requirements.
4. The institutional controls should demonstrably reduce risks at the site to ensure a protective remedy. PLPs should be required to demonstrate the effectiveness of the institutional controls applied to the site. This demonstration should be based on a quantitative, scientific analysis where appropriate.
5. Institutional controls should provide for both short-term and long-term protection at the site, as appropriate for the remedy selected.
6. Ecology should ensure that in the event that institutional controls are no longer effective, or the site is altered or developed in a way which is inconsistent with applicable institutional control requirements or so as to render institutional controls unlikely to be effective, the PLP remains responsible for conducting a reassessment of the site's residual risk and, if necessary, appropriate additional remediation activities.
7. Ecology, in consultation with interested parties, should make other conforming changes to

Ecology's regulations to assure that the changes in the regulations occasioned by the approval of site-specific risk assessment changes are coordinated with the institutional controls and regulations.

Point of Compliance (Consensus)

The regulations and Ecology practice should be clarified so that when groundwater discharges to surface water, a conditional point of compliance may be located upland of the groundwater/surface water interface, as close as technically practicable to the point or points where the groundwater flows into the surface water. These revisions should also allow an estimate of the dilution that occurs between the upland monitoring well and the point of discharge to surface water to be used to calculate the cleanup level at the point of compliance. Because estimating the dilution that may occur between an upland monitoring well and nearby surface water may be difficult, Ecology should consult with affected stakeholders in identifying appropriate procedures. Ecology should also consult with affected stakeholders in developing regulatory language and guidance.

The regulations should be revised so that when groundwater containing contamination from a single property discharges into surface water after flowing under property not owned or leased by the PLP, if the PLP obtains agreement to do so from down gradient property owners and appropriate institutional controls are implemented, a conditional point of compliance may be established as provided for in (a) above. Furthermore, Ecology should work with the Department of Natural Resources to establish an appropriate policy that adequately protects the land they manage.

Ecology should amend WAC 173-340-720(6) to allow the approval of final cleanup actions at "areawide brownfield" sites with commingled plumes where the groundwater cannot be practicably remediated to meet cleanup levels at the property boundary. These cleanups must still meet all other requirements of MTCA, including the remedy selection requirements of Section 360. They must also include appropriate institutional controls, such as deed restrictions or land use overlays, to ensure that human health and the environment are not threatened by the contamination that is allowed to remain.

When amending the regulation, Ecology should adopt the criteria for determining which sites will be considered to be "areawide brownfield" sites for purposes of this provision. The PAC recommends that the criteria should apply to those sites with multiple property owners, multiple sources of groundwater contamination, or a combination of the two, which make it impracticable to meet a point of compliance at each property boundary. For example, the criteria should be designed to include the Duwamish industrial area in Seattle and the Yakima Railroad Area.

Sites which do not qualify as "areawide brownfields" sites should continue to be subject to the current requirements of WAC 173-340-720(6). Where Ecology determines that no remedy meeting these requirements is practicable under Section 360, the Ecology should continue its current practice of approving interim cleanup actions.

The PAC also recommends that Ecology delete WAC 173-340-720(b)(d)(ii), and prepare

guidance, or rules if necessary, to clarify when treatment to the maximum extent practicable as determined through the WAC 173-340-360 process meets the AKART requirement to the extent it applies to contaminated sites as an ARAR under WAC 173-340-710. The PAC recommends that Ecology seek to limit, to the extent allowed by law, the instances when an AKART analysis must be conducted in addition to the remedy selection analyses required by WAC 173-340-360.

Issue Statement

The goals and criteria for selecting a remedy are confusing. There are requirements both for permanent solutions to the maximum extent practicable and for use of a hierarchy of technologies. In some situations, the hierarchy accurately reflects this preference for permanence to the maximum extent practicable and in others it does not.

The concept of action levels is not in the rule.

There is a focus on the question "Is a site above the cleanup levels?" at times when the question "Are the actions at the site protective" is more appropriate.

Steps of the feasibility study process are not clearly described. Remedial investigations are described in more detail in the rule.

Options:

1) Do nothing
2) Write guidance to clarify the rule
3) Rewrite the rule
4) Make statutory changes

Institutional Controls - Background

Though the MTCA system was not originally designed to utilize institutional controls as a central element of the remediation process, the program has evolved to regularly provide for and rely on the implementation of effective institutional controls as part of remediations. However, Ecology's use, application, and enforcement of institutional controls provisions as a part of remediations which leave contamination in place on site has been mixed. This has been particularly true with respect to financial responsibility requirements. In light of the PAC's decision with respect to the liberalization of the use of site-specific risk assessment, Ecology's and PLPs reliance on and use of institutional controls is likely to increase. The PAC has recognized the need for assurance of the effectiveness of the institutional controls Ecology includes in remediation programs for particular sites.

Institutional Controls - Options

1. No change in the current institutional controls utilization system.

2. Eliminate institutional controls as a method of site remediation, and require complete cleanups in all instances.
3. Adjust statutory and regulatory language to strengthen institutional controls where they are appropriately used.

The PAC has, throughout its deliberations, reaffirmed the need for the effective use of institutional controls. The PAC has also identified inadequacies in the current institutional control system, and a model by which to improve the institutional control system. For this reason, the PAC recommends Option 3.

Institutional Controls - Discussion

There is little doubt that institutional controls will continue to play an important role in remediations, particularly with the advent of increased site-specific risk assessment. In order for the institutional control system to work effectively, however, a number of improvements in that system are in order. Many of the powers necessary to provide for an effective institutional controls system are already provided for in DOE's regulations. However, DOE's implementation of those institutional controls has been lacking in a number of respects. DOE, for example, has seldom applied financial responsibility requirements. There is also some doubt about the effectiveness of many of the institutional controls applied. For these reasons, as subsidiary recommendation to the recommended Option 3, the following improvements to the system for managing institutional controls are suggested:

1. DOE should maintain a list of sites which are subject to institutional controls.
2. DOE should assure regular (five year) reviews of compliance with institutional control requirements by sites which are subject to those requirements.
3. As provided in the current MTCA regulations, DOE should mandate financial assurance mechanisms be put in place for sites which are subject to engineering controls and to institutional controls, where appropriate. It is presumed that financial assurance mechanisms will be required unless the PLP can demonstrate that sufficient financial resources are available and in place to provide for the long-term effectiveness of engineering and institutional controls adopted. Site financial assurances have been provided. The RCRA program provides an excellent model for the shape and design of those financial assurance requirements.
4. The institutional controls should demonstrably reduce risks at the site to ensure a protective remedy. PLPs should be required to demonstrate, on a quantitative, scientific basis, the effectiveness of the institutional controls applied to the site.
5. Institutional controls should provide for both short-term and long-term protection at the site, as appropriate for the remedy selected.
6. DOE should ensure that in the event that institutional controls are no longer effective, or the site is altered or developed in a way which is inconsistent with applicable institutional control requirements or so as to render institutional controls unlikely to be effective, the PLP remains responsible for conducting a reassessment of the site's residual risk and, if necessary, appropriate additional remediation activities.

7. Ecology, in consultation with interested, should make other conforming changes to Ecology's regulations to assure that the changes in the regulations occasioned by the approval of site-specific risk assessment changes are coordinated with the institutional controls and regulations.

Point of Compliance - Options

There are some situations in which the appropriate interpretation of point of compliance issues related to groundwater discharges to surface water or "areawide brownfield" sites should be clarified or changed.

a. When groundwater discharges to surface water, the regulations (WAC 173-340-720 (6)(d)) state that a conditional point of compliance may be located "within the surface water as close as technically possible to the point or points where ground water flows into the surface water." Ecology's practice has been to establish the point of compliance in monitoring wells located upland of the groundwater/surface water interface because of the practical limitations of obtaining representative samples and concerns about protection of benthic organisms. The situation is further complicated at some sites by tidal influence which may extend inland from the groundwater/surface water interface.

   1 a. Do nothing.

   2 a. Change Ecology practice to be consistent with the regulations as written and write guidance to clarify the intent of the regulations.

   3 a. Clarify the regulations to be consistent with Ecology practice and the practical limitations of monitoring the groundwater surface water interface but allow the use of an estimate of the dilution that occurs between the upland monitoring well and the point of discharge to surface water (the point of compliance) in the calculation of the cleanup level.

   4 a. Allow an NPDES-type dilution zone with the point of compliance established in the surface water.

b. One of the requirements for approval of a conditional point of compliance as described in WAC 173-340-720 (6) (d) is that ground water discharges shall be provided with all known available and reasonable methods of treatment prior to release into surface waters. This requirement was included in MTCA to address Ecology's concerns that contamination seeping to surface waters be minimized and dilution not be relied on to demonstrate compliance. Ecology believes this requirement is also necessary to comply with water quality laws; other people disagree. Although the process for determining all known available and reasonable methods of treatment (AKART) is established for point source discharges, it is not clear how the determination should be made for non-point discharges of groundwater to surface water.

   1b. Do nothing

   2b. Establish all known available and reasonable methods of treatment for non-point discharges of groundwater on a case be case basis using the method for derivation of technology based effluent limits under RCW 90.48.

3b. Develop a process for identifying all known available and reasonable methods of treatment that is appropriate for groundwater discharging to surface water.

4b. Recommend that cleanup levels for groundwater discharging into surface water be set in accordance with WAC 173-340-730. Ecology should prepare guidance clarifying that if a remedy is selected that includes extraction and treatment of groundwater with subsequent surface water discharge, the discharge should be provided with all known available and reasonable methods of treatment prior to release into surface waters.

5b. Recommend that Ecology clarify the intent of this requirement by modifying the MTCA regulations and preparing guidance to better explain this requirement as it applies to contaminated sites.

6b. Regardless of the outcome of the AKART discussion, recommend to Ecology that technology-based surface water discharge limits determined for point source discharges not be used to set groundwater cleanup levels.

c. Groundwater at many properties discharges into nearby surface water only after flowing under property owned by someone else. For example, the Washington Department of Natural Resources owns narrow strips of property along the edge of many surface water bodies. This has effectively eliminated for some sites the option of using a point of compliance near the groundwater/surface water interface because this is beyond the PLP's property boundary.

1c. Do nothing.

2c. Set the point of compliance at the property boundary and the groundwater cleanup levels equal to the surface water criteria.

3c. Set the point of compliance at the property boundary and use analytical or numerical modeling or an evaluation of natural attenuation to determine groundwater cleanup levels that would provide concentrations at the groundwater/surface water interface that would not exceed surface water criteria.

4c. Revise the regulations to allow a conditional point of compliance to be set at the groundwater/surface water interface under certain conditions even if there is intervening property.

d. In some areas (for example areawide brownfield sites) it is difficult to clean up groundwater contamination from a single source to cleanup levels because the groundwater is impacted by other sources of contamination.

1d. Do nothing.

2d. Amend WAC 173-340-720(6) to allow the approval of final cleanup actions at "areawide brownfield" sites even where the groundwater cannot be practicably remediated to meet cleanup levels at the property boundary

Priority Issue #7: Cleanup Action Levels

After a remedy has been selected, should it be implemented through the current practice of using "cleanup action levels," (that define the material that must be remediated or contained with a specific technology or engineering control) and if so, how should those levels be determined?

Recommendation (Consensus)

At many sites, the cleanup action will be designed to achieve the "cleanup levels" applicable to the hazardous substances present at the site. However, it is also possible to use the requirements of this section to select a remedy that leaves hazardous substances at the site in concentrations above the cleanup levels. Such a remedy will be implemented by developing site-specific "cleanup action levels" (remediation levels) for the hazardous substances at the site. A cleanup action is considered to be protective of human health and the environment even though it may leave hazardous substances at the site in concentrations above cleanup levels, so long as it complies with the other requirements of this section.

Ecology should prepare amendments to Sections 360, 120, 200, and perhaps other sections of the regulations, to authorize and explain the use of "cleanup action (remediation) levels." At a minimum, the amendment should authorize the use of remediation levels to implement remedy selection. Preferably, the amendment should explain better how remediation levels are established. The application of remediation levels and their relationship to point of compliance (however defined), as well as what it means to achieve remediation levels or cleanup levels, will be addressed later by the PAC. [See recommended framework for Section 360 in Priority Issue #5 for language change to "remediation levels."]

Issue Description

MTCA requires that sites be cleaned up to meet certain "cleanup levels" as measured at certain "points of compliance." In practice, these cleanup levels are met by establishing "cleanup action levels" throughout the site, which define the extent of active remediation or contaminant needed to ensure that the cleanup levels are met at the points of compliance. The statue and the regulations do not use the words "cleanup action levels." The term has been developed by Ecology and PLPs and the public to identify cleanup action concentrations but it is at least unclear to have a term of such importance not used in the statute or regulations. Arguably WAC 173-340-360 (1)(b) contemplates the term, but an explicit statement would be helpful. There are other issues which flow from cleanup action levels, such as definition of points of compliance and what it means to achieve cleanup action levels and/or cleanup levels.

Issue Restatement

None.

Options

1. Do nothing.
2. Amend the statute to add reference to "cleanup action levels," probably in RCW 70.105D.030 (2)(d).
3. Amend the regulations to add reference to "cleanup action levels" and to describe more clearly how they are developed, probably in WAC 173-340-360.
4. Issue Ecology policy interpreting the statute and regulations to allow "cleanup action levels" and to describe more clearly how they are developed.

Option Analysis

Doing nothing is unacceptable. The statute does not need to include this level of detail. Ecology's policy statements do not have the force of law. An amendment to Section 360 of the regulations, was well as to the overview in Section 120 and the definitions in Section 200, would resolve the issue.

Priority Issue #9: Areawide Contamination/Brownfields

What steps can be taken to encourage cleanups that lead to redevelopment and reuse of "brownfields" (industrial properties), agricultural properties, and other areas of broad-based surface contamination while ensuring that the cleanups comply with the MTCA's fundamental requirements?

Recommendation (Mike Sciacca Abstained)

Areawide Contamination/Brownfields

In addition to recommendations agreed to by the PAC concerning transferability of covenants not to sue, a plume clause, the rewriting of Rule 360, and site-specific technical assistance, the following additional changes are recommended:

1. The remedy selection provisions of WAC 173-360 should be revised to include language to allow the Department to identify or develop model remedies for common categories of facilities, types of contamination, types of media and geographic areas.
2. Ecology and the Attorney General's office should undertake a study of prior settlements, including but not limited to the Thea Foss Settlement, to identify options for addressing areawide cleanups involving multiple land owners. Ecology should undertake appropriate outreach and education initiatives to better inform PLPs and local governments regarding mechanisms for addressing areawide cleanups.
3. Ecology should undertake rulemaking to revise WAC 173-340-720(6)(c), (which currently limits conditional groundwater points of compliance to property boundaries) for the purpose of facilitating areawide cleanups which may be complicated by current provisions (e.g., groundwater contamination involving overlapping plumes and multiple properties). (See Issue #5 for point of compliance discussion)
4. Ecology and the Attorney General's office should analyze the need for rule making, guidance, and outreach to address whether local toxics fund monies may be utilized by a local government to perform an areawide cleanup or RI/FS. The analysis should include mechanisms for allowing participation by potentially liable parties, and PLP contribution of funds to partially reimburse grant expenditures. Additionally, community-based redevelopment projects led by local governments using local toxics account grant monies should develop public participation goals that include taking into account sustainable economic development and environmental justice, as appropriate.

Prospective Purchaser Agreements

The PAC recommends additional education/outreach, evaluating, streamlining, increasing availability and a statutory revision that would amend RCW 70.105D.040(5) as follows:

(5) In addition to the settlement authority provided under subsection (4) of this section, the attorney general may agree to a settlement with a person not currently liable for remedial action at a facility who proposes to purchase, redevelop, or reuse the facility, provided that:

(a) ~~The settlement will provide a substantial public benefit, including but not limited to the reuse of a vacant or abandoned manufacturing or industrial facility, or the~~

~~development of a facility by a governmental entity to address and important public purpose;~~

~~(b)~~ The settlement will yield substantial new resources to facilitate cleanup;

(b) ~~(c)~~ The settlement will expedite remedial action consistent with the rules adopted under this chapter; and

(c) ~~(d)~~ Based on available information, the department determines that the redevelopment or reuse of the facility is not likely to contribute to the existing release or threatened release, interfere with remedial actions that may be needed at the site, or increase health risks to persons or in the vicinity of the site.

The legislature recognizes that the state does not have adequate resources to participate in all property transactions involving contaminated property. The primary purpose of this subsection is to promote the cleanup and reuse of vacant or abandoned commercial or industrial contaminated property. The attorney general and the department may give priority to settlements that will provide a substantial public benefit, including, but not limited to the reuse of a vacant or abandoned manufacturing or industrial facility, or the development of a facility by a governmental entity to address an important public purpose.

Orchard Lands

The PAC recommends that a combination of the options below be put in place. Resources for these options should be sought from a variety of sources. Ecology is not a research arm of state government and does not have staff in place to conduct bioavailability studies. However, if resources become available, Ecology and Health should participate in locally driven efforts to both scope and conduct these studies. Ecology and Health will convene a work group consisting of local stakeholders to develop approaches to Items 2, 4, 5, 6, and 7 below.

Ecology should take the lead in:

I. providing technical assistance to persons requesting such help (Item 3)
II. outreach activities (Item 7)
III. evaluation of new scientific information if it becomes available (Item 8)
IV. adoption of developed BMPs and presumptive remedies, as appropriate

The Washington Department of Agriculture and/or the WSU Tree Fruit Research Center should take the lead in development of BMPs (Item 7) (Laurie Valeriano abstained from this item of the decision.)

1. Maintaining the status quo will do nothing to protect human health and the environment when contaminated orchard property is converted to residential use, nor does it address potential risks to owners of property already converted to residential use. Similarly, a status quo approach does not address the uncertainty issues surrounding property transfer.
2. The true extent of contamination in central Washington has only been estimated. It may be that many of the orchard lands are only mildly contaminated, if they are contaminated at all. The issue should be framed on the basis of fact rather than conjecture. The first step should include a summary of existing data, an assessment of the data gaps, and a sampling plan if appropriate. The potential areas to be sampled should be determined in consultation with the local communities (landowners, local government, developers, lenders, buyers) and should

include current residential properties located on former orchard lands. The data would be used to evaluate the reasonableness of available remedies, and could focus future agency work in areas where exposure is likely to be highest. It is anticipated that this work will be funded and carried out by local interests with technical assistance from Health and Ecology.

3. The MTCA PAC has already endorsed the concept of allowing Ecology to provide site-specific technical assistance to persons conducting independent cleanup actions. This approach will be effective in protecting human health and the environment and reducing uncertainty, but would only do so on a case by case basis.
4. Summarize available information on lead and arsenic bioavailability from soils and identify data gaps. Develop appropriate methods for testing lead and arsenic bioavailability, with particular attention given to soil types found in orchards in central Washington. This task should be developed in conjunction with appropriate local entities and should include development of all potential funding sources (i.e. WA Dept. of Agriculture, WSU extension, EPA, Washington Horticultural Association, US Dept. of Agriculture).
5. If the bioavailability studies indicate that soil amendments or other farming practices can significantly reduce future site risks, Ecology and Health will work with Department of Agriculture, the WSU-extension and other appropriate local entities to provide this information to affected orchardists.
6. Using information developed by outside sources, Ecology may reevaluate the technical basis for Method A and Method B cleanup levels for lead and arsenic. The standard for such evaluations will be consistent with the PAC recommendations for introduction of new scientific information.
7. Best Management Practices (BMPs) and presumptive remedies can be developed for lead-arsenate contaminated soils to provide guidance to persons conducting cleanups. The scope of this effort will be affected by the extent of contamination actually found. If there are few high risk sites, but many acres of low risk sites, the BMPs and presumptive remedies will be much different than if the opposite if found to be true.
8. Educational materials should be developed in conjunction with appropriate local entities (e.g. Local Health Dept., Central Regional Citizens Advisory Committee, Horticultural Association, etc.) that describe state and local resources available to interested parties. They should also describe cleanup expectations and liabilities. Supplemental information from any of the above efforts should also be included as they become fully developed.
9. Health affects studies were discussed but are not considered appropriate at this time because they generally require very intensive data collection and evaluation and may require significant resources. In addition, these studies may not provide data which will be useful in reducing risk or liability. After the extent of contamination and bioavailability work has been completed, exposure studies may become appropriate. (Laurie Valeriano and Gerry Pollet abstained from this item of the decision.)

Issue Statement

As stated in MTCA, state policy is to efficiently use our finite land base by promoting cleanup and reuse of contaminated properties in order to relieve development pressures on clean undeveloped land. While various aspects of the current MTCA program (e.g. IRAP) generally

assist in brownfields redevelopment, Ecology has not developed a comprehensive brownfields strategy. This issue paper addresses various obstacles to brownfield redevelopment, and recommendations for supporting brownfield objectives. Specifically, the transferability of covenants not to sue and contribution protection, a plume cause, site-specific technical assistance, prospective purchaser agreements, and area wide cleanup issues (including public participation) are all matters which can have a significant role in achieving the brownfields goal stated in MTCA.

Transferability of Covenants Not to Sue & Contribution Protection

See Priority Issue #23 and Additional Issue: Contribution.

Plume Clause

See Priority Issue #22.

Site-Specific Technical Assistance

A final recommendation on this issue was adopted by the PAC at its October 6, 1996 meeting.

See Priority Issues #10 and #11.

Prospective Purchaser Agreements - Description

Pursuant to MTCA (RCW 70.105D.040(5)), the state is authorized to enter into prospective purchaser agreements whereby purchasers of property may obtain a consent decree identifying the extent of the purchaser's liability for cleanup of a facility. The process does not resolve the liability of other PLP's and basically serves to allow a purchaser to resolve its liability with the state rather than exposing itself to joint and several liability under MTCA.

Discussion by the ad hoc brownfields group indicated that increased availability of prospective purchaser agreements would be beneficial to brownfield redevelopment. It was perceived that the current statutory requirement that the settlement provide "a substantial public benefit", the lengthy schedule for agreement negotiations, the apparent need for educating prospective purchasers regarding the process and information requirements, and constrained Ecology and attorney general resources have combined to produce fewer than 10 prospective purchaser agreements since the statutory authorization for the program was passed in 1994.

Prospective Purchaser Agreements - Options

1. Revise the prospective purchaser agreement provision in MTCA to state that settlements providing a substantial public benefit will be given priority, rather than requiring that particular public benefit be shown in order to obtain a prospective purchaser agreement.
2. Recommend to Ecology that they conduct education and outreach (e.g., through a Focus Sheet) regarding the process, schedule, and information needs associated with a prospective purchaser agreement to enhance public understanding of the program and minimize the need for State efforts individually educate prospective purchasers

3. Encourage Ecology and the Attorney General's office to consider ways to streamline the process (if possible) and increase its availability. Subject to PAC discussion of budget priorities, recommend to legislature that new ecology and AG staff be authorized to support this fee-based program and allow it to be self supporting.
4. All of the above.

Prospective Purchaser Agreements - Analysis

1. By promoting brownfield redevelopment and making substantial new resources available to facilitate cleanup (required by the statute to obtain a prospective purchaser agreement), there is some amount of "public benefit" inherent in the process. It is more appropriate to state that projects with more substantial public benefit will be given priority, rather than exclude projects which would still further the MTCA brownfields goal of easing development pressures on clean land.
2. Outreach and education would both benefit prospective purchasers and should decrease the amount of time necessary to individually educate the prospective purchasers. Ecology and Attorney General representatives indicated that this process would be useful in getting expectations for the process and promoting streamlined schedules (e.g., prospective purchasers might to a better job of organizing information needed).
3. Depending upon resource availability, increased availability of prospective purchaser agreements would clearly promote the brownfields objective stated in MTCA.
4. Pursuing all three of the above options would provide the greatest support for the program.

Areawide Cleanup - Description

While some high-priority contamination problems have been addressed on an areawide basis due to the perceived threats to human health and the environment, additional efforts are warranted to more effectively promote the state's brownfields policy in areas where the contamination has not been a high-priority for Ecology action. Areas such as the Duwamish and other highly developed urban areas, the central Washington orchard lands, and industrialized ports are all examples of areas in which clean-up could be hastened and redevelopment facilitated using areawide approaches. Areawide issues may be technical (e.g., whether an urban aquifer is likely to be used for drinking water), or may affect remedy selection (e.g., model remedies for common problems).

Existing mechanisms which may be used on an areawide basis include:

1. Consent Decrees
2. Agreed Orders
3. Prospective Purchaser Agreements (note that Ecology would need to determine that an areawide resolution constitutes a substantial "public benefit" to qualify under existing law, or to have high priority under recommended amendments).
4. Pre-payment Agreements (Ecology will need to find that such an agreement is "in the public interest" per WAC 173-340-550(8)).

Some obstacles to areawide cleanups in current MTCA regulation include the lack of specific authority to develop and select model remedies, insufficient education and outreach regarding available mechanisms (e.g., model orders, decrees, scopes of work, and de minimis agreements), groundwater points of compliance that are limited to property boundaries (complicating multi-parcel cleanup situations), and sources of funding to initiate areawide cleanup processes.

One source of funding for an areawide RI/FS may be from the local toxics account grants for "remedial actions", but an analysis is required of the need for rulemaking or guidance, and for outreach/education. If grant money is used, the local government might need to enhance public participation to identify community concerns.

Areawide Cleanup - Options

1. Revise MTCA regulations to include authority for Ecology to develop model remedies to address common categories of facilities, types of contamination, types of media or geographic areas.
2. Recommend to Ecology and the Attorney General's office to study the state's settlement regarding the Thea Foss Waterway (and others, as appropriate) and identify model mechanisms for dealing with multiple landowner, areawide cleanups. The Thea Foss settlement dealt with two landowners on multiple parcels, and involved an umbrella cleanup action plan. A preliminary representative remedial investigation and presumptive remedy selection was conducted, providing for future investigation, cleanup, and development keyed to anticipated land uses.
3. Recommend analyzing the need for revising or amending WAC 173-340-720(6)(c) to provide for conditional groundwater points of compliance which are not limited to property boundaries in order to facilitate areawide cleanups.
4. Recommend that Ecology analyze and disseminate information on sources of funding for an areawide RI/FS in situations where Ecology is not leading the process. For example, local governments may be able to seek a remedial action grant from local toxics fund account monies to initiate and RI/FS. An analysis of how PLP's would join the process (conceivably, they could opt in and pay a share of at least a portion of the grant funds since a portion would also likely constitute a public benefit), the need for rule making, guidance, and for outreach for this option would be needed. Also, such a process might include enhanced public participation.
5. Recommend all of the above.

Orchard Lands - Issue Statement

From the first decade of this century until it was displaced by DDT in the 1940s, lead arsenate was used as an insecticide to control the codling moth in orchards in Washington. Because the codling moth became resistant to lead arsenate, the amount of pesticide applied to crops increased substantially over time. As many as 80,000 acres of land in central Washington may be contaminated with lead arsenate at concentrations exceeding MTCA Method A cleanup levels (currently 20 mg/kg for arsenic, 250 mg/kg for lead). The contaminated areas may include most

or all irrigable bottom land in north central Washington along the Columbia River from Yakima to the Canadian border. Lead and arsenic contamination will likely remain in surface soils throughout the region for hundreds of years.

The concentrations of lead and arsenic vary from orchard to orchard and from location to location within each orchard. Information on the extent of contamination is sparse, but lead arsenate is believed to be ubiquitous by some investigators. The Model Toxics Control Act places the liability for this contamination on the property owner, but exempts farmers from this liability. Under MTCA there is no mechanism which requires testing for soil contamination upon transfer of property title or subdivision of land to residential or other non-agricultural uses. As a result, residential development on these soils has been accomplished and continues to occur throughout the region without the benefit of soil sampling and analysis for constituents of concern. The issue has become more visible as lending institutions concerned about liability have become increasingly wary of lending on projects involving contaminated land. This situation will become more acute as more lenders require site assessments and contamination is identified. There is a clear need, from both a public health and financial perspective, for a comprehensive evaluation of the extent and level of region-wide contamination.

Approximately 300,000 people live in the counties of Yakima, Chelan, and Okanagan where the majority of affected soils are located. Additional lead arsenate contaminated orchard soils are found in Kittitas and Douglas counties, as well as several counties west of the Cascade Mountains. Because many incorporated areas are located on former orchard lands, many urban residents likely live on contaminated property.

Orchard Lands - Options

1. Do nothing.
2. Define the extent of the problem.
3. Provide technical assistance to both buyers and sellers of contaminated land.
4. Develop an appropriate test that reflects bioavailability in humans of lead-arsenate from local soils.
5. Ecology and Health should work with appropriate state or local entities (e.g. the Department of Agriculture, WSU-extension, local health departments and the Horticultural Association) to help develop and promote economical farming practices that reduce potential hazards.
6. Summarize potential exposures and risks.
7. Work with appropriate local entities to develop best management practices (BMPs) or presumptive remedies for cleanup of sites as property transfers occur.
8. Develop a fact sheet or other appropriate educational materials, with general information for landowners, contractors and lenders about lead-arsenate risks and available technical assistance from state and local governments.

Orchard Lands - Options Analysis

1. DO NOTHING. Maintaining the status quo will do nothing to protect human health and the environment when contaminated orchard property is converted to residential use, nor does it address potential risks to owners of property already converted to residential use. Similarly, a status quo approach does not address the uncertainty issues surrounding property transfer.
2. DEFINE THE EXTENT OF THE PROBLEM. The true extent of contamination in central Washington has only been estimated. It may be that many of the orchard lands are only mildly contaminated, if they are contaminated at all. The issue should be framed on the basis of fact rather than conjecture. The first step should include a summary of existing data, an assessment of the data gaps, and a sampling plan if appropriate. The potential areas to be sampled should be determined in consultation with the local communities (landowners, local government, developers, lenders, buyers) and should include current residential properties located on former orchard lands. The data would be used to evaluate the reasonableness of available remedies, and could focus future agency work in areas where exposure is likely to be highest. It is anticipated that this work will be funded and carried out by local interests with technical assistance from Health and Ecology.
3. PROVIDE TECHNICAL ASSISTANCE. The MTCA PAC has already endorsed the concept of allowing Ecology to provide site-specific technical assistance to persons conducting independent cleanup actions. This approach will be effective in protecting human health and the environment and reducing uncertainty, but would only do so on a case by case basis.
4. BIOAVAILABILIITY. Summarize available information on lead and arsenic bioavailability from soils and identify data gaps. Develop appropriate methods for testing lead and arsenic bioavailability, with particular attention given to soil types found in orchards in central Washington. This task should be developed in conjunction with appropriate local entities and should include development of all potential funding sources (i.e. WA Dept. of Agriculture, WSU extension, EPA, Washington Horticultural Association, US Dept. of Agriculture).
5. ECONOMIC FARMING PRACTICES. If the bioavailability studies indicate that soil amendments or other farming practices can significantly reduce future site risks, Ecology and Health will work with Department of Agriculture, the WSU-extension and other appropriate local entities to provide this information to affected orchardists.
6. SUMMARIZE RISKS AND EXPOSURES. Using information developed by outside sources, Ecology may reevaluate the technical basis for Method A and Method B cleanup levels for lead and arsenic. The standard for such evaluations will be consistent with the PAC recommendations for introduction of new scientific information.
7. BEST MANAGEMENT PRACTICES. BMPs and presumptive remedies can be developed for lead-arsenate contaminated soils to provide guidance to persons conducting cleanups. The scope of this effort will be affected by the extent of contamination actually found. If there are few high risk sites, but many acres of low risk sites, the BMPs and presumptive remedies will be much different than if the opposite if found to be true.
8. OUTREACH. Educational materials should be developed in conjunction with appropriate local entities (e.g. Local Health Dept., Washington State University, Central Regional Citizens Advisory Committee, Horticultural Association, etc.) that describe state and local resources available to interested parties. They should also describe cleanup expectations and

liabilities. Supplemental information from any of the above efforts should also be included as they become fully developed.

Priority Issue #10: Enhanced Technical Assistance

How can we best leverage limited Ecology resources (existing and future) to provide greater technical assistance for independent cleanups?

Priority Issue #11: Independent Remedial Action Program (IRAP)

Can the Independent Remedial Action Program (a process whereby Ecology is asked to review a report on an independent cleanup and a no-further-action-letter may be issued by Ecology), which represents a moderate level of Ecology oversight and results in limited assurances of finality, be improved?

Recommendation (Consensus)

Enhanced Technical Assistance

Amend RCW 70.105D.030(1) by adding a new paragraph (i) and moving current (i) to (j), as follows:

(i) Provide informal advice and assistance to persons regarding the administrative and technical requirements of this chapter. This may include site-specific advice to persons who are conducting or otherwise interested in independent remedial actions. Any such advice or assistance shall be advisory only, and shall not be binding on the department. As a part of providing this advice and assistance for independent remedial actions, the department may prepare written opinions regarding whether the independent remedial actions or proposals for those actions meet the substantive requirements of this chapter and/or whether the department believes further remedial action is necessary at the facility. The department is authorized to collect, from persons requesting advice and assistance, the costs incurred by the department in providing such advice and assistance; provided, however, that the department shall, where appropriate, waive collection of costs in order to provide an appropriate level of technical assistance in support of public participation. The state, the department, and officers and employees of the state shall be immune from all liability and no cause of action of any nature shall arise from any act or omissions in providing, or failing to provide, informal advice and assistance.

~~(i)~~(j) Take any other actions necessary to carry out. . . .

Amend RCW 70.105D.020 by adding a new paragraph (8) and renumbering thereafter, as follows:

(8) "Independent Remedial Actions" means remedial actions conducted without department oversight or approval, and not under an order or decree.

Amend RCW 70.105D.030(l)(f) as follows:

(f) Issue orders or enter into consent decrees or agreed orders that include, or issue written opinions under RCW 70.105D.030(l)(i) that may be conditioned upon, deed restrictions where necessary to protect human health and the environment from a release or threatened release of a hazardous substance from a facility. Prior to establishing a deed restriction under this

subsection, the department shall notify and seek comment from a city or county department with land use planning authority for real property subject to a deed restriction.

Funding for Enhanced Technical Assistance

Direct Ecology to review alternative mechanisms for paying for technical assistance, and if appropriate, to develop rules and/or guidance establishing fees for technical assistance for independent cleanups. As far as practicable, the mechanism should accomplish the following:

- generally make fees proportional to staff time spent on technical assistance
- recognize a concept of de minimis services for which no charges would be made (The expectation is that the current level of free technical assistance would continue to be provided.)
- integrate enhanced technical assistance and IRAP programs in a logical fashion, for example, avoiding double charging for the same services, and avoiding creating inappropriate disincentives. As part of the integration, Ecology should consider revising the IRAP fee structure to correlate to staff time expended rather than the cost of the remediation
- establish factors that Ecology may consider if a waiver is requested, and procedures for handling such requests. The Department shall, where appropriate, waive collection of costs in order to provide an appropriate level of technical assistance in support of public participation. The Department shall also recognize a preference for providing free assistance to small entities, with consideration of their ability to pay.

Enhanced Technical Assistance - Issue Statement

On May 14, 1996, the PAC recommended development of statutory and regulatory amendments to authorize Ecology to provide site-specific technical assistance. The PAC stipulated that the provisions should not create liability for the State, and that Ecology could recover its costs. The PAC also indicated that written determinations regarding the adequacy of remedial actions should be non-binding and that appropriate public participation should occur before written determinations were made. PAC discussion also reflected an understanding that the existing IRAP program would not be replaced by the new provisions.

Enhanced Technical Assistance - Additional Issues

During independent clean-up subcommittee discussions, Assistant Attorney General Kathy Gerla recognized that currently there is no statutory definition of independent remedial actions. She also identified a need for a statutory amendment to explicitly allow Ecology to condition written opinions that independent cleanups meet MTCA requirements upon including deed restrictions when necessary to protect human health and the environment.

Enhanced Technical Assistance - Issue Discussion

The independent subcommittee has prepared proposed statutory amendments to address site-specific technical assistance in accordance with PAC recommendation. The subcommittee has

also prepared statutory language to include a definition of independent remedial actions in the statute which is the same as the language included in the current MTCA regulations. The subcommittee has also prepared statutory amendment language to recognize Ecology authority to require deed restrictions as a condition of issuing a written opinion of the substantive adequacy of an independent remedial action. If the PAC approves the following proposed language, then the subcommittee will proceed to draft regulations to implement the technical assistance amendment.

Finally, drafting of public participation requirements with respect to the issuance of written opinions has not been finalized with this draft, pending further discussion regarding public participation provisions generally.

Funding for Enhanced Technical Assistance - Background

The PAC has already endorsed an issue resolution paper which recommends amendment of MTCA to provide explicit statutory authority for enhanced technical assistance by Ecology to those concerned with independent cleanups. Such assistance could include significant time spent by Ecology staff in reviewing and providing written comments on documents such as sampling plans, Remedial Investigation/Feasibility Studies, or Cleanup Action Plans. Ecology currently has a somewhat formalized program known as "IRAP" (Independent Remedial Action Program), which establishes a fee structure (based on percentage of remediation costs) for Ecology review of final cleanup reports and issuance, if appropriate, of "No Further Action" letters. The PAC's earlier recommendation included only general language authorizing Ecology to charge fees for services in providing technical assistance, and directing it to waive fees as appropriate to support public participation.

Funding for Enhanced Technical Assistance - Issue Statement

(No new issue statement is needed. If a recommendation is endorsed by the PAC, it should simply supplement the earlier recommendation on enhanced technical assistance.)

Funding for Enhanced Technical Assistance - Options

1. Fund enhanced technical assistance entirely out of the state toxics account appropriation to Ecology.
2. Establish a fee structure that bills every PLP for every hour of Ecology time spent providing technical assistance.
3. Direct Ecology to review alternative mechanisms for paying for technical assistance, and if appropriate, to develop rules and/or guidance establishing fees for technical assistance for independent cleanups. As far as practicable, the mechanism should accomplish the following:
   -- generally make fees proportional to staff time spent on technical assistance
   -- recognize a concept of de minimis services for which no charges would be made (The expectation is that the current level of free technical assistance would continue to be provided.)

-- integrate enhanced technical assistance and IRAP programs in a logical fashion, for example, avoiding double charging for the same services, and avoiding creating inappropriate disincentives. As part of the integration, Ecology should consider revising the IRAP fee structure to correlate to staff time expended rather than the cost of the remediation -- establish factors that Ecology may consider if a waiver is requested, and procedures for handling such requests. The Department shall, where appropriate, waive collection of costs in order to provide an appropriate level of technical assistance in support of public participation. The Department shall also recognize a preference for providing free assistance to small entities, with consideration of their ability to pay.

Funding for Enhanced Technical Assistance - Analysis

Option 1, fund entirely out of the state toxics control account, is unacceptable because it would require shifting resources from other activities.

Option 2, charge for every hour spent, is unacceptable because it fails to balance the goal of providing incentives for people to perform good independent cleanups against the desire to conserve agency resources, and because it could be inefficient to implement.

Option 3 does strike a reasonable balance, and provides for a process which will allow careful examination of options, integration with IRAP, and further public comment on a detailed proposal before its adoption.

Priority Issue #12: Consultant Certification

Would a consultant certification program make independent cleanups better and/or easier to accomplish?

The PAC did not reach consensus or broad support for a recommendation.

Priority Issue #13: Independent Cleanup Audits/Quality Control

Should we institute a program of random Ecology audits or spot-checks of independent cleanups on an ongoing basis?

Recommendation (Consensus)

Direct Ecology to develop a program for review of all ranked sites for which a final independent cleanup report was submitted after the Site Hazard Assessment had been performed. Such review should be conducted as expeditiously as possible, with priority given to higher ranked sites. The review will evaluate whether those sites can be removed from the hazardous sites list as required in WAC 173-340-330(4) or whether further action is required. Ecology shall conduct a review of the SHA and site investigation procedures, to ensure that both delegated counties and Ecology are properly reviewing the adequacy of independent cleanups. The Legislature and/or Ecology shall make funding available to implement this recommendation.

Issue Description:

This issue raises the question of whether, on an ongoing basis, Ecology should be devoting resources to checking up on the status of independent cleanups. Ecology figures as of September 25, 1995, indicate over 5,000 independent cleanup sites in Washington, with only 252 of those sites being cleaned up through the Independent Remedial Action program (IRAP).

Currently, for independent cleanups not performed pursuant to the IRAP program, a report is filed when the independent cleanup action is completed. (Ecology Policy 101 - 5/25/90). When an independent cleanup report is received for a previously unknown site (or in any event prior to the initial investigation), Ecology policy is to conduct an initial investigation pursuant to WAC 173-340-310 and review the independent report "on at least a cursory basis." If it is deemed appropriate, a site visit is conducted. Based on this brief review, Ecology makes its initial investigation determination about the site. By law (RCW 70.105D.030(2)(c)), Ecology is required to conduct the initial investigation within 90 days of receipt of the report of a release. Ecology has stated that on high priority sites the 90 day requirement is generally met, but that at lower priority sites the time could extend to 120 to 150 days. The initial investigation can conclude that either no further action is required at the site, or determine that further action is required. If further action is required, the site is listed in the Site Information System Database, and the report is filed until a Site Hazardous Assessment (SHA) is scheduled pursuant to WAC 173-340-320 to evaluate the site, or an IRAP review is requested.

For sites where an initial investigation has already been conducted, an independent cleanup report can be filed either prior to or after the SHA. If it is filed prior to the SHA, the SHA will eventually be conducted, with the result either a no further action determination or a determination of need for further action together with a ranking of the site. About half the counties in the state receive grant money to conduct SHAs. Where the county does not participate in the program, Ecology conducts SHAs on a select basis when the PLP supplies the data.

A report can also be filed after the SHA has been completed. Reports for releases from underground storage tanks are to be reviewed for compliance with WAC 173-340-450. (Ecology Policy 120A - 4/8/92) As noted above, sites may also be reviewed by Ecology through the IRAP program, upon payment of a fee.

It is clear that as the program is currently set up, independent cleanups are an integral part of the process for cleaning up hazardous waste sites in Washington. As a result, there is a great deal of interest in ensuring that these cleanups are effective. There is concern among PAC members that there currently may be inadequate review and follow-up at independent cleanup sites. Based on information from Ecology, the Department has either ranked or required further action at approximately 20 sites where the independent cleanup was conducted after an initial investigation, and before the SHA. At about 80 sites, Ecology has determined no further action was required. There are 134 sites where an independent cleanup was conducted after an SHA was performed and the site was ranked and placed on the Hazardous Sites List (i.e., it was determined further action was required at the site). Of those sites, 51 were ranked either 1 or 2, and 37 were ranked 3. Seven of those sites have subsequently been reviewed through the IRAP program, and 5 of the cleanups have been rejected.

Some PAC members believe that institution of an audit program would enhance both the quality of cleanups and the level of public confidence in the program. Other PAC members have suggested that audits may discourage cleanups from being done and/or question the value of trying to get information on cleanups which are not required or subject to cleanup deadlines under MTCA (i.e. non-LUST cleanups) and for which no Ecology approval is sought (i.e. non-IRAP sites).

Issue Restatement

Should an institutionalized audit program consisting of random spot-checks for independent cleanups be instituted by Ecology to ensure the adequacy and effectiveness of such cleanups?

Options

1. Do Nothing;
2. Direct Ecology to develop a program for review of all ranked sites for which a final independent cleanup report was submitted after the SHA had been performed. Such review should be conducted as expediently as possible, with priority given to higher ranked sites.
3. Direct Ecology to develop a program for a spot check review of all independent cleanup sites, to ensure that those sites have been cleaned up in conformance with MTCA cleanup standards. Such reviews could be performed either of new independent cleanups, or could also include cleanups that have already been performed. The PAC could specify the number of audits to be performed per quarter, to minimize the burden on Ecology;
4. Ecology shall conduct a review of the SHA and site investigation procedures, to ensure that both delegated counties and Ecology are properly reviewing the adequacy of independent cleanups.
5. The Legislature and/or Ecology shall make funding available to implement the proposals in this issue statement.

Priority Issue #8: Remedy "Czar"

Should Ecology have a "remedy czar" or someone who can perform dispute resolution for remedy selection?

Priority Issue #14: Improved Internal Decision Making

Are there ways that Ecology can improve its internal decision making to enhance cleanups, or manage its information base differently in order to improve cleanup decision making?

Priority Issue #15: Neutral Appeal/Dispute Resolution

Should there be a neutral "appeal" option built into the cleanup process to allow parties a review of site cleanup decisions? This could include appeals of liability determinations, risk levels, cleanup standards, cleanup action plans, points of compliance, and other things. Several options exist for mechanisms for the appeal process.

Recommendation (Kevin Godbout Abstained)

The following tools should be used as appropriate for avoiding or resolving disputes that arise at any point during the cleanup process.

1. Clarify expectations between Ecology and PLP (and other interested persons) at the time a PLP is named, and prior to beginning any negotiation process. This includes providing every PLP and any interested party information about all of the channels available to them for resolving issues, concerns, and disputes about site cleanup. (Tell them plainly that disputes will arise, and here are the ways to handle them. Include specific information about the informal dispute resolution process.)
2. Match skills and knowledge of site manager to the site, consideration should be given to such items as: The type of site (landfill, LUST, wood treat facility, etc.), complexity of the site, and whether the PLP has multiple sites throughout region or state. Designate a mentor for inexperienced site managers.
3. Establish a peer review team, as appropriate, to provide feedback to the site manager. This may include intra-and inter-office staff. It should always include the section supervisor.
4. Publish guidance documents on topics such as substantial and disproportionate costs and remedy selection. Provide these guidance documents to the PLPs and other interested parties.
5. Train site managers on technical, project management, dispute resolution and other related topics.
6. Host an annual workshop for the purpose of educating PLPs, consultants, lending institutions, and others regarding implementation of the MTCA and any new developments in the technical area of site cleanup activities. Also provide an opportunity for general comments about MTCA budget, technical or policy issues.
7. Provide access to information related to cleanup action plans and site remediation designs.
8. Develop and informal dispute resolution process which can be initiated at any time by PLP

or Ecology to resolve disputes in a timely manner. Parties may include the site manager's peer review team, other agency experts, the section supervisor and/or the TCP program manager. Informal appeals may be elevated at any time to successive levels of Ecology management beginning with the unit supervisor, section manager and them program manager, if necessary. Public access to the informal appeal process could occur during the public comment process, and could include a requirement to elevate the dispute within the Department. Informal dispute resolution process may also involve a neutral third party mutually agreed upon by all parties.

After a two-year time period, Ecology shall conduct a formal review of the foregoing measures, with input and participation from PLPs, the public, and interested persons. Part of that review shall include consideration of additional or alternative measures.

Priority Issue #17: Tax Policy

Should we change our existing tax policy to create financial cleanup incentives? There is an unresolved issue of applying sales tax to independent cleanup actions, which makes these cleanups relatively more expensive.

Recommendation (Sharon Metcalf, Laurie Valeriano Opposed; Jim White Abstained)

The PAC affirms the existing Department of Revenue policy, except the sales tax exemption in the current Department of Revenue policy should be applied to all remedial actions, whether or not officially designated waste sites. The state's tax laws in Chapter 82 RCW should be amended to accomplish this. The mechanics of implementation could be developed in coordination with the Department of Revenue, to be consistent with existing practices for contractors working on sales tax-exempt projects. The procedures should include some guidance from Ecology regarding what actions constitute remedial actions under MTCA in order to prevent abuse by property owners conducting other activities on their properties.

Issue Description

In a Revenue Policy Memorandum, the Department of Revenue (DOR) has defined the state's policy "that the tax laws of this state should be administered in such a manner as to encourage and facilitate rapid and thorough remedial action to reclaim the lands and waters of this state which have been despoiled, toxified, contaminated, or otherwise made hazardous to human health and the environment. The administration of such tax laws should not prevent, inhibit, impede, or otherwise burden such remedial action..."

However, in the specific application of this policy to remedial actions, sales tax is excused for remedial actions only if they are "officially designated waste sites." This limitation may serve as a disincentive for quick action to clean up sites on a voluntary basis before going through the official designation process. At a minimum, the application of this policy results in a discriminatory and punitive treatment of voluntary cleanups which are conducted promptly.

Options

1. Do nothing.
2. Revises Department of Revenue policy to apply sales tax exemption equally to all cleanup activities, with appropriate safeguards against abuse.
3. Amend statute to apply sales tax exemption equally to all cleanups.

Options Analysis

1. Doing nothing will leave the current, discriminatory policy in place. As a result, remedial actions which are undertaken voluntarily and promptly will continue to be taxed more heavily than those on sites which delay cleanup and go through the designation and

ranking process. The added burden of cost will likely be borne disproportionately by smaller businesses in the state.

2. The PAC could affirm the existing Department of Revenue policy statement, but recommend that the sales tax exemption be applied to all remedial actions, whether or not on officially designated waste sites. The mechanics of implementation could be developed in coordination with DOR, to be consistent with existing practices for contractors working on sales tax-exempt projects. The procedures should include some guidance from Ecology regarding what actions constitute remedial actions under MTCA in order to prevent abuse by property owners conducting other types of activities on their properties.
3. The state's tax laws, in Chapter 82 RCW could be amended to accomplish the objectives of Policy Option number 2.

Priority Issue #18: Strict, Joint and Several, and Retroactive Liability

Should the method of applying strict, joint and several, and retroactive liability be modified?

Priority Issue #19: Equitable Factors

Some states, as well as the EPA, define "equitable factors" to help PLPs apportion liability among themselves. Should Washington State define these as well? Equitable factors can also be used to impose apportioned liability from a higher authority. Should the law describe factors that courts, arbitrators or the agency could use to impose apportioned liability?

The PAC did not reach consensus or broad support for a recommendation.

Issue Description

One effect of the current liability standard is the time and money spent litigating allocation of liability for cleanup expenses since liability is sometimes imposed on fewer than all potentially liable parties and is based on retroactive liability, strict liability and the joint and several standard. It is possible that changing the existing approach to imposing liability to an approach that uses equitable factors to determine shares of liability may improve implementation of the program and bring an element of fairness into the process.

Use of equitable factors to determine liable parties' fair share of the cleanup expenses can result in allocation of shares of liability to insolvent or defunct persons or to persons who are financially unable to pay their share. These "orphan shares" necessarily need to be addressed as part of the equitable factors allocation process.

Options

1. Do nothing
2. Create an allocation process using equitable factors that replaces the current joint and several and strict liability standards.
3. Create an allocation process as in 2. above which is used on a limited basis, such as in a pilot program or in an areawide Brownfields process.
4. Eliminate retroactive liability.
5. Address possible resultant orphan shares by creating an orphan fund to pay for any orphan shares resulting from an equitable allocation process or by allocating orphan shares back to the liable parties.

Option Analysis

During the initial discussion of these issues, the PAC suggested that further research into the liability standards used in other states' programs and their funding for orphan shares be

conducted. Although this process was begun, the PAC did not have sufficient time to consider this information. As a result, the PAC has not discussed these issues or possible options.

Priority Issue #20: Toxics Cleanup Program Budget

Are adequate resources being distributed to the Toxics Cleanup Program, relative to other agencies and programs that receive money from the Toxics Control Accounts? What should be the priorities for the funds appropriated to the Toxics Cleanup Program?

Recommendation (Mary Burg, Jim White Abstained; Eric Johnson Abstained from Item 1)
Recommend to the Legislature that PAC recommendations be given priority funding within the Toxics Control Account during the biennium. Such funding shall be in addition to the amount requested by Ecology for the Toxics Cleanup Program budget for FY 97/99. Implementation of the PAC's recommendations will require the use of Ecology's existing resources and the addition of new resources. It is estimated that an appropriation in the range of $1.8 to $3.1 million is needed to fully implement all of the PAC's recommendations. Of this amount, approximately $1.1 to $2.4 million can be recovered from potentially liable persons through the recovery of Ecology's oversight costs and the payment of fees for technical assistance received by potentially liable persons. The balance of approximately $700,000 is non-recoverable money. We further recommend the Legislature consider reallocating or reappropriating funds to meet this need from the following: 1) interest accrued from the Toxics Control Account which currently accrues in the "general fund," 2) appropriate supplemental funds to directly support this recommendation, and/or 3) reappropration of the $300,000 originally allocated to implement the PAC during the last biennium.

Issue Statement:

Two accounts have been established under the Model Toxics Control Act. One, the State Toxics Control Account, funds the operations of state agencies and their contractors. The other, the Local Toxics Control Account, is used for grants to local governments.

The source of revenue to these accounts is the Hazardous Substances Tax. This tax is levied at the rate of 0.7% ($7 per $1,000) of the wholesale value of the hazardous substances. Of the total tax receipts, 47% is allocated to the State Toxics Control Account; the remaining 53% is allocated to the Local Toxics Control Account. Specifically, the tax applies to petroleum products, pesticides, and certain chemicals.

The PAC has previously agreed to assess the adequacy of the Toxics Cleanup Program budget in relation to other agencies and programs that receive funding from the Toxics Control Account, and recommend priorities for the funds being appropriated to the Toxic Cleanup Program. A PAC sub-group met in October to discuss these issues. At that meeting, several PAC members determined that there are policy questions related to the scope of some of the activities funded by the Toxics Control Account, and whether MTCA is the appropriate source for all of that funding. Many of those activities appear legitimate, but not necessarily directly connected with efficient implementation of MTCA. In some cases, monies provided for planning and program development is now used for implementing programs, and this was questioned. In addition, the PAC continues to discuss the need to address funding concerns associated with pending

opportunities such as: orphan shares, sunset of the underground storage tank program, and enhanced public participation.

Options:

1. Do Nothing.

2. Support the Toxics Control Accounts Appropriation Recommendations for 1997-1999 Biennium per the November 1996 Report ("The BAR") submitted to the Legislature.

3. Recommend to the Legislature that the PAC recommendations be given priority funding within the Toxics Control Account during the biennium and that the BAR recommendations for 1997-1999 Biennium be equitably adjusted, where appropriate, to reflect this recommendation.

4. Establish a PAC-like legislative committee ("The Budget Summit") to advise both the Legislature and Department of Ecology on fiscal policy questions including but not limited to: the scope and priority of activities funded by the Toxics Control Account; whether current sources of funding are adequate; what are potential sources of funding; and whether the list of Toxics Control Account eligible activities should be modified. The Budget Summit advisory committee would be structured similar to the current PAC structure and would have a similar membership.

Option Analysis:

1. Not acceptable. The PAC has already agreed to address budget priorities and Toxics Control Account Appropriations.

2. A PAC budget workgroup met on October 18, 1996 to review the Draft BAR and develop PAC recommendations. Regarding the BAR, that group did not decide on what sort of fiscal details it wants the PAC to pursue or the scope of any resulting recommendations. The group did attempt to quantify the fiscal impacts of pending PAC recommendations and agreed to support a preliminary set of costs in the state budget subject to refinement as PAC recommendations are finalized. In addition the working group determined that there are unresolved policy questions related to the scope of activities funded by the Toxics Control Account, whether MTCA is the appropriate source for funding those activities and whether the activities are directly connected with efficient implementation of MTCA. In summary, the working group did not achieve a consensus recommendation that the PAC support the Toxics Control Accounts Appropriation Recommendations for 1997-1999 Biennium.

3. The PAC budget workgroup agreed to support a preliminary set of "PAC-only" costs in the state budget, subject to refinement, as PAC recommendations are finalized. Because the PAC recommendations will be finalized after the BAR is submitted to the Legislature and the PAC is an independent legislative advisory committee, the PAC's recommendation needs to be addressed directly to the Legislature, rather than subsumed in the BAR. Because the PAC

recommendations represent the consensus opinion of a wide range of stakeholders, it is clear that broad support for funding these recommendations is present. That fact should provide the legislature with a basis to make the PAC recommendations a priority for Toxics Control Account funding.

4. The PAC budget work group determined that there are unresolved policy questions related to the scope of activities funded by the Toxics Control Account, whether MTCA is the appropriate source for funding those activities and whether the activities are directly connected with efficient implementation of MTCA. In addition, the PAC continues to discuss if the current sources of funding are adequate, whether there are new sources of funding available and whether the list of Toxics Control Account eligible activities should be modified. Given the complex nature of the budget process, the PAC's limited schedule and the serious nature of the questions posed, but yet unresolved, it appears that the PAC cannot now give this subject the attention it deserves. Establishing a PAC-like legislative advisory committee to advise both the Legislature and Department of Ecology on the many fiscal policy questions posed is a reasonable approach to resolving this issue.

Toxics Cleanup Program - Toxics Control Account Appropriations Recommendations

PAC RESOLUTIONS -- Biennial Impacts 12/11/96

	FTE Range	FTE Cost Range	Other Cost Range	Total Cost Range
+++ Rule Development	Existing			Existing
Remedy Selection				
Area-wide Brownfields				
Remediation Levels				
Hum Health Risk Assess.				
Eco-Risk Assessments				
0) Remedy Selection	Existing	$0		Existing
1) Release Reporting	Existing	$0		Existing
2) Tax Policy	Existing	$0		Existing
3) Interim TPH	Existing	$0		Existing
4) Plume Clause	Existing	$0		Existing
5) Transferability of Covenants	Existing	$0		Existing
6) Guidance Documents	Existing	$0		Existing
7) Training Proposals	*	*	*	*
9) Probabilistic Risk Assessment	0.5	$80,000	[$50,000]	[$50,000 to $80,000]
10)Dispute Resolution	0.5	$80,000	$30,000	$110,000
11)Human Health Risk Assess Lo	1	[$136,320 to $151,680]	[$384,000]	[$136,320 to $384,000]
" " " " Med	2	[$272,640 to $303,360]	[$768,000]	[$272,640 to $768,000]
" " " " Hi	3	[$408,960 to $455,040]	[$1,152,000]	[$408,960 to $1,152,000]
12)Ecological Risk Assess.Lo	1	[$136,320 to $151,680]		[$136,320 to $151,680]
" " " Med	2	[$272,640 to $303,360]		[$272,640 to $303,360]
" " " Hi	3	[$408,960 to $455,040]		[$408,960 to $455,040]
13)Public Participation				
Grants	Existing	$0	$192,000	$192,000
Public Hearings	(Existing)	$0		(Existing)
Advisory Team for Grants	Existing	$0		Existing
Ombudsperson	1	[$150,000]	[$150,000]	[$150,000]
14)Ind Audit/Qual Control	1.5	$177,264		$177,264
15)Technical Assistance	3	($354,528)		($354,528)
16)Brownfields				
Prospective Purchaser Req.	1.8	[$250,000]		[$250,000]
Local Toxics for grants	Existing	$0		Existing
Orchards/Ag Lands	0.5	$75,000	$40,000	$115,000
Model Remedy Development	0.25	$40,000	$50,000	$90,000
	11.1 - 15.1	$1,479,432 - $2,116,872	$896,000 - $1,664,000	$1,761,432 - $3,125,832

Total Cost Range	$1,761,432	$3,125,832
Cost Recoverable	(722,640)	(2,087,040)
Fees	(354,528)	(354,528)
Balance	**$684,264**	**$684,264**

Toxics Cleanup Program - Toxics Control Account Appropriations Recommendations

ASSUMPTIONS/COMMENTS

[ ] = COST RECOVERABLE **{ } = COVERED by FEES**

+++	Rule Development	Use Rule, Policy, and Guidance Document Development Budget Item. Existing
2)	Tax Policy	Dept of Revenue conservative estimate of tax revenue loss = $3.5 million per year.
* 7)	Training Proposals	Duplication of workshop costs included in the Dispute Resolution.
9)	Probabilistic Risk Assess.	1/2 FTE or Contract
10)	Dispute Resolution:	Includes $30,000 for 2 staff training workshops.
11)	Site Spec Risk Assess Lo	*FTE costs* include Ecology costs, *Other cost* includes Contractor costs. 6 risk assessments per year
	" " " " Med	" " " " " " " " " " 12 risk assessments per year
	" " " " Hi	" " " " " " " " " " 18 risk assessments per year
12)	Ecological Risk Assess.Lo	6 ecological risk assessments per year
	" " " Med	12 ecological risk assessments per year
	" " " Hi	18 ecological risk assessments per year
13)	Public Participation	Includes 3 additional grants per year of $30,000 each; $12,000 for RCACs; $180,000 Local Toxics funding; $12,000 State Toxics Funding.
	Ombudsperson	1 FTE or Contract
14)	Independent Audits/Qual Cont.	120 sites on the Hazardous Sites List which have some degree of independent remedial action.
15)	Technical Assistance	150 technical assistance requests per year - Double average IRAP reviews
16)	Brownfields	
	Prospective Purchaser Req.	5 Sites per Year @ $25,000 ea.
	Local Toxics for Grants	Existing Staff to Administer
	Orchards/Ag Lands	Includes $40,000 for contracts.
	Model Remedy Development	1/4 FTE and Contract

NOTE: - Add AAG cost of 1 FTE . $136,000 per Year.
Costs to be incurred in 10, 11, 12,15 & 16 above.

Priority Issue #21: Public Participation and Community Involvement

How should public participation and community involvement be provided for in connection with recommendations for risk assessment, remedy selection, and independent cleanups, and with other elements of MTCA implementation?

Recommendation (Consensus)

1. Clarify the restriction on conflict of interest regarding applicant eligibility through regulatory modification (including specific language);
2. Change the Regional Citizens' Advisory Committees' charter in WAC 173-340-610 to read "Advice Ecology of community concerns about the Cleanup Program's activities and develop proposals for addressing these concerns. Committees may use site-specific issues as a foundation for understanding regional issues."
3. Change the RCW 70.105D.040(4)(a) to require that public hearings for consent decree sites be held upon the request of ten or more individuals or as determined by the department. Amend RCW 70.105D.040(4)(a) as follows: a) The attorney general may agree to a settlement with any potentially liable person only if the department finds, after public notice and any required hearing, that the proposed settlement would lead to a more expeditious cleanup of hazardous substances in compliance with the cleanup standards under RCW 70.105D.030(2)(d) and with any remedial orders issued by the department. A hearing shall be required only if at least ten persons request one or if the department determines a hearing is necessary.
4. Reaffirm the priority allocation for substance release grants relative to waste management grants by designating 50% of the full 1% allocation each to substance release grants and waste management grants.
5. Ecology shall form an advisory team to review and develop recommendations for improving the grant application form and other aspects of the grant selection process including consideration of a method for allowing emergency grant monies to be made available during the year for emergency situations at substance releases. This team will be comprised of appropriate agency staff and 2-4 past grant recipients or applicants, an RCAC member (if possible), and other interested individuals;
6. Authorize Ecology to provide for emergency grants which will be limited to no more than one per year per applicant and would be applied toward the annual maximum award;
7. Develop a three-year pilot ombudsperson approach to providing technical assistance for sites using a "new MTCA" approach. This position (either staff or contractor) will be housed at Ecology, with ecology having fiduciary responsibility. Funding mechanism may be the increase of the overhead rate allowed on cost recovery. Criteria for selection of the ombudsperson program will be developed by representatives from industry, citizens groups and Ecology. Proposals will be reviewed and selected by a committee comprised of citizens and Ecology representatives. A three-year review will be conducted by an advisory committee comprised of representatives from industry, citizens groups, and Ecology;
8. Grant awards should be increased to the amount of $60,000 and include an inflation

increase. Amend RCW 70.105D.070(5) as follows: (5) One percent of the monies deposited into the state and local toxics control accounts shall be allocated only for public participation grants to persons who may be adversely affected by a release or threatened release of a hazardous substance and to not-for-profit public interest organizations. The primary purpose of these grants is to facilitate the participation by persons and organizations in the investigation and remedying of releases or threatened releases of hazardous substances and to implement the state's solid and hazardous waste management priorities. No grant may exceed ~~fifty~~ sixty thousand dollars except that, beginning July 1, 1998, the director may increase the maximum grant award annually to account for inflation. ~~through~~ it Grants may be renewed annually. Monies appropriated for public participation from either account which are not expended at the close of any biennium shall revert to the state toxics control account.

9. Ecology will provide site-specific risk assessment training to public involvement staff;
10. Amend WAC 173-340-600(7) to read: Evaluation. As part of requiring or conducting a remedial action at any facility, the department shall evaluate public participation needs at the facility, including any identification of the potentially affected vicinity for the remedial action and for sites where site-specific risk assessment is used, evaluate public interest in, significant public concerns regarding future site use, and values to be addressed with the public participation plan.
11. New WAC Subsection: The department shall determine if the variables proposed to be modified in a site-specific risk assessment or alternative reasonable maximum exposure scenario (RME) may affect the significant public concerns regarding future land uses and exposure scenarios. If the department finds that those concerns may be affected, then Ecology shall assure appropriate public involvement and comment opportunities will occur as identified in the public participation plan.
12. Amend WAC 173-340-310(4) to read: If the department determines that (a) an emergency remedial action is required; (b) or an interim action is required, then notification of the threat to the potentially affected vicinity may be required. The method and nature of notification and the individuals to be notified will be determined on a case-by-case basis by the department. Such notification will be the responsibility of the site owner or operator if required in writing by the department.

Original Issue Statement

Are there ways the Department can improve implementation of public involvement and risk communication programs related to its programmatic decisions and to its site-specific decisions?

Issue Description

The current public involvement process under MTCA, which provides opportunities for public involvement on cleanup decisions through methods associated with orders and decrees; public participation grants; and regional citizens advisory committees, can be improved to meet existing and projected public involvement need and maximize the effectiveness of the program.

There is a concern that the current grant program is not as effective as is possible. Some grant applicants struggle with the application process and there is concern that current funding will not adequately meet projected demand as we consider site-specific risk assessment approaches to cleanup. There is an interest in assuring that grants for citizen groups submitting application for Public Participation Grants for substance release provide resources to the affected community or citizens to conduct the following tasks, particularly when site-specific risk assessment is used:

- To provide early education to explain implications of a site-specific risk assessment at their site.
- To solicit public comment on public values for exposure and land use assumptions.
- To provide technical assistance to citizens to review the risk assessment
- To conduct appropriate public involvement opportunities to inform the public of the risk that could result from a proposed remedy and for the response to citizen input.

RCACs have been under-utilized in fulfilling their role as liaison between the public and Ecology and have struggled in determining the best approach to meet their mission and in cases disagree about the mission of the committee. They believe that the current restriction preventing site-specific attention is too stringent.

Options

1. No action.

2. Modify Public Participation Grants Program

   - Reassert the priority allocation for substance release grants relative to waste management grants.
   - Increase the grant award from $50,000 to 60,000 for substance release grants for sites of statewide or major regional significance or unusually complex technical issues.
   - Supplement current 1% set aside if demand exceeds funds available to meet the demand for public participation substance release grants to support public involvement at sites where a site-specific risk assessment is being proposed or conducted. Such proposals for funding will be subject to standard selection criteria.
   - Form a team to review and develop recommendations for improving the grant application form and other aspects of the grant selection process including consideration of a method for allowing emergency grant monies to be made available during the year to emergent site issues. This team will be comprised of appropriate agency staff and 2-4 past grant recipients or applicants, and an RCAC member (if possible).
   - Clarify the restriction on conflict of interest regarding applicant eligibility through regulatory modification (include specific language).

3. Modify RCAC structure to allow the committees to focus on site-specific issues, when appropriate, and to encourage Ecology to use the Committees to review Ecology's process for implementing public involvement under MTCA.

- Modify 173-340 WAC to allow an option to focus on site-specific issues for the purpose of assuring and enhancing an effective public involvement process at the site or as it may contribute to promoting a more effective approach to public involvement in the community, region or the state; and
- Continue to use the RCAC to review the methods by which Ecology conducts public involvement and the materials produced for this purpose.
- The RCACs should also be given the opportunity, when appropriate, to comment on the PPPs as they are being developed for sites where a cleanup is being conducted by Ecology. Note: The regulation currently requires that public participation plans be prepared for all sites where a cleanup is being conducted with Ecology oversight under MTCA.
- Encourage the RCACs to consider and recommend to Ecology various strategies for enhancing public involvement within communities.
- Provide a specified budget for the RCAC to use to cover materials, mailing and project costs such as developing brochures or fliers.
- Encourage RCACs to assist Ecology in the formation of citizen advisory boards at specific sites as appropriate.

4. Make other general improvements.

- Modify the requirement in WAC 173-340-600(9) mandating public hearings for all consent decrees with a requirement that a formal hearing be held if ten or more people request or if Ecology determines that such a hearing is in the best interest of the affected community.
- Public involvement requirements in guidance or regulation should, in addition to meeting the minimum requirements, be flexible -- clearly stating intentions and the range of options but allowing for site-specific assessment of needs, encouraging that applicability of such methods be considered at sites where appropriate.
- Include (early) education, as resources allow, to provide the public with the tools/information needed to participate in the public review process as opportunities arise.
- Design MTCA public involvement methods to assure the public that they will be able to participate meaningfully in reviewing and assessing the impact of site-specific risk assessment decisions at a site including impacts to the future of the community.

5. Independent cleanups

- No action.
- For enhanced technical assistance sites (i.e., remedy selection), use right of contribution requirements.
- For enhanced technical assistance sites (i.e., remedy selection), use public notice in site register.
- For sites where contamination remains, or has migrated off-site, use right of contribution requirements.

- For sites where contamination remains, or has migrated off-site, use modified right of contribution requirements by notifying local land use planning agencies and affected off-site property owners.
- Provide sign noticing the action occurring at the site.
- Provide guidance recommending range of public involvement actions that could be used to inform the public of actions being taken.
- Require full public involvement.

Priority Issue #22: Plume Clause

Should the law include a "plume" clause, stating that parties are not liable for a plume of groundwater contamination that extends under their property, if they had no relationship to the cause of the contamination?

Recommendation (Jody Pucel abstained on behalf of lending institutions)

The PAC recommends that the MTCA definition of "owner or operator" be revised consistent with a modified form of Policy 540A as follows:

RCW 70.105D.020
(11) "Owner or operator" means:
(a) Any person with any ownership interest in the facility or who exercises any control over the facility; or
(b) In the case of an abandoned facility, any person who had owned, or operated, or exercised control over the facility any time before its abandonment;

The term does not include:
(iii) any person who has any ownership interest in, operates, or exercises control over real property where a hazardous substance has come to be located solely as a result of migration of the hazardous substance to the real property through the groundwater from a source off the property, provided:
(A) The person can demonstrate that the hazardous substance has not been used, placed, managed or otherwise handled on the property in a manner likely to cause or contribute to a release of the hazardous substance that has migrated onto the property.
(B) Such person has not caused or contributed to the release of the hazardous substance.
(C) Such person does not engage in activities that damage or interfere with the operation of remedial actions installed on the person's property, or engage in activities that result in exposure of humans or the environment to the contaminated groundwater that has migrated onto the property.
(D) If requested, such person allows the department, potentially liable persons who are subject to an order, agreed order, or consent decree, and the authorized employees, agents, or contractors of each, access to the property to conduct remedial actions required by the department. The person may attempt to negotiate an access agreement prior to allowing access.
(E) Legal withdrawal of groundwater shall not disqualify a person from this exemption.

Issue Description

As a result of MTCA's definition of "facility," owners and operators of property at which hazardous substances have come to be located solely by means of migration in a contaminated aquifer arguably are potentially liable parties (PLPs). This potential liability exists even though the owner or operator had no participation in the handling of hazardous substances. Most owners

and operators in this circumstance would qualify for MTCA's third-party defense against liability. Furthermore, the Department of Ecology (DOE) has not attempted to impose liability on such owners. However, there is uncertainty regarding what must be shown to demonstrate "utmost care" to qualify for a third-party defense. Owners situated above contaminated aquifers have also experienced difficulty selling or leasing these properties or obtaining financing for development because prospective purchasers, lessees and lenders sometimes view the potential for liability as a significant risk. The Policy Advisory Committee (PAC) is concerned that such effects are having an adverse impact on the ability of property owners and communities to develop or redevelop property for productive use.

To address this issue, Ecology has proposed Policy 540A, which provides that it would exercise its enforcement discretion not to hold such owners liable provided: a) the land is not a source of groundwater contamination; b) the landowner does not impede or interfere with remedial actions conducted by Ecology, and/or a PLP conducting remedial actions under Ecology oversight; and c) the landowner allows and/or implements institutional controls on the property. Ecology's proposal is similar to, but somewhat simpler than EPA's Policy Toward Owners of Property Containing Contaminated Aquifers (May 24, 1995), which requires the landowner to exercise due care considering the characteristics of such hazardous substance, in light of all relevant circumstances, and to take precautions against a third party's foreseeable acts or omissions and the resulting consequences. While these standards are a bit vague, EPA's policy does state that "due care" does not require the landowner to take affirmative steps to detect, contain, or remediate such contamination. The policies also do not provide much certainty for owners and operators who legally withdraw groundwater (e.g., rural farmers), because they require a case-by-case analysis of such situations.

Issue Restatement

Should MTCA be amended to further clarify when owners and operators of property at which hazardous substances have come to be located solely by means of migration in a contaminated aquifer will not be liable parties under MTCA?

Options

1. Do nothing.
2. Table and defer to Ecology to set policy.
3. Recommend that Ecology adopt Policy 540A.
4. Recommend adoption of a statutory exemption from liability based on EPA's policy.
5. Recommend adoption of a statutory exemption from liability that is based on Ecology's draft Policy 540A, adding provisions to allow legal withdrawal of groundwater but prohibiting activities that result in exposure of humans or the environment to the contaminated groundwater.

Option Analysis

Option 1 is unacceptable because it fails to resolve consequences of inhibiting property development.

Deferring completely to Ecology (Option 2) or recommending adoption of Ecology's Policy 540A (Option 3) does not address the potential for MTCA liability because it is merely an enforcement policy and does not bind Ecology, nor does it prevent third-party contribution actions.

Adopting the "due care" requirements of EPA's policy in a statutory revision (Option 4) would perpetuate much of the existing uncertainty for owners and operators, prospective purchasers and lenders. Also, its distinction from the "utmost care" standard for the existing third-party defense under MTCA is uncertain.

Option 5 would provide a much clearer standard for what must be demonstrated to avoid liability. It would include the safeguards in draft Policy 540A, and allow legal withdrawal of groundwater that does not cause exposure hazards.

Priority Issue #23: Transferability of Covenants Not to Sue

Should "Covenants Not to Sue" be made expressly transferable? (Currently, the law is silent on whether these Covenants may be transferred from the recipient of the Covenant to the purchaser of the property covered by the Covenant.)

Recommendation (Consensus)

Under RCW 70.105D.040(4), insert subparagraphs (e) and (f):

(e) If the state has entered into a consent decree with an owner or operator under this section, the state shall not enforce this chapter against any owner or operator who is a successor in interest to the settling party unless under the terms of the consent decree the state could enforce against the settling party, provided that:

(i) the successor owner or operator is liable with respect to the facility solely due to that person's ownership interest or operator status acquired as a successor in interest to the owner or operator with whom the state has entered into a consent decree; and

(ii) this stay of enforcement shall not apply where the consent decree was based on circumstances unique to the settling party that do not exist with regard to the successor in interest, such as financial hardship. For consent decrees entered into prior to the effective date of this subparagraph, at the request of a settling party or a successor owner or operator, the attorney general shall issue a written opinion on whether a consent decree contains such unique circumstances. For all other consent decrees, such unique circumstances shall be specified in the consent decree.

(f) Any person who is not subject to enforcement by the state under paragraph (e) of this subsection shall not be liable for claims for contribution regarding matters addressed in the settlement.

Amend RCW 70.105D.080:

Except as provided in RCW 70.105D.040(4)(d) and (f), a person may bring a private right of action, including a claim for contribution or for declaratory relief, against any other person liable under RCW 70.105D.040 for the recovery of remedial action costs. . .

Issue Description

Although RCW 70.105D.040 expressly provides that covenants not to sue may be included in settlement consent decrees, MTCA does not expressly provide that such covenants be transferable. This statutory silence apparently troubles some transactions involving contaminated property which has been the subject of, or at least a candidate for, a consent decree. It seems apparent that ensuring transferability would encourage PLPs to enter into consent decrees. Furthermore, providing expressly that covenants not to sue simply be a fair articulation of policy already implicit in MTCA.

For purposes of developing a policy on transferability of covenants not to sue, sites may be distinguished according to whether or not the site at issue involves an ongoing PLP obligations.

One strong rationale supporting transferability is that PLP liability is predicated on the physical condition of real property. Consequently, where the predicate, physical contamination, is eliminated, settlements should protect property as well as the party PLPs. If a PLP obtains a covenant not to sue, the PLP has presumably remediated the property to Ecology's satisfaction. Successors in interest should not face uncertainty about possible Ecology PLP determination based on contamination which was remedied before they take title. PLPs should be able to sell remediated property and pass on the protection from regulation they have paid for.

(It is hard to gauge the practical urgency of the issue. It would seem that parties considering acquisition of interest in property which has been a MTCA "facility" would rely on Ecology's conclusion, embodied in a consent decree with a covenant not to sue, that remediation was completed.)

The Attorney General's Office has indicated that occasionally, where a PLP is unable to accomplish complete remediation, consent decrees may be entered into even though substantial remedial work remains to be done. In these cases, the consent decree and covenant not to sue is based partly on limitations of a PLP's resources, not on Ecology's satisfaction with remediation. These cases and other cases where the settlement is based on circumstances unique to their party and not the condition of the property, may warrant special conclusions regarding transferability. They may suggest that parties considering acquiring former sites might inquire of Ecology whether the department considered the site to continue to be the location of a release upon which the department would name a new owner/operator a PLP.

One key is ensuring that obligations undertaken by the original PLP party to the consent decree are fully assumed by successors. Obviously, ongoing remediation or monitoring requirements must be fulfilled by a successor.

Given that covenants not to sue should be transferable in at least some instances, should transferability be a matter of right, or bargained for? Would any MTCA purpose be served by something other than protection flowing directly, as a matter of right, out of the statute?

Whether transferability should be a matter of right, or bargained for, mechanical issues arise. Must consent decrees be reopened? How can efforts and transaction costs by PLPs, Ecology, the courts and potential buyers be minimized? One possible mechanism: Ex Parte substitution of parties, filed by new owner, with notice to Ecology.

Given that covenants not to sue should be transferable to buyers, shouldn't they also be available, in appropriate circumstances, to other persons, such as potential lessees, who might be scared off by MTCA's liability provisions?

The same concerns and analysis may apply to RCW 70.105D.040(d) contribution protection.

Options

1. Do nothing.
2. Defer issue to Ecology rule making or policy making, or to Attorney General opinion.
3. Amend 70.105A.040 to expressly allow for transferability of covenants not to sue:
   (a) Covenants not to sue obtained pursuant to subsection (4)(c) above shall be the appurtenant to the real property which is the subject of the consent decree and settlement.

Other Issues

New party to consent decree by notice of appearance, assumption of obligations stipulate to provisions of Consent Decree, and notice to Department of Ecology, Toxics Cleanup Program and Attorney General's Office.

Cases:

1. In completed remediation/monitoring situations, covenants not to sue automatically transferable ("shall be transferable")
2. In incomplete remediation/monitoring situations:
   a. presumptive transferability or
   b. transferability contingent on Department approval

Option Analysis

Option 2 is not acceptable to the Attorney General's Office because there is no expressed authority for such rules.

Preferred option is to amend statute per the recommendation.

Additional Issue: Release Reporting

Recommendation (Consensus)

Amend RCW 70.105D.030(2)(c) as follows:

(c) Provide for the following:

(i) Require the reporting by an owner or operator of releases of hazardous substances to the environment which may be a threat to human health or the environment within 90 days of discovery, including such exemptions from reporting as the department deems appropriate, provided that this requirement shall not modify any existing requirements provided for under other laws; and,

(ii) Establish reasonable deadlines not to exceed ninety days for the Department to initiate an investigation of a hazardous waste site after the department receives such notice or otherwise receives information that the site may pose a threat to human health or the environment and other reasonable deadlines for remedying releases or threatened releases at the site.

Original Issue Statement

Is there a need for clearer statutory authority for some existing practices?

Issue Description

WAC 173-340-300(2) requires owners or operators who have information that a hazardous substance has been released to the environment which may be a threat to human health and the environment (other than releases from underground storage tanks, which are governed by RCW 90.76 and WAC 173-340-450) to report such information within 90 days of discovery. While RCW 70.105D.030(2)(c) touches on this issue, it arguably does not provide the Department with authority to enforce this requirement, and some attorneys for PLPs have reputedly made such an argument.

Issue Restatement

Should RCW 70.105D.030(2)(c) explicitly give the Department authority to require the reporting of releases of hazardous substances to the environment which may be a threat to human health and the environment within 90 days of discovery?

Options

1. Do Nothing;
2. Authorize the legislative change. Reporting of releases within 90 days is currently common practice for most PLPs, and is good public policy, both from a regulatory and public notice standpoint. This change would clarify existing intent that Ecology have the authority to require notice for releases.

Additional Issue: Probabilistic Risk Assessment

Recommendation (Laurie Valeriano Opposed)

The PAC recommends Ecology conduct a review of probabilistic risk assessment methods for possible future incorporation in MTCA. This review should be completed by December 31, 1997. In the interim, Ecology should allow the opportunity for probabilistic techniques to be used on an informational basis for evaluating alternative remedies at sites where PLPs are willing to pay for the additional oversight costs. Such probabilistic techniques should not be used to replace cleanup standards and remediation levels derived using deterministic methods until adequate technical protocols and policies have been derived, including appropriate revisions to the regulations.

Issue Statement

Risk assessment, whether deterministic or probabilistic, is predictive modeling. Presently, MTCA is based on deterministic risk assessment whether uncertain toxicity and exposure variables are represented by default point estimates. These point estimates are conservative. However, they provide no measure of the uncertainty in either the input variables or the output estimate of risk. Using a deterministic approach may result in focusing resources on perceived versus actual problem areas and result in inadequate or over protection of human health and the environment.

Probabilistic risk assessment (PRA) uses Monte Carlo Simulation to conduct an uncertainty analysis that addresses both the lack of knowledge as well as natural variations in exposure variables. In such an assessment, the sources of uncertainty (e.g., dose-response processes, toxicity and exposure variables, exposure scenarios) are identified and their impacts on the overall site risk estimate(s) are evaluated quantitatively.

The MTCA Policy Advisory Committee needs to decide whether PLP's will have the option of doing PRA. If so, regulatory changes should be made to specifically allow the option of PRA.

Options

1. Do nothing.
2. Require PRA at all site where site-specific risk assessment is done.
3. Allow PLP's to use PRA to establish baseline risk levels and remediation levels (formerly referred to as cleanup levels and cleanup action levels).
4. Allow PLP's to use PRA only to establish remediation levels.
5. Allow PLP's to use PRA on a pilot basis with the intent of making regulatory changes at the end of the pilot period.

Analysis

1. Although there has been some discussion that PRA is not precluded from MTCA now, specifically including PRA in the regulations would give assurance to PLP's that PRA would be allowed for site-specific risk assessment. By being silent in the regulation, PRA may not be allowed by individual Ecology site managers. PRA provides valuable information for assessing the uncertainty of factors within and the results of a risk assessment. Because MTCA is a risk based regulation, all available tools to characterize the risk should be acceptable. Neighboring jurisdictions - British Columbia, Oregon, and Idaho - have adopted or are leaning towards accepting PRA; thus, technical guidance is currently available regionally. The USEPA has long held the position that PRA is a valid tool for uncertainty analysis and recently Regions 3 and 8 have published guidance for using PRA to estimate risk. Not allowing the use of PRA could result in cleanups which are either too conservative or not stringent enough. Such errors may focus resources in areas which are not the greatest concern. The most compelling reason not to adopt this option is that risk managers, the public, and PLP's may be deprived of valuable information which could assist them in making responsible risk management decisions.
2. Requiring that PRA be conducted for every site-specific risk assessment is unnecessary and would be wasteful. PRA takes more resources and time to conduct and sites do exist where PRA would not be appropriate. For example, if a PLP has a relatively small site with minor problems, it may well be a better use of resources to clean up to a highly conservative standard rather than expend resources to determine the uncertainty of that standard and establish a more accurate remediation level.
3. PRA is a scientific tool to help risk managers estimate risk more accurately. Accurately estimating risk and understanding the certainty of that risk is important in both the baseline risk assessment development of remediation levels. MTCA is a risk based regulation. Available scientific tools which provide more information for calculating and understanding risk should be encouraged for both the baseline risk assessment and remediation risk assessment.
4. Not allowing PRA for use in establishing baseline risk levels may result in risk being over- or under-estimated at a site. This could result in resources being used unwisely or sites being assessed as having no risk which may actually pose a threat. Not allowing PRA in all phases of MTCA means not allowing the use of available and proven scientific tools which could lead to better risk management decisions.
5. Allowing PRA on a pilot basis, with the intent of adopting regulatory language at the end of the pilot period, would allow Ecology time to assess when PRA is appropriate and what cautionary provisions should be required when PRA is used. The pilot period is proposed as follows:
    - Ecology will issue guidelines on the use of PRA. The guidelines will be developed using existing guidance, including, but not limited to EPA guidance and the draft Oregon regulations on PRA. Preferably, the guidelines will simply reference existing guidance already available. Ecology will commit to having guidelines available by April 30, 1997.

- The pilot period will be for two years. During this period, PLP's may elect to use PRA.
- Cost recovery may be used by Ecology to fund the review of a PRA.
- Information derived from a PRA will be one factor for Ecology to consider in the remedial investigation/feasibility study.
- At the end of the two year pilot period, Ecology will evaluate PRA and promulgate regulations for the application of PRA.

Additional Issue: Guidance and Training for Potentially Liable Persons and the Public

Recommendation (Consensus)

The PAC recommends that Ecology place an emphasis on the development of appropriate guidance, and on providing training and educational opportunities regarding MTCA procedural and technical requirements. In carrying out these activities, the PAC recommends that Ecology emphasize the following:

- Ecology should prepare policy/guidance material as soon as possible after the department identifies the emergence of new administrative or technical issues which are legally appropriate for clarification through those methods. (Nothing in this recommendation is intended to alter the rulemaking requirements of the Administrative Procedures Act.) These documents should be written to reach effectively the appropriate audience they are intended to reach. The quality and quantity of policy/guidance documents should be reviewed by Ecology on a periodic basis. At least twice yearly, Ecology should publish in the Site Register a comprehensive listing of all guidance or other documents which are relied upon by agency staff as precedential, including, where appropriate, such documents as internal agency memoranda, letters, and model documents. Ecology should also consider other appropriate means to inform interested persons about the availability of these publications, including providing them to libraries which serve as information repositories for site file information.

- Ecology should continue to place emphasis on training and educating potentially liable persons, and other interested persons, about the procedural and technical requirements of MTCA. This should include such activities as publishing policy and guidance documents; participation by Ecology staff in conferences on the subject of hazardous waste cleanup; sponsoring or co-sponsoring workshops and conferences; sponsoring an annual MTCA update meeting (see earlier PAC recommendation on dispute resolution); and meeting with business and trade associations.

Issue Description and Restatement

The MTCA process is difficult and complex, yet many of the people who are either responsible for compliance or may be affected by contaminated sites are relatively unfamiliar with relevant technical and regulatory matters. Guidance is sometimes not available on technical topics, or it is written in "bureaucratese," or it is difficult to locate.

Options

1. Do nothing. Status quo is acceptable.
2. Amend the statute to address guidance and training directly.

3. Recommend that Ecology place an emphasis on the development of appropriate guidance, and on providing training/educational opportunities regarding MTCA procedural and technical requirements.

Discussion

Option 1, doing nothing, is not acceptable, because the PAC believes that increased attention to guidance and training are necessary and appropriate.

Option 2 is unnecessary because the Attorney General's Office has confirmed that Ecology already has adequate authority to address guidance and training.

Option 3 provides Ecology with policy direction from the PAC, but allows flexibility in application of the policy. The PAC can further define this option by making more specific recommendations, as set forth below.

Additional Issue: Contribution

Recommendation (Consensus)

The director of Ecology is encouraged to use reasonable and timely effort to identify potentially liable persons and determine their status as such. The PAC encourages Ecology to explore increased use of measures to resolve allocation matters early in the process.

Issue Statement

When only a few PLPs at a site participate in a cleanup, these parties incur the economic burden of moving forward with the remediation process, without participation by other potentially liable parties. Their only redress is to seek contribution through the courts pursuant to the private right of action granted them under RCW 70.105D.080. Inclusion of more PLPs at the outset and providing incentives for early participation could reduce the need for lengthy contribution suits and reduce the economic burden shared by only a few PLPs.

Options

1. Do nothing.
2. Recommend that Ecology identify more PLPs at the beginning of the remedial investigation.
3. Recommend that Ecology enter into or enforce more orders at the beginning of the remedial investigation.
4. Add language to RCW 70.105D.050 requiring Ecology to identify more PLPs at the beginning of the remedial investigation.
5. Add language to RCW 70.105d.050 requiring Ecology to enter into or enforce more orders at the beginning of the remedial investigation.
6. Add language to RCW 70.105D.080 that would limit liability of participating PLPs to their fair share and would distribute the remaining portions of cleanup costs, including orphan shares, to liable parties who, after receipt of reasonable notice from Ecology, refused to participate in the cleanup.
7. Modify WAC 173-340-500 to correspond with changes to the statute.

Option Analysis

1. Retaining the status quo is not acceptable.
2. Making a recommendation to Ecology is not binding and may not result in any increased identification of PLPs.
3. Making a recommendation to Ecology is not bringing and may not result in any increased use or enforcement of orders.
4. Adding language to RCW 70.105D.050 requiring Ecology to make a greater effort at identifying PLPs at the beginning of a remedial investigation is more binding on Ecology and could result in the participation of more PLPs earlier in the MTCA process. It may

also result in the identification process becoming a "non-discretionary" duty, subjecting Ecology to civil actions to enforce performance under RCW 70.105D.050(5)(a).

5. Adding language to RCW 70.105D.050 requiring Ecology to make a greater effort to enter into orders with PLPs or to enforce orders at the beginning of a remedial investigation is more binding on Ecology and could result in the participation of more PLPs earlier in the MTCA process. As above, this change may create a "non-discretionary" duty.
6. Adding language to RCW 70.105D.080 requiring courts to assess orphan shares of cleanup cost liability to PLPs who did not participate after receipt of reasonable notice of their liability may increase PLP participation and reduce contribution suits.
7. Modifications to the WAC would make the WAC consistent with any statutory changes proposed herein.

Proposed Language:

1. Adding language to RCW 70.105D.050 requiring reasonable identification of potentially liable parties earlier in the process, requesting more participation in remedial actions and allowing for enforcement of orders can provide an incentive for PLPs to participate earlier in the process, spread the economic burden and reduce the need for contribution litigation.

   Proposed language:

   RCW 70.105D.050 Enforcement. (1) With respect to any release, or threatened release, for which the department does not conduct or contract for conducting remedial action and for which the department believes remedial action is in the public interest, the director shall use reasonable effort to identify potentially liable persons and determine their status as such, before or within 60 days after commencement of the remedial investigation. The director shall, where appropriate, request potentially liable parties to participate in the remedial action and shall issue orders or agreed orders requiring potentially liable persons to provide the remedial action. Any liable person who refuses, without sufficient cause, to comply with an order or agreed order of the director is liable in an action brought by the attorney general for:

   The treble damages and civil penalty under this subsection apply to all recovery actions filed on or after March 1, 1989 and enforcement actions filed after _____.

2. Adding language to RCW 70.105D.080 requiring courts to assess orphan shares of cleanup cost liability to PLPs who had reasonable notice of their potential liability but who refused to participate provides an incentive to PLPs to participate at the beginning of the MTCA process, spreading the economic burden among more parties and reducing the need for contribution litigation.

Proposed language:

RCW 70.105D.080 Private right of action-Remedial action costs. Except as provided in RCW 70.105D.040(4)(d), a person may bring a private right of action, including a claim for contribution or for declaratory relief, against any other person liable under RCW 70.105D.040 for the recovery of remedial action costs. In the action, natural resource damages paid to the state under this chapter may also be recovered. Recovery shall be based on such equitable factors as the court determines are appropriate; however, if after applying equitable factors, there are resultant orphan shares of liability, the court shall attribute those orphan shares, as appropriate, to those persons who were found by the director to be a potentially liable person but who refuses without sufficient cause to participate in the remedial action. Remedial action costs shall include reasonable attorneys' fees and expenses. Recovery of remedial action costs shall be limited to those remedial actions that, when evaluated as a whole, are the substantial equivalent or a department-conducted or department-supervised remedial action. . . . The prevailing party in such an action shall recover its reasonable attorneys' fees and costs. . . .

This proposed language uses the term "orphan shares" which may need to be defined. Proposed language for new section in RCW 70.105D.020 Definitions:

(11) "Orphan Share" means:

(a) Shares attributable to hazardous substances that the court determines to be specifically attributable to identified but insolvent or defunct persons who are not affiliated with any viable potentially liable person.

(b) Shares attributable to hazardous substances that the court determines to be specifically attributable to persons that, due to the operation of subsection RCW 70.105D.040(3), have no liability for the costs of response actions at the facility for which the allocation is being performed.

(c) Shares attributable to hazardous substances that the court cannot attribute to any identified person.

(d) The difference between the aggregate share attributable to hazardous substances that the court determines to be specifically attributable to identified potentially liable persons and the share actually paid by those persons in any settlements with the State.

3. Adding language to WAC 173-340-500 would align the regulations with the above statutory language.

Proposed language:

WAC 173-340-500 Determination of status as a potentially liable person.

(2) Contents of letter. The status letter shall provide: . . .

(b) An opportunity to provide comments why the person believes they should not be considered a potentially responsible party;

(c) An indication that a determination of potentially liable status will be forthcoming requesting their participation in the remedial action.

(6) Additional potentially liable persons. The department reserves the right to notify additional potentially liable persons at any time, and will facilitate potentially liable persons' efforts to identify additional potentially liable persons. The department shall notify in writing, all persons who previously received a status letter for the facility whenever additional status letters have been sent.

Additional Issue: Toxics Control Account

Recommendation (Broad Support; Mike Sciacca Opposed; Mary Burg, Jim White Abstained)

The PAC recommends that the Legislature review the MTCA spending authorizations in RCW 70.105D.070. Specifically, RCW 70.105D.070(2) and (3) should be examined, prioritized, and funded proportionately to their relationship to the primary purposes of the MTCA cleanup program.

The PAC believes that the MTCA spending authorizations stated in RCW 70.105D.070 are too broad. Approximately $145 million per biennium is spent on activities, some of which some PAC members believe are only tangentially related to the main purposes of MTCA.

The PAC has observed that, over the years, MTCA funds have been increasingly used for non-MTCA purposes; including some programs allocated to other agencies.

The PAC believes that the funds in the toxics control accounts should be more clearly dedicated to the primary purposes of MTCA, such as cleaning up sites and preventing future hazards.

APPENDIX D

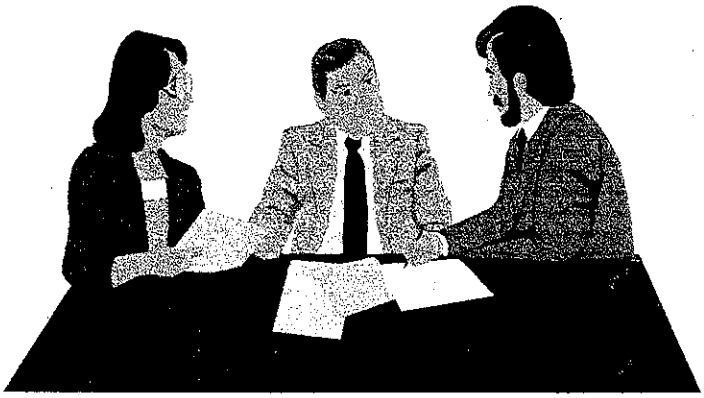
NEWSLETTER

Washington Department of Ecology
Toxics Cleanup Program
P.O. Box 47600
Olympia, WA 98504-7600

WASHINGTON STATE DEPARTMENT OF ECOLOGY

MTCA PAC Issue Update

September 1996



Roundtable on Model Toxics Control Act Policy Advisory Committee Issues

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October 2, 1996
6:30 - 8:30 pm
Queen Anne Public Library
400 W. Garfield Street

WASHINGTON STATE DEPARTMENT OF ECOLOGY

MTCA PAC Issue Update

September 1996

HOW ARE CONTAMINATED SITES CLEANED UP IN WASHINGTON?

The goals of Washington's Model Toxics Control Act or MTCA are clear: to protect human health and the environment through cleanup of contaminated sites in the state. Adopted by a statewide initiative of the voters, MTCA has provided the regulatory framework for contaminated site investigations and cleanup since March 1989. The Washington State Department of Ecology takes regulatory responsibility for encouraging companies and individuals with contaminated sites to investigate that contamination and ensure that cleanup actions are protective of people and ecosystems.

In MTCA's six-year history 6,568 sites have had known or suspected contamination. To date, 2,145 (33%) sites have been cleaned up or assessed to need no further action. The larger portion, 8 of every 10 sites, were cleaned up independently by responsible parties, who worked in compliance with Ecology's regulations and guidance. Twenty percent still await cleanup or further assessment, and about half are in the cleanup process or the source has been controlled.

MTCA sites vary widely. An ongoing investigation and cleanup at the ASARCO smelter site in Everett, for example, has been in progress for 6 years and calls for the remediation of 160 acres in a residential area contaminated with lead and arsenic. Much more common, however, are businesses such as gas stations, body shops, and dry cleaners that have contaminated either soil or groundwater with chemicals. In some parts of the state, large industrial areas have been contaminated by many years of manufacturing and processing operations or by agriculture, causing area-wide problems on and below the ground surface that are difficult to identify as resulting from one source.

EVALUATING MTCA's EFFECTIVENESS -- THE POLICY ADVISORY COMMITTEE

Last year, the Washington Legislature set up a statewide advisory committee to assess MTCA's effectiveness and suggest necessary changes (ESHB 1810). The MTCA Policy Advisory Committee, commonly known as the PAC, began its work in August of 1995. Its 22 members come from all segments of Washington, ranging from big and small industry representatives to agency personnel, city and county employees, and environmental and citizen organizations. The members and their alternates are listed on page 2.

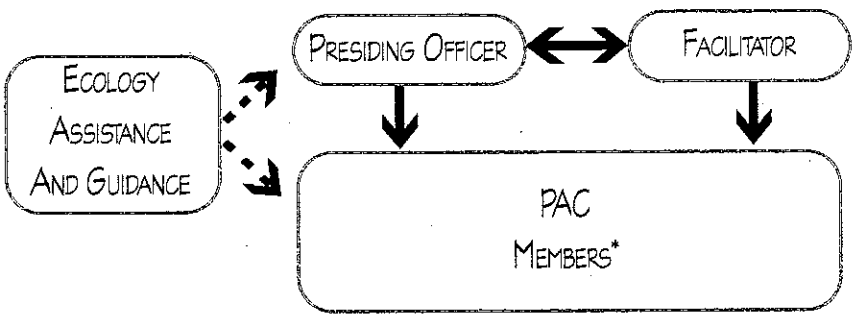
The PAC was told by the Legislature to operate on a consensus basis where possible, working informally to share information, understand the issues, and reach creative mutual solutions. Their goal: to make MTCA cleanups faster, better, and less expensive than they are today. Dan Ballbach of Landau Associates was selected to chair the group as the presiding officer. A facilitator, Pat Serie of EnviroIssues, was hired to help in the decision-making process.

The PAC formed four subcommittees to help in identifying and studying MTCA implementation issues. These subcommittees are chaired by a PAC member and are as follows:

- *Implementation*
- *Independent Cleanups*
- *Remedy Selection*
- *Risk Assessment*

Continued on Page 2

THE PAC's ORGANIZATION AND ITS MEMBERS



*MEMBERS (Representing large and small business, counties, cities, environmental organizations, government, state agencies, ports, agriculture, finance organizations, and consulting companies)

Members:
Dan Ballbach, Landau Associates
Terry Austin, Yakima County
Len Barson, Friends of the Earth
Rod Brown, Washington Environmental Council
Mary Burg, Department of Ecology
Gary Chandler, Washington State Legislature
Karen Fraser, Washington State Legislature
Kevin Godbout, Weyerhaeuser
Rick Griffith, Stoel Rives
Eric Johnson, Washington Public Ports Association
Taryn McCain, Boeing
Scott McKinnie, Farwest Fertilizer
Sharon Metcalf, City of Seattle
Jeff Parsons, People for Puget Sound
Jody Pucel, SAFECO
Nancy Rust, Washington State Legislature
Mike Sciacca, Washington Oil Marketers Association
Gerald Smedes, Smedes & Associates
Dan Swecker, Washington State Legislature
Laurie Valeriano, Washington Toxics Coalition
Jim W. White, Department of Health
Julie Wilson, GeoEngineers

EVALUATING MTCA'S EFFECTIVENESS ..... Continued from Page 1

The subcommittee meetings are open to the public.

Each group began work by identifying priority issues. With PAC consensus, a broad list of issues to be considered was reported back to the Legislature in a December 1995 report. Each subcommittee's issues, and the status of their work, are described below.

RISK ASSESSMENT SUBCOMMITTEE TACKLES MTCA CONSIDERATION OF RISK

Today, Ecology regulates site cleanups using MTCA's cleanup levels for different types of chemicals. There is some flexibility in defining cleanup levels for a given site. Most cleanups follow MTCA's predetermined or default values for acceptable levels of remaining contamination. The default target levels for carcinogens are based on the potential for a one-in-a-million chance of causing an additional case of cancer because of exposure to any remaining contamination for most sites and $1x10^{-5}$ for industrial sites.

Many people facing cleanup responsibility (known as potentially liable persons or PLPs) believe that a more accurate, quicker and less expensive result is possible by using more site-specific information to calculate cleanup levels. Others believe such studies could be used to delay cleanup and result in more contamination being left behind, posing a risk to the community. The Risk Assessment Subcommittee is studying the concept of increasing the flexibility of methods used to evaluate risk at MTCA sites. The subcommittee is chaired by Dr. Julie Wilson of GeoEngineers.

A more flexible approach would consider site conditions and potential routes of exposure to chemicals in defining how clean sites must be. Using case studies, the subcommittee evaluated how results would change if different types of site-specific information were used to calculate cleanup levels. Members are evaluating what kinds of constraints would need to be placed on these alternative methods, how communities around sites could understand and participate in the use of site-specific risk assessment, and how we could be sure that these approaches protect people and the environment. The subcommittee is also discussing whether the one-in-a-million risk value ($1x10^{-6}$) is appropriate for all kinds of site land uses and conditions.

An area of uncertainty in how MTCA works today is the assessment of risk to the environment — to animals and plants on or near a contaminated site. While cleanup levels that protect humans are usually adequate to protect ecological resources, there are some contaminants and some situations where environmental protection requires more stringent cleanup. The Risk Assessment Subcommittee is working on a recommended process to screen MTCA sites for impacts on the environment, and where indicated, evaluate those impacts specifically. These "eco-standards" can then help ensure that cleanups adequately protect both people and the environment.

SELECTING A CLEANUP REMEDY -- CAN MTCA DO IT BETTER?

Risk assessment results are important in setting cleanup levels for contaminated sites and using those levels to select an appropriate treatment or remedy for the problem. Solutions are proposed by PLPs and require review by Ecology and the public. Ecology imposes goals of permanence and protectiveness. Different solutions have widely different costs to the PLPs, so the selection of remedies gets a lot of attention.

The PAC's Remedy Selection Subcommittee, chaired by Rod Brown of the law firm Marten and Brown, is examining the process. Remedies are typically a combination of contaminant removal, treatment, and containment (such as capping or enclosure in some way). The goal is to most effectively eliminate or block routes or "pathways" where people or ecological resources may be exposed to contaminants. By studying site conditions and a range of options for cleanup, a decision can be reached on what actions will be required.

The subcommittee is considering how to make the process of remedy selection more clear and understandable, and how to consider remedy cost and permanence in choosing a protective remedy. Members will evaluate and perhaps recommend revision of existing approaches to monitoring, land use control, and oversight in the long term, commonly called institutional controls. The purpose of institutional controls is to let future owners or residents know about any remaining contamination and to maintain or update remedies to ensure that protectiveness continues into the future. Consideration of how remedy selection works in an independent cleanup (without Ecology participation or oversight) is also a key topic. Treatment of broad contamination over large areas so that industrial (so-called "brownfields redevelopment"), agricultural or other properties can be redeveloped requires coordination of cleanup requirements, economic development approaches, and other elements. The subcommittee is examining the regulatory framework of MTCA to see if brownfields redevelopment can be made faster and easier while providing long-term environmental protection.

In addition, the Remedy Selection Subcommittee is studying a fast-track approach to cleanup of petroleum products. The goal is to develop an interim policy for "total petroleum hydrocarbons" or TPH cleanups as soon as possible. Current methods for TPH remediation cause many sites to excavate large quantities of soils, and it is broadly agreed that there may be more cost-effective approaches that will still be protective. The PAC is also contributing to the longer-range development of TPH cleanup regulations.

ENSURING THE QUALITY OF INDEPENDENT CLEANUPS

As noted above, the majority of sites cleaned up under MTCA in Washington are done independent of Ecology review. They must meet the reporting and cleanup requirements of MTCA, but many parties choose to move forward independently and conduct the investigation and cleanup on their own. This has been a basic part of MTCA, and the PAC supports independent cleanups so that more sites are taken care of as rapidly as possible. This approach raises, however, questions of quality and accountability.

The Independent Cleanup Subcommittee, chaired by Sharon Metcalf of the City of Seattle, has already recommended and the PAC has approved a recommendation that Ecology provide greater technical assistance to PLPs to help them perform independent cleanups correctly. The subcommittee has further recommended and the PAC has approved steps to help ensure overall quality of independent cleanups. Notification and involvement of citizens also concerns the subcommittee, and an approach is being evaluated for informing the local community around a site about independent cleanups.

IT'S NOT JUST WHAT YOU DO, BUT HOW YOU DO IT -- MTCA IMPLEMENTATION

Issues that affect how MTCA is carried out are assigned to the Implementation Subcommittee. This group is chaired by Eric Johnson of the Washington Public Ports Association, and has tackled several key priority issues. Members are examining how decisions are made by Ecology, and whether the decision-making process could be improved through better communication, information sharing, and dispute resolution techniques. Providing incentives for site cleanups through state tax policies is another issue receiving attention.

Continued on Page 4

IMPLEMENTATION ..... From Page 3

Much work is focusing on ways in which the public can and should participate in MTCA cleanup investigation and cleanup decisions. Current requirements for public participation do not always fit site situations, and resources available for communities to understand and be involved in cleanups are limited. The Implementation Subcommittee is studying how public participation works now, and how earlier and more extensive citizen involvement could add to public confidence in cleanups. As the PAC considers increasing the use of site-specific risk assessment, resources and opportunities for public participation become of greater concern.

Other topics on the subcommittee's agenda include definition of factors to be used in assigning shared liability for contamination and cleanup, and the desirability of transferring legal protections and obligations when cleaned-up properties are sold or transferred. The subcommittee is considering treatment of "innocent landowners" who may have contaminated groundwater beneath their property through no fault of their own. Finally, the subcommittee will assess the overall funding situation for Ecology's Toxics Cleanup Program, which administers MTCA. Recommendations will be made on whether funding levels are appropriate and how money and people should be allocated within the cleanup program.

WHAT CAN WE EXPECT ... ... AND WHEN?

The PAC's job is over at the end of this year. By December 15, 1996, the PAC must submit a full report to the Legislature and the Department of Ecology with its recommendations. Those recommendations are now taking shape. The PAC will work during the next few months to agree on recommendations on the priority issues and to "tell the story" of how MTCA can be improved. Those recommendations are expected to include suggestions for statutory changes, revisions and additions to MTCA regulations, and policy and guidance positions to be taken by Ecology in carrying out MTCA.

PUBLIC PARTICIPATION IN THE PAC PROCESS ... A COMMITMENT AND A PLAN

The PAC's membership was designed to include a spectrum of viewpoints on how MTCA works today and how it can be made better. Representatives were sought from all sectors, and have done an excellent job of representing the views of their broader constituencies. The PAC mailing list contains over 450 people and organizations, and mailings include meeting announcements, summaries, and issue information. PAC meetings take place at least monthly, and are open to comment and participation by the public. Meetings have been held around the region (Tacoma, Olympia, Seattle, Wenatchee, Everett), and are widely publicized. An evening session on public participation in Everett in June garnered the PAC a great deal of input on how public participation in MTCA can be made more effective. Subcommittee meetings are also open to interested people, and are often well attended.

In addition to these opportunities for information and involvement, the PAC will sponsor two public roundtables this fall. Taking place in the evening, these informal meetings will give interested citizens a chance to speak with PAC representatives and provide their insights directly. The first meeting is scheduled for Wednesday, October 2, from 6:30 - 8:30 pm at the Queen Anne Public Library, 400 W. Garfield Street in Seattle. A second meeting will be scheduled for later in October. If you have questions in the interim, please call Dawn Hooper at the Department of Ecology (360-407-7182) or the PAC facilitator, Pat Serie of EnviroIssues (206-343-7701). We welcome your questions and input, and hope that the PAC process will continue to reflect the priorities and concerns of a broad range of Washington citizens.

Comment Form

If this newsletter has raised any issues or concerns, or if you have any additional questions about the work of the MTCA Policy Advisory Committee, please let us know. Please fill out this form and send to the address listed below. Thank you very much for your input.

Please return this completed form to:

Dawn Hooper
Washington Department of Ecology
Toxics Cleanup Program
P.O. Box 47600
Olympia, WA 98504-7600

APPENDIX E

PILOT SITE INFORMATION

DRAFT

SUMMARY OF RESULTS TO DATE FROM L-BAR SITE – MTCA POLICY ADVISORY COMMITTEE PILOT SITE

The L-Bar Site in Chewelah, Washington, was selected by the MTCA Policy Advisory Committee in September 1995 as one of two pilot sites to aid in the PAC's analysis of MTCA implementation issues. A Remedial Investigation (RI) has been completed and is under review by Ecology. To illustrate "alternative methods for accomplishing faster, less expensive and equally protective cleanups at complex sites" as required by ESHB 1810, the PLP (NW Alloys) also proposed several supplementary studies at the site. A draft work plan for those studies is available (MTCA Pilot Program Demonstration Project Supplemental Studies Work Plan, September 1996) and a memorandum has been prepared by the PLP's consultant team providing the preliminary results of the supplementary studies.

The L-Bar Site, north of Spokane, is a former magnetite processing plant that ceased operations in 1968, with magnesium recovery and mineral byproduct production taking place until 1991. Stockpiled materials have contaminated soils and shallow groundwater beneath and adjacent to the site with ammonia and chloride. The Colville River, immediately north of the site, is receiving contaminated surface-water and groundwater discharges. Human health risks are judged to be insignificant, but there are questions about adverse effects on the adjacent natural resources (benthic organisms in river sediments, vegetative growth impacts in adjoining agricultural field).

Preliminary results are informative in relation to the PAC's priority issues related to ecological risk assessment and remedy selection (application of the technology hierarchy to prioritize reuse and recycling, alternative points of compliance, innovative remedies). Those results are summarized below for consideration by PAC subcommittees as they formulate recommendations to the full PAC for resolution of issues.

SITE-SPECIFIC ECOLOGICAL RISK ASSESSMENT

The PLP has performed several supplementary ecological studies to characterize the resources potentially affected by the site. They have sampled river water at high and low flows, and evaluated the sediment and river water interface in the Colville River to determine if groundwater discharge is causing water quality effects. They have sampled and bioassessed benthic organisms in the river. To examine potential crop impacts in the field between the site and the river (which they are in the process of buying), they are evaluating grass crop yield impacts related to the contamination. They believe that these results will support the use of both site-specific ecological risk assessment and agricultural or recreational land use scenarios. If subsequent sampling and analytical results continue to support their hypotheses, they suggest that the PAC modify MTCA to clearly promote and provide guidance for the use of site-specific risk assessment for human health and ecological risk purposes.

POINT OF COMPLIANCE

Establishing a conditional point of compliance for groundwater cleanup must place it "as close as technically possible" to the groundwater and surface-water interface. No dilution zone is allowed, and AKART (all known available and reasonable methods of treatment) technology must be applied prior to release. With the site configuration of the L-Bar Site, and their control of property all the way to the river, this raises questions of where the point of compliance must be placed. The PLP is suggesting that it is not possible to meet state and federal water quality criteria at the point of discharge to the river, but that modifying MTCA to allow an NPDES-type dilution zone would allow compliance with no negative impacts. They also question how AKART would be applied to a groundwater discharge (as opposed to a single-point discharge), and seek guidance on that issue.

The attached analysis illustrates how the choice of remedy, and resulting costs and timeframes, would be affected by different options for the conditional point of compliance (attached NW Alloy's table; to be received).

RECYCLING/REUSE VERSUS CLEANUP TIMEFRAMES

The material stockpiled at the L-Bar Site was intended for processing and reuse, but its storage in unlined and uncovered piles is causing contamination. NW Alloys would still like to process the material for sale and reuse, disposing of only unusable residuals, and their studies of reuse potential support that action. They recognize, however, that source control is important, and plan this year to move a substantial portion of the material in the areas at greatest risk of further contaminating the site offsite for disposal. The remaining material would be processed over a timeframe of up to 10 years, driven by time needed to process material that they own at different locations as well, and allowing them to feed the reclaimed product into the market in a controlled way.

The PLP cites WAC 173-340-360(6)(b), which allows a longer remediation period for technologies rated higher in preference in the selection hierarchy. Ecology has not yet defined the timeframe to be required for reuse and/or disposal. NW Alloys is requesting that the regulation be revised to clarify the tradeoffs between recycle/reuse and remediation timeframe issues.

MTCA Pilot Program
L-Bar Site - Chewelah, WA
Comparison of Anticipated Cost Impacts for Different Remedial Options

Site Issues	Current MTCA (cost as a % of current MTCA)	Revised MTCA - Scenario 1 (cost as a % of current MTCA)	Revised MTCA - Scenario 2 (cost as a % of current MTCA)	Comments
Point of Compliance	100	40	3	Assumes current MTCA would require active remediation of GW and SW to eliminate discharges to the Colville River. See notes 1 and 2 below. Revised scenario 1 includes only SW treatment. Scenario 2 assumes an NPDES permit for West ditch discharges.
Site Specific Risk Assessment	100	40	3	SSRA will require additional costs beyond standard MTCA risk assessment. Cost savings are realized where SSRA demonstrates risk to key receptors is below regulatory levels of concern, and SW/GW remediation is agreed to be unnecessary. See note 2 below.
Reuse/Recycling and Cleanup Timeframes	100	90	60	Current MTCA regs do not specify cleanup timeframes in the cleanup technology hierarchy. Reuse/recycling opportunities require time for market development. If SSRA suggests low risk, then reuse timeframes may be extended. See notes 3 thru 5 below.

Notes

1. Strict application of the current MTCA regulations regarding points of compliance for groundwater and surface water could require that a water treatment system be installed to reduce the TDS, ammonia, and chloride load to the Colville River. A preliminary engineering evaluation for treatment of L-Bar site water was performed by ReTec (October 9, 1995). A reverse osmosis system capable of treating 15 gpm was evaluated for removal of ammonia, TDS and chloride. The cost summary evaluation for a dual-pass RO system identified total annual O&M costs at $1.7M, with a present worth of $18M (economic life of 15 years, 5% interest rate). If this system is upscaled to allow treatment of West ditch surface water (assuming an average annual flow of 10 gpm), then the entire treatment system could reach a present worth of $30M.

2. Ongoing monitoring of the Colville River immediately downstream of the L-Bar site has shown levels of ammonia and chloride to be considerably less than the applicable surface water quality standards, and suggests that chloride and ammonia loading due to groundwater discharge is negligible. Recent interface sampling identified no discernable impacts to surface water quality at the sediment/surface water boundary. These findings suggest that the point of compliance for groundwater could be established at the river, and still be protective of the aquatic and benthic communities. Conditional POC would be justified by the findings of the SSRA. Scenario 1 under "point of compliance" is based on these findings. Scenario 2 assumes that SW discharge from the West ditch does not require treatment, but does require an NPDES permit and monitoring to assure that permitted discharge limits are not exceeded. Furthermore, post-RI monitoring of surface water and groundwater is assumed to continue for up to five years after effective removal of on-site source materials. These monitoring activities would be expected to occur with or without implementation of any prescribed groundwater/surface water treatment.

3. In recognition of the MTCA's preference for reuse/recycling options for cleanup/removal of source materials, it was assumed that the most viable source removal option at this time is agricultural reuse. Currently, products derived from flux bar residue are registered as commercial fertilizer/soil amendments use in Idaho, Oregon and Washington. The costs to NW Alloys for handling, loading, transport and point-of-use application assistance is estimated to be $7M. Removal of L-Bar source material via agricultural reuse would require 6 to 10 years. The costs identified under the "Current MTCA" column assume $1M also will be incurred over this period for site management and oversight.

4. An alternative source removal option that falls lower on the MTCA cleanup technology hierarchy is offsite disposal (Scenario 1). Excavation, transportation and offsite disposal of L-Bar source materials as a special waste at a Subtitle D landfill is estimated $7M. This alternative is expected to take 3 to 4 years to complete. It is assumed that a shorter removal timeframe will reduce site management and oversight costs mentioned in note 3 above.

5. Mine reclamation applications for flux bar/flux bar residue are being evaluated by NW Alloys. This alternative includes excavation, loading and transportation to mine sites for application. It is estimated that this alternative would cost $4M and is expected to take 6 to 10 years to complete. An additional $1M is included for site management and oversight.

Pilot.

PERKINS COIE

A LAW PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS
1201 THIRD AVENUE, 40TH FLOOR · SEATTLE, WASHINGTON 98101-3099
TELEPHONE: 206 583-8888 · FACSIMILE: 206 583-8500

September 9, 1996

DOUGLAS S. LITTLE
(206)583-8511

VIA FACSIMILE

Carol P. Kraege
Peter Kmet
Department of Ecology
Toxics Cleanup Program
P. O. Box 47600
Olympia, WA 98504-7600

Richard H. Bassett
Washington Department of Ecology
15 West Yakima Avenue
Yakima, WA 98902-3401

Re: Draft Summary

Dear Carol, Dick and Pete:

Enclosed is a draft summary of the pilot project study for the Yakima Valley Spray/U-Haul site. Although this is only a draft, we thought it might serve as a talking paper for the meeting on Wednesday at the central regional office in Yakima.

We have prepared this summary with the idea of distributing it to the Policy Advisory Committee. The important technical details underlying this summary will be set forth in the Yakima Tier 2 Analysis final report which RETEC is now completing. Both the summary and the Tier 2 Report would be submitted at the same time. We developed this summary report because we thought that the Tier 2 Report plus the two prior submittals would be too much material to be digested by the PAC, especially as it enters the home stretch on its work. The summary reflects our attempt to focus on a few issues of broader importance that we assume will be of interest to the PAC.

We look forward to discussing this subject with you on Wednesday.

Sincerely yours,

Douglas S. Little

Enclosure

cc: John Ryan (via facsimile w/encl.)
Pat Serie (via facsimile w/encl.)
Steering Committee (via facsimile w/encl.)

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DRAFT 9/9/96 5:07 PM

Summary of Pilot Project Study for the Yakima Valley Spray/U-Haul Site

One of the two pilot project study sites selected by the MTCA Policy Advisory Committee (PAC) is the four-acre Yakima Valley Spray/U-Haul site (Yakima Site) in Yakima. The purpose of the pilot studies is to "evaluate alternative methods for accomplishing faster, less expensive and equally protective cleanups at complex sites." The Yakima Site qualified as a pilot project site due to its complexity in terms of both the multiple constituents detected at the site and the many types of businesses that have historically operated at the property. In addition, the site presented a number of regulatory issues that had been raised and were under discussion during the Feasibility Study phase of the regulatory process.

This summary of the pilot project study for the Yakima Site will, after providing an overview of the site and a summary of the pilot study methodology, present results that address these questions:

1. In deriving soil cleanup levels that will be protective of groundwater, what is the difference between using MTCA's generic default factor of 100X the applicable groundwater standard and using chemical-specific leaching factors?
2. What is the significance of using a site specific attenuation factor rather than a standard default attenuation factor?
3. What is the impact on the a soil removal remedy if the point of compliance is adjusted from being beneath the source of contamination to first the property boundary and, second, to the nearest existing point of exposure to groundwater from the site?
4. How important is the assumed land use in determining a remedy to protect against direct contact to soil contamination?

To illustrate each of these issues, the pilot project study quantified the change in impacted soil volumes (i.e., the amount the soil that would be excavated during remediation) that is attributable just to the issue being addressed.

A. Overview of the Yakima Site

The Yakima Site, approximately four acres in size, is a city block sandwiched between the railroad corridor and the main commercial street in Yakima. The site, currently owned by U-Haul of Inland Northwest, has been used since the early 1980s to store, rent and service rental trucks and trailers. The current zoning for the site is commercial and the adjoining properties are and have been in industrial or commercial usage.

For much of its history, the Yakima Site has not been under single ownership as it currently is, but has instead been owned and occupied by various businesses. These have included a pesticide formulation business, a bulk oil storage and distribution business, and a tractor sales and repair business. Although only the current owner has been named as a potentially liable party by Ecology, multiple parties have been associated with the Yakima Site. Consistent with this history, multiple contaminants have been detected at the site, most of which have been present for more than 25 years.

B. Pilot Study Approach

The pilot study utilized the recent American Society for Testing and Materials (ASTM) framework for Risk-Based Corrective Action (RBCA) to achieve several goals. First, the methodology was employed to screen and interpret the extensive existing data on the site from the completed Remedial Investigation. Next, the ASTM methodology was used to determine cleanup levels and action levels for the relevant exposure pathways and for the screened constituents at the site. These results then were used to assess potential remedies.

The first task in the pilot study was to compare MTCA cleanup standards with the Risk-Based Screening Levels (RBSLs) computed using Tier 1 of the ASTM framework. The results of this task were presented in *Yakima Valley Spray/U-Haul Site MTCA/RBCA Tier 1 Comparative Analysis (RETEC, March 1996)*. Generally, this comparison found that the ASTM framework was more comprehensive, i.e., it considered more exposure pathways, than the development of cleanup standards under MTCA and utilized input assumptions that were at least as conservative, and in some cases more conservative, than those used for MTCA. Thus, for the purpose of determining the pathways and constituents that would govern site cleanup, the Tier 1 RBSLs were more conservative, i.e., more stringent, than the MTCA method B cleanup levels.

The next task in the pilot study was to conduct a RBCA Tier 1 analysis of the Yakima Site. This analysis identifies contaminant sources and indicator compounds, significant transport pathways and sensitive receptors. By comparing site data to conservative, generic RBSLs, the analysis establishes initial response actions. The Tier 1 analysis was reported in *Tier 1 Risk Base Corrective Action analysis for the Yakima Valley Spray/U-Haul site (RETEC, April 1996)*.

The Tier 1 analysis indicated that there are two potential exposure pathways of interest for the Yakima Site: (1) incidental soil ingestion, dermal contact or inhalation of soils by an onsite worker and (2) groundwater ingestion by local residents. The transport mechanisms associated with these two exposure pathways are:

- Soil exposure, i.e., direct contact with contaminated soils.
- Groundwater exposure due to leaching of a substance from soil to groundwater and groundwater transport of the dissolved substance.

For both the soil exposure and the groundwater exposure pathways, a number of constituents were detected at the site at levels in the soil and groundwater above the Tier 1 Risk-Based Screening Levels.

The final task in the pilot study involves the conduct of a RBCA Tier 2 analysis of Yakima Site. Tier 2 addresses the same exposure pathways of concern that were identified in the Tier 1 analysis. Tier 2 improves on Tier 1 by utilizing site-specific information in place of the generic assumptions used in Tier 1. Tier 2 also evaluates alternative points of compliance for meeting the Site-Specific Target Levels (SSTLs) that Tier 2 determines. The results of the Tier 2 analysis have been used to prepare this summary report and are set forth in *Yakima Tier 2 Analysis Final Report (RETEC, _____ 1996).*

C. Groundwater Exposure Pathway

Under this exposure pathway, the potential intake of a substance results from the leaching of the chemical from the soil, the mixing of the leachate with the groundwater and the ingestion of the contaminated groundwater at an assumed location called the point of compliance. The relationship between the soil concentration and the groundwater concentration depends on several variables, including (a) a leaching factor, (b) an attenuation factor and (c) the location of the point of compliance. With assumed values for these variables, a soil cleanup level can be calculated that will protect the groundwater. This soil cleanup level can then be used to screen the data at the site to identify the soils in need of potential remediation to protect the groundwater exposure pathway.

The pilot project study analyzed the importance of each of these variables in the groundwater exposure pathway at the Yakima Site. This was done by changing one factor at a time and determining the impact on the soil volume that would have to be excavated to achieve the soil cleanup level. This process is depicted in Figure 1.

Another potential variable in this type of study is the allowable risk level for the hypothetical receptor at the point of compliance. For sites such as the Yakima Site, this risk level is a function of the maximum contaminant levels under drinking water laws and other human-health based standards. Given the risk level, a

groundwater concentration that is protective of human health for each detected chemical can be determined. Throughout the groundwater exposure analysis that is described below, however, the risk level remained the same.

1. Base Case: MTCA Method B

The first step in the analysis was to establish a base case. For this purpose, MTCA Method B soil cleanup levels protective of groundwater was chosen. This is the generic MTCA assumption shown in Column 1 of Figure 1. Under MTCA, the leaching and attenuation factors have been lumped into a single default factor of 100 times the groundwater standard for a constituent. The point of compliance is the groundwater beneath the contaminated soil source. As shown on Figure 1, there are 20 constituents that exceed the generic MTCA Method B soil cleanup levels protective of groundwater. The volume of soils exceeding the cleanup levels is 24,700 cubic yards.

2. First Adjustment: Using a Chemical-Specific Leaching Factor

The first step in the analysis was to utilize a chemical-specific leaching factor to account for the often substantial difference among chemicals in how they partition in a soil matrix between sorbed, dissolved and vapor phases. For example, the partition factor for DDT is approximately 85,000 times the partition factor for benzene, reflecting the vast difference in solubility for these two chemicals. The MTCA Method B base case assumes that all chemicals have the same partition factor. As shown in Column 2 of Figure 1, the use of chemical-specific leaching factors reduces the impacted soil volume by more than 50%, from 24,700 cubic yards to 12,100 cubic yards. This adjustment raises only science issue (the leaching model and values to be used), but does not involve a policy issue.

3. Second Adjustment: Use of a Site-Specific Attenuation Factor

As mentioned, in the MTCA Method B base case, the leaching and attenuation factors were combined into a single default assumption. In the first adjustment, an attenuation factor of 12.1 from ASTM Tier 1 was used. This is a conservative value. It assumes that all leachate reaches the groundwater and neglects all mechanisms for attenuation between the contaminated soil and the groundwater. It also uses a generic water infiltration rate of 30 centimeters per year.

However, the assumed infiltration rate is not representative of the arid Yakima climate. Thus, the second adjustment is to apply an attenuation factor based on the natural precipitation rate at the Yakima Site. This causes the number of constituents exceeding cleanup levels to decrease to about half the number in the base case and reduces the impacted soil volume to 5,100 cubic yards, as shown in Column 3 of Figure 1. This adjustment involves only a science issue and not a policy issue.

4. Third Adjustment: Moving the Point of Compliance

The base case assumes that the receptor is located immediately beneath the contaminated soil source, i.e., that groundwater can and would be ingested at any point on the Yakima Site. For many reasons, this assumption is unrealistic. There is no record of any use or consumption of groundwater at the site. Because there is a municipal water supply and much of the shallow groundwater in Yakima is biologically contaminated, there is no reason to install a well at the site.

For all of these reasons, the closest location of assumed exposure to any groundwater contamination at the Yakima Site would be at the property boundary. The consequence of moving the point of compliance to the property boundary is shown in Column 4 of Figure 1. The impacted soil volume is calculated at 2,000 cubic yards. This adjustment raises both policy and science issues. The policy issue is whether and under what conditions to allow moving the point of compliance. The science issue is what attenuation method should be used to compute the maximum

groundwater level beneath the source such that the groundwater will still meet the groundwater protection standard at the downgradient property boundary.

5. Fourth Adjustment: Addition of an Engineering Control (a Cap)

Up to this point in the analysis, none of the adjustments have involved any need for long-term maintenance. The only measure required (if the point of compliance is moved to the property boundary) would be some means of assuring that there would be no ingestion of groundwater at the site. In this adjustment, however, it is assumed that contaminated soil areas would be covered with a cap. A cap would further reduce the infiltration rate at the Yakima Site, thus changing the attenuation factor. As shown on Column 5 of Figure 1, the addition of a cap has only a relatively small impact in that the impact that soil volume drops from 2,000 cubic yards to 1,600 cubic yards. This is attributable to the fact that the infiltration rate for the Yakima Site is already quite low due to the arid climate. The addition of a cap, however, would create long-term maintenance obligations.

This adjustment illustrates a feature of the ASTM RBCA framework. Under the framework, a remedy such as a cap can be considered in developing site-specific target levels. By comparison, the MTCA process is much more linear, requiring developing of cleanup levels before any consideration is given to remedies. In this sense, the ASTM RBCA process offers the ability to determine a remediation plan sooner and thus to accomplish faster cleanups.

6. Fifth Adjustment: Moving the Point of Compliance to the Nearest Known Point of Exposure

In this final adjustment, the point of compliance has been moved from the property boundary to the closest existing potential receptor, which is a downgradient private drinking water well located approximately one quarter mile from the property boundary. The effect of this adjustment is that only one constituent exceeds a soil

D. Soil Exposure Pathway

The analysis of the soil exposure pathway is less involved than was the analysis of the groundwater exposure pathway. The reason is that there are fewer variables to be considered. The principal factors are what is the means of exposure and what is the exposed population. To illustrate the relative importance of these variables, several cases were analyzed as described below.

1. Base Case: MTCA Method B (Residential) and Method C (Commercial)

Two base cases were developed, one assuming residential land use and the second, assuming commercial land use. These are set forth in Columns 1 and 2 of Figure 2. Both base cases assume that the contaminated soil is ingested. The difference between the residential and commercial base cases involves the frequency of exposure of the population, which in both cases is assumed to be a child. The lower frequency under the commercial base case causes the impacted soil volume to drop to 2,500 cubic yards from 15,200 cubic yards of residential base case. The residential base case applies MTCA Method B cleanup levels while the commercial base case reflects MTCA Method C (commercial) levels.

2. RBCA Tier 1 Risk-Based Screening Levels (Residential and Commercial)

There are several significant differences between the MTCA and RBCA processes as they apply to the direct contact exposure pathway. While MTCA considers only soil ingestion, RBCA more conservatively addresses particulate and vapor inhalation and dermal contact in addition to soil ingestion. The two methods also assume different exposed populations, as is illustrated on Figure 2 (compare Column 3 to Column 1, and Column 4 to Column 2).

The impacted soil volumes using the RBCA Tier 1 analysis are similar to those in the MTCA base case, as is shown on Figure 2. Under both methodologies, the impacted soil volume for commercial land use is substantially less than if the land use

The impacted soil volumes using the RBCA Tier 1 analysis are similar to those in the MTCA base case, as is shown on Figure 2. Under both methodologies, the impacted soil volume for commercial land use is substantially less than if the land use is assumed to be residential. At the Yakima Site, the RBCA Tier 1 analysis produces a slightly higher impacted soil volume (3,800 cubic yards) for the commercial/industrial scenario than did MTCA Method B (2,500 cubic yards). Much of this is attributable to the added exposure through dermal contact under the RBCA framework.

3. The Impact of an Engineering Control (a Cap)

As previously mentioned, the RBCA process allows the consideration of a remedy during development of cleanup levels for a site. The results of capping the site are shown in Column 5 of Figure 2. This is a RBCA Tier 2 analysis. A cap eliminates the types of residential and commercial exposure addressed the base case and in the RBCA Tier 1 analysis. With a cap, the assumed exposure pathway is a construction worker exposed to contaminated soils during remediation or construction projects during which the cap is assumed to be breached temporarily. As shown on Column 5 of Figure 2, the addition of a cap substantially reduces the impacted soil volume to 500 cubic yards.

E. Conclusions

The pilot project study for the Yakima Site demonstrates that there can be a dramatic difference between relying on generic default assumptions and utilizing more specific information on a site and the substances detected there. The RBCA framework provides a good mechanism for incorporating more specific information at sites where the time and effort can be justified. At the Yakima Site, the use of chemical-specific leaching factors and a site specific infiltration rate, in lieu of MTCA's generic default factor of 100X the applicable groundwater standard, changed the impacted soil volumes (i.e., the volume of soil with a constituent in excess of the

cleanup level) from 24,700 cubic yards to 5,100 cubic yards, a fourfold decrease. While the 100X default factor may be justifiable at simpler sites, it is not representative of conditions at a more complex site such as the Yakima Site.

The pilot project study also provided the opportunity to review the important question of the point of compliance for the groundwater exposure pathway. As the point of compliance moved from beneath the source area on the site to the property boundary, the impacted soil volume dropped about 60% (from 5,100 cubic yards to 2,000 cubic yards). There has not been any history of groundwater ingestion at the Yakima Site and there is no reason to begin such consumption in the future. Further protection against the ingestion of the groundwater at the site could be achieved by a deed notification as a part of the selected remedy. This result and these observations call into question the policy justification for location the point of compliance at a place where exposure is practically zero. Moving the point of compliance to the property boundary does not mean that there will actually be exposure to the groundwater there. The nearest existing point of exposure via ingested groundwater is an offsite drinking water well about 1/4 mile away. If this nearest point of exposure is used as the point of compliance, the impacted soil volume drops by a factor of over five.

The final major demonstration from the pilot project study is the importance of the land use that is assumed for the purpose of evaluating how to protect against exposure to contaminated soil. Who is likely to be exposed to the contaminated soil? Can some exposures (for example, resident children) be reasonably ruled out? Whether MTCA cleanup levels or RBCA Tier 1 RBSLs are used, the impacted soil volume at the Yakima Site is about four to five times less for an assumed commercial/industrial land use than it is for a residential use scenario. The addition of a cap further changes the assumed exposure, this time to a construction worker, and produces another substantial decrease in the impacted soil volume. There is a

3,000 % (30 times) difference in the impacted soil volumes from the residential scenario to the construction worker scenario (15,200 cubic yards to 500 cubic yards) for the direct soil exposure pathway in the pilot project study for the Yakima Site.

While there are other regulatory issues of importance at the Yakima Site, this summary has focused on a few issues of broader applicability. On these issues, the choices to be made, based in some instances on better science and in other instances on policy considerations, have a substantial impact on the scope and thus on the speed and expense of cleanup at actual complex sites such as the Yakima Site. The study indicates that these choices can be made without diminishing the protectiveness at a complex site.

FIGURE 5
SOIL CONCENTRATIONS PROTECTIVE OF GROUNDWATER

RETEC

COLUMN NO.	1	2	3	4	5	6
	MTCA	Tier 1	Tier 2			
	Generic MTCA Assumption	Chemical-Specific Leaching Factor	Site-Specific Attenuation Factor	Conditional Point of Compliance	Engineering Controls	
	100 C POC	LF AF C POC	LF AF_2 C POC	LF AF_2 C_2 CPOC	LF AF_3 C_3 CPOC Cap	LF AF_3 C_3 POE Cap
CONSTITUENTS WHICH EXCEED CLEANUP LEVELS	Aldrin Chlordane Dieldrin Endrin Heptachlor Heptachlor Epoxide Methoxychlor Perthane alpha-BHC beta-BHC p,p'-DDT p,p'-DDE p,p'-DDD Ethion Parathion Tetrachloroethene Arsenic Cadmium Chromium Mercury	Aldrin Dieldrin Endrin Heptachlor Epoxide alpha-BHC beta-BHC gamma-BHC p,p'-DDT Ethion Methylparathion Parathion 2,4,5-TP (Silvex) Methylene Chloride Trichloroethene Arsenic Chromium Mercury (Perthane*)	Aldrin Dieldrin alpha-BHC beta-BHC gamma-BHC Parathion Methylene Chloride Trichloroethene (Perthane*) Arsenic	Aldrin Dieldrin gamma-BHC Methylene Chloride Trichloroethene (Perthane*) NO LONG-TERM MAINTENANCE	Dieldrin gamma-BHC Methylene Chloride Trichloroethene (Perthane*) LONG-TERM MAINTENANCE	(Perthane*)
SOIL VOLUME IMPACT	100%	38%	16%	6%	5%	1%
INCREMENTAL TPH VOLUME	31%					

KEY: AF - Attenuation Factor
C - Groundwater Protection Standard
CPOC - Conditional Point of Compliance
LF - Leaching Factor
POC - Point of Compliance
POE - Point of Exposure
* Toxicity and/or fate and transport data were not available. Constituent exceeded cleanup levels set under MTCA.

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REITEC

FIGURE 6
SOIL CONCENTRATIONS BASED ON DIRECT CONTACT

COLUMN NO.	1	2	3	4	5
	MTCA		MTCA Tier 1		MTCA Tier 2
LAND USE	Residential	Commercial	Residential	Commercial/ Industrial	Construction Worker
EXPOSURE PATHWAYS	Soil Ingestion		Soil Ingestion/Particulate & Vapor Inhalation/Dermal Contact		Soil Ingestion/Particulate & Vapor Inhalation/Dermal Contact Engineering Control
EXPOSED POPULATION DURATION FREQUENCY	Child 6 Years 365 Days/Year	Child 6 Years 182.5 Days/Year	Child/Adult 30 Years Total 350 Days/Year	Adult 25 Years 250 Days/Year	Adult 1 Year 30 Days/Year
CONSTITUENTS WHICH EXCEED CLEANUP LEVELS	Aldrin Chlordane Dieldrin Heptachlor Heptachlor Epoxide beta-BHC gamma-BHC Ethion Arsenic Cadmium Lead	Aldrin Dieldrin Ethion Arsenic Cadmium Lead	Aldrin Chlordane Dieldrin Heptachlor Heptachlor Epoxide alpha-BHC beta-BHC gamma-BHC DDD DDT Ethion Parathion Tetrachloroethene Arsenic Cadmium (Lead*)	Aldrin Dieldrin Heptachlor Arsenic Cadmium (Lead*)	(Lead*)
SOIL VOLUME IMPACT	47%	8%	46%	12%	2%

NO LONG-TERM MAINTENANCE

LONG-TERM MAINTENANCE

KEY: POC - Point of Compliance
CPOC - Conditional Point of Compliance
* Toxicity and/or fate and transport data were not available. Constituent exceeded cleanup levels set under MTCA.

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