Final Report:

Part 201: Stakeholder Recommendations for Updating Michigan's Generic Cleanup Criteria

November 2014

Prepared for
Director Dan Wyant
Michigan Department of Environmental Quality

Submitted by
Public Sector Consultants
Lansing, Michigan
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Under the direction of
Criteria Stakeholder Advisory Group (CSA)

With assistance from
Michigan Department of Environmental Quality
Michigan Department of Community Health

Contents

Background

In March of 2014, the Michigan Department of Environmental Quality (MDEQ) hired Public Sector Consultants Inc. (PSC) of Lansing, Michigan, to facilitate a public involvement process to review and make recommendations related to the generic cleanup standards contained in the administrative rules promulgated under Part 201 of the Michigan Natural Resource and Environmental Protection Act. Numerous activities have been undertaken over the last four years related to updating the Part 201 generic cleanup criteria.

Summary of Part 201 Cleanup Criteria Actions Since 2010

In 2010, the Michigan Legislature amended Part 201 to require, among other things, that the MDEQ update the cleanup criteria rules within two years of the legislation's effective date to take into account recent scientific information. In addition, in 2011, Michigan's Office of Regulatory Reinvention reinforced the legislative mandate and recommended updating the cleanup criteria rules. In 2012, the legislature extended the deadline for revising the cleanup criteria rules to December 31, 2013. The MDEQ initiated a stakeholder process in 2012 thorough the Collaborative Stakeholder Initiative to improve and reinvent the cleanup program including updates to the cleanup criteria rules. Important progress was made during this stakeholder process that lead to adoption of significant amendments to Part 201, including the adoption of best practices. It also resulted in the rescission of most of the very prescriptive Part 201 Rules. However, many issues related to the cleanup criteria remained unresolved even after a second stakeholder process was undertaken in 2013. Although a criteria-related rule package and generic criteria for 309 hazardous substances were promulgated on December 30, 2013, most updates to the cleanup criteria have not been implemented. Ultimately, through the Joint Committee on Administrative Rules, the state legislature directed that the MDEQ update cleanup criteria.

Selection of the Criteria Stakeholder Advisory Group

PSC proposed a stakeholder involvement process, which was subsequently approved by MDEQ, that would engage a group with diverse interests representing business/industry, environmental organizations, state/local government, private environmental consultants/attorneys, university scientists, and local/state government officials who had a direct stake, implementation experience, or scientific knowledge related to cleanup standards. PSC advised the MDEQ on potential candidates and Dan Wyant, director of the MDEQ, appointed members in what became known as the Criteria Stakeholder Advisory Group or CSA (see Exhibit 1).

Director's Charge to the CSA

In the CSA's initial meeting on March 6, 2014, Director Wyant laid out the charge to the group. The CSA was to initially determine if the generic cleanup criteria under Part 201 needed to be updated. If it decided that an update was needed, then the CSA was to identify the guiding principles that should be used as the basis for updating the criteria, and apply the principles to select sources for toxicological and chemical/physical aspects of hazardous substances as well as appropriate exposure assumptions. In addition, Wyant charged the CSA with proposing how and at what frequency the generic cleanup criteria should be updated in the future. Wyant indicated that the MDEQ would cooperate and provide assistance to the CSA in its deliberations and that PSC would provide technical and administrative support and facilitation for the CSA. However, Director Wyant emphasized the recommendations would only be those of the CSA members. While he acknowledged that he had the ultimate responsibility to initiate changes to the cleanup criteria, Wyant indicated he would place great weight on consensus recommendations of the CSA.

Criteria Stakeholder Advisory Group Members

Exhibit 1 details the CSA membership:

EXHIBIT 1. CSA Members*

Industry		
Auto	Ed Peterson	General Motors
Energy	Ravi Adibhatla	Consumers Energy
Chemical	Rob Rouse	Dow Chemical
Resource Extraction	Kristen Mariuzza	Lundin Eagle Mine
Office of Regulatory Reinvention		
Environmental Advisor Rules Committee	Troy Cumings	Warner, Norcross & Judd LLP
Environmental		
Environmental Consulting	Brad Venman	NTH Consultants
Environmental Consulting	Karen Hathaway	Horizon Environmental
Environmental Group	James Clift	Michigan Environmental Council
Public Health		
Michigan Department of Community Health	Dr. Corinne Miller	Bureau of Epidemiology
Academia		
Toxicology/Environmental Science	Dr. James Trosko	Michigan State University
Local Unit of Government	Matt Naud	City of Ann Arbor

*Two additional CSA members were initially appointed but were unable to participate when the original target completion date was substantially extended.

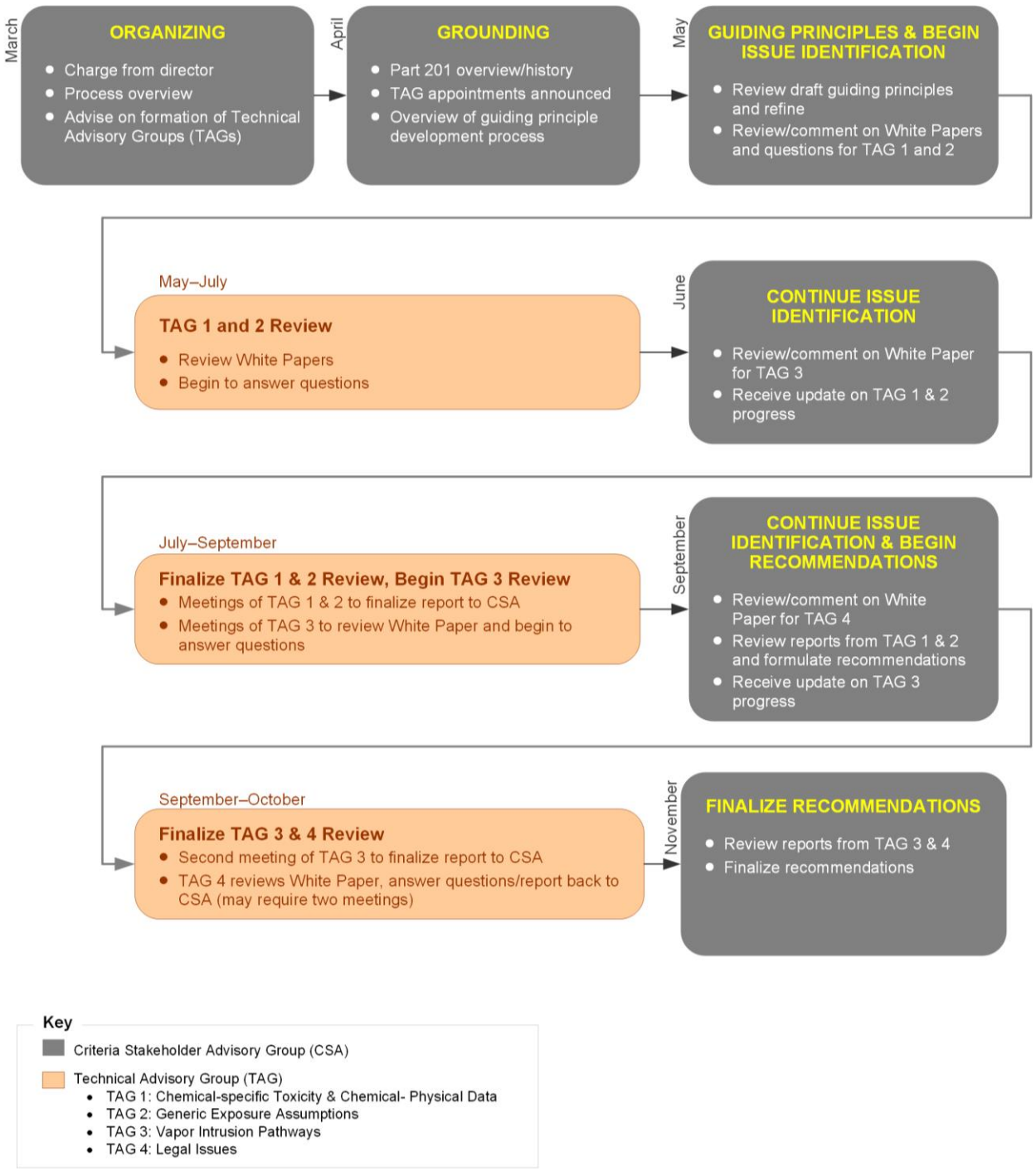
Operating Procedures of CSA and Technical Advisory Groups

At its second meeting, the CSA reviewed and recommended changes to the operating procedures proposed by PSC. The final procedures established that the CSA would operate on the basis of consensus recommendations agreed on by a supermajority, which required seven of 11 members concurring. Dissenting opinions from consensus recommendations would be noted in the final report and an opportunity given to provide reasons of opposition. The CSA participated in the selection of four Technical Advisory Groups (TAGs), the first three of which related to the joint Administrative Rules Committee directive, namely in the areas of: (1) chemical/physical and toxicological properties; (2) exposure pathway assumptions; and (3) vapor intrusion. A final, fourth TAG was formed to address various legal issues that were expected to arise with the final recommendations. The legal TAG was comprised of two members from the CSA, a representative of the Michigan Attorney General, and a private sector law firm. The CSA provided questions to the legal TAG and its responses are attached as Appendix D to this report.

With recommendations from PSC, CSA members, and the MDEQ, four to seven members were appointed by MDEQ to each TAG to create a diverse group of academic, public agency, and private consulting technical experts. Preference was given to individuals who had previously participated in generic criteria reviews. The CSA reviewed White Papers prepared by PSC on the first three TAG issues and approved questions that were transmitted to TAGs 1, 2, and 3. Unlike the CSA, the TAGs were not directed to reach consensus proposals or responses to the CSA, but rather provide a range of responses to the CSA questions if unanimity was not possible. The meetings of the four technical TAGs were facilitated by PSC, who also prepared the reports for the final approval of each TAG.

Exhibit 2 summarizes the public involvement/stakeholder process that was used to generate the recommendations by the CSA included in this report.

EXHIBIT 2. MDEQ Part 201 Stakeholder Process



Introduction

In March 2014, the CSA—comprised of industry, academia, government, and nonprofit representatives (see Exhibit 1)—was convened to review the existing rules and determine if the generic cleanup criteria should be updated. If the CSA concluded the criteria should be updated, it was charged to: (1) identify guiding principles to base criteria updates on; (2) apply those guiding principles in the selection of exposure assumptions used in updating the criteria, and; (3) provide recommendations for updating the toxicological and chemical/physical aspects of the cleanup criteria in Part 201 rules.

The CSA has concluded that the criteria in Part 201 rules should be updated. In addition to responding to the specific charges outlined above, the CSA believes statements on the following points need to be considered when the MDEQ reviews the CSA recommendations included in this report:

- Purpose and use of generic cleanup criteria
- Comparison of Michigan cleanup criteria to nearby states
- Encouraging site-specific cleanups
- Improved public communication of Part 201 requirements

In some cases, the following statements contain underlying assumptions that the CSA established as a common framework for evaluating options. In other cases, these statements helped the CSA describe their collective view on how the program is understood by this group of diverse stakeholders who have been actively engaged in the application of Part 201 throughout the state for several years and/or have specific experience/expertise on how to evaluate the risks associated with reuse of contaminated sites. For one statement, encouraging site-specific cleanups, the CSA believes that with expanded opportunities for site-specific cleanups, many of the past concerns and issues related to Michigan's generic cleanup criteria can be appropriately addressed.

Purpose and Use of Generic Cleanup Criteria

Generic cleanup criteria are used for a variety of purposes under Part 201, but most importantly, the criteria are designed to provide protection of public health and the environment. Generic cleanup criteria remain a valuable tool for the property transaction process to assess liability risk related to the potential presence of hazardous substances. Generic criteria are also used by property owners and responsible parties to remedy the potential for unacceptable human or natural resource exposure to hazardous substances by meeting acceptable MDEQ standards. Generic criteria, when used alone or in combination with engineering controls, provide an important level of certainty and simplification to the regulatory process for those seeking to return brownfield property to productive use.

Comparison of Michigan Cleanup Criteria to Nearby States

Due to differing purposes and regulatory processes, it is difficult to compare Michigan's cleanup standards to those of other states or the U.S. Environmental Protection Agency (EPA). The EPA and other states use conservative standards as an initial screening tool to determine if additional action should be taken at a site. If it is determined that further actions must be taken, they use site-specific assessments to define the measures needed to ensure protection of public health and the environment. These site-specific cleanup measures may not be as restrictive as the initial screening criteria based on the potential for exposure.

Only Michigan uses the generic cleanup criteria under Part 201 in the property transfer process to assess a prospective purchaser's potential transactional liabilities as well as all other responsibilities and

requirements under the statute. Additionally, only Michigan uses generic cleanup criteria as final cleanup numbers if a site-specific option is not pursued. Simply adopting the conservative, initial screening criteria used by other states and the EPA for Michigan's generic cleanup criteria without modification could result in the expenditure of excess time and resources for minimal, if any, additional benefit to public health or the environment. Thus, for example, one recommendation in this report is to expand the data sources used for exposure assumptions in Michigan's generic cleanup criteria from national averages that are used by other states and the EPA, to include Michigan or regional data that better reflect actual conditions in Michigan when possible.

It is critically important during this reevaluation of the Part 201 rules that the generic cleanup criteria be appropriately calibrated to ensure that sites of real concern are identified and addressed—and that sites with minimal potential for public health or environmental harm are not inadvertently brought into the Part 201 process. Incorporating sites into Part 201 with very low or no risk to public health and the environment reduces the public resources needed to address those sites that pose a significant threat, and places Michigan at an economic disadvantage compared to other states in private sector investments available for the redevelopment of brownfield properties.

Encouraging Site-specific Cleanups

Given the variability of facilities and use-specific conditions in Michigan, further state actions need to be taken to make site-specific cleanups more viable by reducing the uncertainties with MDEQ's approval process, and the time and costs required to prepare and review applications.

Improved Public Communication of Part 201 Requirements

Part of the problem in effectively communicating Michigan's Part 201 cleanup requirements is due to the public confusion over the terms used to describe cleanup standards in the statute and rules. While these terms as defined in Part 201 have sound legal justification and precedent, they are nonetheless often misunderstood by the general public. The term "generic cleanup criteria" creates an expectation and assumption that any cleanup level that exceeds the generic numerical value is not sufficiently protective. The term "site-specific cleanup criteria" can suggest that a standard less protective than the generic cleanup number is being applied. Both generic and site-specific criteria provide for protection of public health and the environment, and either cleanup criteria can be used to:

- Determine whether a property is considered a "facility" as defined in Part 201 and thus subject to the statute's requirements
- Trigger additional site characterization and/or response activities
- Establish final cleanup values

When describing generic criteria cleanup levels to the general public, the MDEQ should use terms like "response screening levels" (RSLs), "response activity screening criteria" (RASC) or similar terms that more accurately reflect how generic criteria are generated and applied.

The use of a more descriptive term could better communicate to the public the protective exposure assumptions (and the related uncertainties) used to calculate the generic Part 201 screening levels. In addition, a more descriptive term would reinforce with local and state government officials, MDEQ staff, affected businesses, and the public that site-specific limited closures are as protective of the public health, safety, welfare and environment. Improved risk management communication can help support the MDEQ's risk management decision making and the credibility of Part 201 screening levels while acknowledging the limitations of generic criteria.

Guiding Principles

The Criteria Stakeholder Advisory Group provided a series of questions to each of the four TAGs appointed by MDEQ. In some cases, the TAGs outlined guiding principles the individual TAGs used to develop its proposals to the CSA.

The following guiding principles were prepared by the CSA prior to receipt of the specific TAG reports. This was completed as the first step in the evaluation of proposed changes in the approach and/or assumptions used to generate revised generic cleanup criteria. Similar principles developed by the TAGs are more specific, but in general the CSA believes the principles cited by the TAGs are consistent with the following guiding principles adopted by the CSA:

- The chemical/physical data, and toxicity values used for developing the criteria need to be based upon the best available, soundest scientific information—the sources of which are widely recognized reference documents.
- The process used for the selection of national or international databases needs to be clearly identified. Any decisions to use the data from certain studies and not others (or in some cases the blending of study results) needs to rely on sound science and be transparent enough for an independent reviewer to readily determine how final values were developed.
- Exposure assumptions used to develop the generic criteria need to be reasonable and practical and, where reliable data exist, be based upon regional (or preferably Michigan-specific) data where feasible, rather than national data. Where variations in input parameters are known for different regions of the state, either by historic data or proven studies, the rules should allow for adjustments to the generic criteria. Alternatively, multiple criteria could be calculated using the various applicable ranges of input data and the user would select the appropriate criteria based on their site location.
- The generic cleanup criteria need to be protective of public health and natural resources such that there are no unacceptable exposures to hazardous substances. Generic criteria are to be protective of the most sensitive toxic effect in a given exposure pathway for the hazardous substance in question. It is important to recognize the relative risk of the specific hazardous substance compared to those of the risks routinely encountered by people.

Recommendations

The recommendations of the Criteria Stakeholder Advisory Committee are in four parts. The first three are responsive to the specific proposals from the three Technical Advisory Groups in the areas of proposed changes: chemical-specific toxicity and chemical/physical data (TAG 1); generic exposure assumptions (TAG 2); and vapor intrusion pathways (TAG 3). The last set of recommendations from CSA respond to the MDEQ director's charge to propose a process for periodic future generic cleanup criteria updates, which resulted in the formation of a legal group (TAG 4).

Unless otherwise noted, each recommendation was unanimously supported by all CSA members. In the event a member did not support the recommendation, the member was given the opportunity to provide a brief explanation of their dissent in the report. If a proposed recommendation did not receive supermajority support of CSA members (seven out of 11 members), no single CSA recommendation is made and alternatives are presented for consideration in the TAG reports. In each case, the full TAG reports are appended as adopted by the TAG members. The CSA final consensus recommendations use the same numbers as the TAG 1 and TAG 2 reports, preceded by the TAG number (as an example, the final CSA recommendation 1.3 responds to recommendation number 3 in the TAG 1 Report). The CSA did not take any action to approve or disapprove the final report of each TAG that are appended, but did review the three reports with representatives of each TAG. The CSA did, however, address each numbered recommendation contained in the TAG reports. In the case of TAG 3 (vapor intrusion) the CSA endorsed the process outlined in the final TAG 3 Report.

Chemical-specific Toxicity and Chemical/Physical Data (TAG 1)

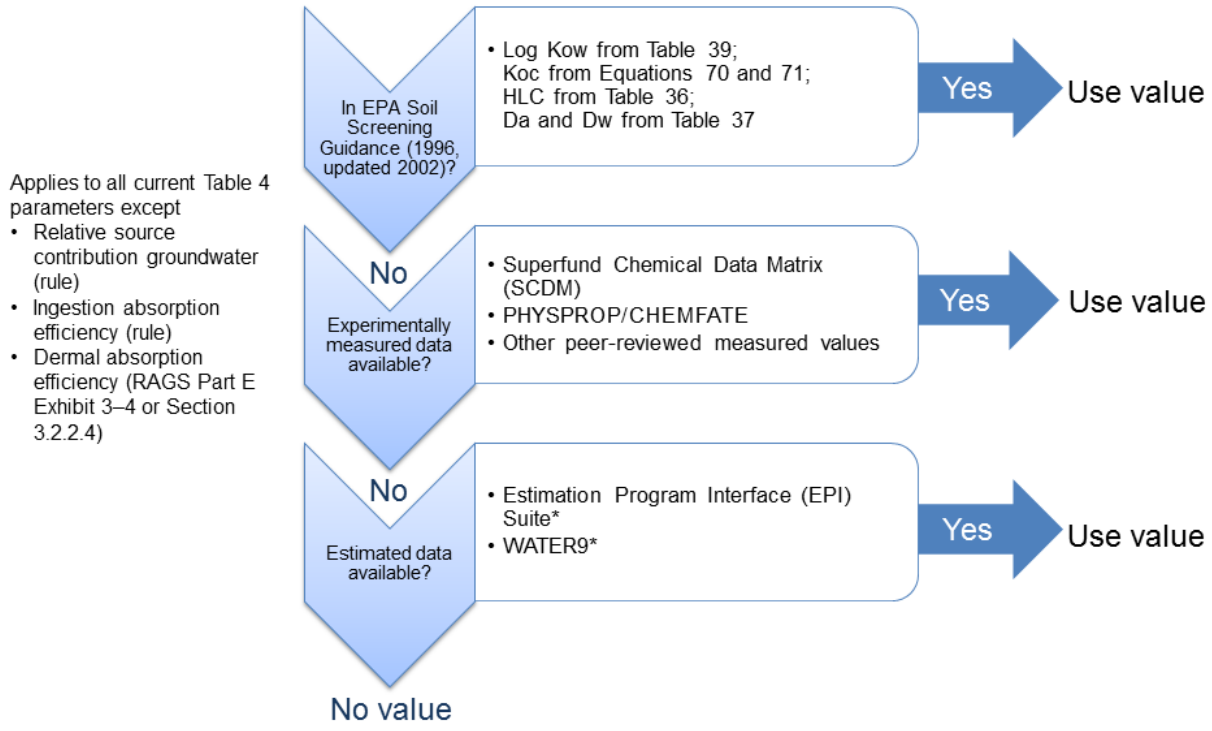
TAG 1 met six times in June and July 2014 to review, discuss, and develop responses and proposals related to nine questions that were outlined in the Chemical-specific Toxicity and Chemical/Physical Data White Paper prepared by PSC with review and comment from the CSA. The appended TAG 1 Report provides details on the questions, responses and discussion as well as proposals for consideration by the CSA on the chemical/physical parameters and toxicity data used to derive Part 201 generic criteria. There were a total of 12 proposals developed by TAG 1 for consideration by the CSA and the following represent the CSA consensus recommendations to MDEQ.

Recommendation 1.1

The CSA has reviewed the proposed TAG 1 decision frameworks with respect to toxicity and chemical/physical parameters (TAG 1 Appendices A and B) and recommends that the framework proposed for toxicity values (TAG 1 Appendix B) be adopted by MDEQ with the following exception: the "MDEQ Value (existing)" be removed from Tier 1 (TAG 1 Appendix B) and maintained in Tier 4 to better reflect the CSA's opinion that it is a very rare instance when a toxicity value would need to be independently evaluated and changed by MDEQ. There are other established peer-reviewed sources for toxicity values, and an independent MDEQ evaluation would only be appropriate in those situations where other toxicity sources had not had the opportunity to complete a timely update based upon widely recognized, new scientific information.

After review of the changes proposed by TAG 1 to the current method for determining chemical/physical parameters, the CSA recommends continued use of the current method (existing data sources) for these parameters as shown in Exhibit 3.

EXHIBIT 3. CSA Alternative: Chemical/Physical Value Decision Framework



*Estimated values should be derived using the above estimation program(s), or programs that supersede these programs, e.g., WATER9 replaced WATER8 subsequent to the publication of the SSG.

Recommendation 1.2

The MDEQ should include a short reference for each value and chemical/physical parameter in Table 4 of the generic criteria rules that identifies the source of the values and that also indicates, when relevant, whether physical parameters are measured or modeled. A more detailed explanation of the reference could be stored in a separate table or other resource, as this would give each value greater transparency. A similar model is being used by the Ministry of the Environment and Climate Change in Ontario, Canada, and the MDEQ should consider this format while designing its updated tables.

Recommendation 1.3

The MDEQ should provide more opportunity for stakeholders to give feedback on what data and methodology could be considered in selecting parameters or developing toxicity values when the MDEQ determines it is necessary for the agency to develop such values.

Recommendation 1.4

When administrative rules are updated, the inhalation toxicity terms in the VSIC, PSIC, GVIIC, and SVIIC equations and relevant rule language should be changed to allow the MDEQ the flexibility to select inhalation toxicity values that differ from those developed by the MDEQ's Air Quality Division (AQD), considering best available science and practices. The MDEQ's Remediation and Redevelopment Division (RRD) staff should not have to evaluate all inhalation toxicity values, though some attention

should be given to those that are based upon the AQD's most minimal data requirements at the time they are evaluated. Inhalation toxicity value reference sources should be included in Table 4 in the rules.

Recommendation 1.5

The MDEQ should adopt the CSA modified decision framework previously identified in Exhibit 3.

The Michigan Environmental Council's (MEC) representative on the CSA does not support this consensus recommendation. That representative's view is that the proposed rule should not dictate which source the MDEQ must use when deriving chemical/physical values. The department should be authorized to use the guiding principles outlined in Recommendations 1.8 and 1.12 to decide which source is the most appropriate for deriving a specific value. Therefore, the department should be able to deviate from the hierarchy set forth in the chemical/physical value framework if they clearly articulate the reason(s) they find an alternative source of information to be more appropriate.

Recommendation 1.6

The MDEQ should utilize the chemical update worksheet (Appendix D in the appended Tag 1 Report) to collect information and as a communication tool, a Web-friendly version (e.g., a PDF) should be placed on the MDEQ website.

Recommendation 1.7

The CSA believes that the tiered approach as recommended by TAG 1 adequately addresses the use of international data sources when North American data sources do not provide adequate information on specific chemicals.

Recommendation 1.8

The CSA concurs with data sources supported by TAG 1 for chemical/physical parameters and toxicity values consistent with the fundamental data source characteristics presented below, with one exception noted (these characteristics are consistent with, and in many cases more detailed than, the guiding principles adopted by the CSA cited earlier in this report). Note that the CSA changed the TAG 1 report subheading to "Consistency" rather than "Comprehensive" and modified the description that follows that subheading to reflect its belief that it is more important that data sources be consistent rather than just more comprehensive.

Peer-reviewed—Every effort should be made to identify and use peer-reviewed data sources populated with information that has been developed using the best available science and practices. Scholarly review by experts in the field ensures data meet necessary quality standards prior to publication.

Subject to notice and comment—Toxicity values that are developed by non-MDEQ sources through a process that allows public review and comment are preferred. (Note: It is desirable to allow affected stakeholders [and affected Michigan citizens and regulated community members] input when changing Table 4 values.) In general, chemical/physical data do not undergo public review and comment procedures.

Derived through relevant and accepted methods—Priority should be given to sources that provide chemical/physical and toxicity data based on similar methods as those used for Tier 1 and Tier 2, contain values which are peer reviewed, available to the public, and transparent about the methods and processes used to develop the values.

Consistency—To help ensure greater consistency of the data used in developing the risk-based values for chemical/physical or toxicity data, the MDEQ should utilize sources that use consistent methods between

sources for development of the data. This helps to assure greater consistency of the data used in developing the risk-based values.

Credible data—Sources that are respected and trusted by the international scientific community are preferred.

Regularly maintained—Science evolves. Regular review and updating of the chemical toxicity information will ensure that it represents the best available science and practices in that field. For example, two recent guidance documents are good resources to consider in selection or development of toxicity values: EPA Framework for Human Health Risk Assessment to Inform Decision Making, and National Research Council (2014) Review of EPA's Integrated Risk Information System (IRIS).

Based on experimental data—Chemical data presented in scientific literature and the many compiled documents and database resources can vary in method of derivation. Experimental chemical/physical data, where relevant to applied environmental conditions, are preferred over extrapolated, modeled, or estimated data. Similarly, experimental toxicity data are preferred, with the understanding that the scientific field is moving away from traditional, whole-animal experimental studies to higher throughput and less resource-intensive in vitro, array, and computer-based toxicity data.

Recommendation 1.9

Age-dependent adjustment factors (ADAFs) should be used with toxicity values for those carcinogens identified as mutagenic by the EPA or any agency/scientific body, as long as it is conducted in accordance with EPA guidelines on identifying mutagenic mode and evaluated by the MDEQ.

Recommendation 1.10

The MDEQ should first determine whether a chemical is considered carcinogenic to humans by the EPA and International Agency for Research on Cancer (IARC). If it is to be regulated as a carcinogen, then potential route-specific differences in carcinogenicity should be considered and evaluated. If it is non-carcinogenic, then only the reference dose (RfD) and reference concentration (RfC) candidate values would be assembled to select an RfD and an RfC.

Recommendation 1.11

The criteria should be footnoted to denote whether the carcinogenic or non-carcinogenic algorithms are used to calculate the final criteria for a chemical.

Recommendation 1.12

Deviation from EPA methodology should be allowed where there is good information to suggest that the EPA's methodology or data are not consistent with current best science. When these modifications are made by the MDEQ, there should be an opportunity for public input and comment.

Note: TAG 1 did not prepare a recommendation to Question 8 which stated*, "Should an independent evaluation (by the MDEQ) of the chemical-specific data be conducted even if a value is published in the primary database of the hierarchy?"* In the written response to the question, however, TAG 1 indicated that MDEQ should be able to perform independent evaluations of a value published in the primary database of the hierarchy. While the CSA agrees, it wants to point out that is the CSA's opinion that it is a very rare instance that an IRIS toxicity value would need to be independently evaluated and changed by MDEQ. Since there is an established EPA process for updating IRIS toxicity values, it would only be under those conditions where EPA did not have the resources to complete a timely revision that was supported by widely recognized, new scientific information.

Generic Exposure Assumptions (TAG 2)

TAG 2 met eight times from June to September 2014 to review, discuss, and develop responses and recommendations related to 11 questions that were outlined in the White Paper prepared by PSC and reviewed by the CSA. Those questions addressed generic exposure pathway assumptions used to derive Part 201 generic criteria. PSC's White Paper served as the framework for the TAG's discussions. The attached TAG 2 Report—Updating Exposure Pathway Assumptions and Data Sources—presents the TAG's discussions, findings, and recommendations. There were a total of 14 proposals developed by TAG 2 for consideration by the CSA, and the following represent the CSA recommendations to MDEQ.

Recommendations 2.1, 2.2, and 2.3

The CSA recommends the following as the appropriate receptors, guidance, and descriptive language to use for residential land use generic criteria:

2.1: Receptor: Use an age-adjusted child plus adult receptor that, at present, assumes exposure across two age bins, except in the case of developmental toxicants.

2.2: Guidance: Use EPA information to develop a process to account for those chemicals, or classes of chemicals, that have documented developmental or reproductive effects.

2.3: Descriptive Language: Use current Part 201 rules (R299.49 (DD)) that allows the agency to regulate developmental and reproductive toxicants to protect sensitive subpopulations from these substances on a chemical-specific basis. For developmental and reproductive toxicants, the MDEQ should evaluate if the age-adjusted child plus adult receptor is protective of childhood and early-life-stage exposures on a chemical-specific basis.

Recommendation 2.4

Age-dependent adjustment factors for the chemicals recommended by the EPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, March 2005 (and most recent updates) should be used to address early-life exposure from mutagenic carcinogens.

Recommendation 2.5

A periodic review of the list of mutagenic chemicals should be included in the criteria update process to ensure that the MDEQ uses updated information, reflecting the best available science and includes additional mutagenic carcinogens as they are identified by EPA.

Recommendation 2.6

The MDEQ should consider the impact of Part 201 generic criteria on other programs such as drinking water programs. For example, the Michigan Safe Drinking Water Act or SDWA (1976 PA 399) does not recognize a distinction between residential and other drinking water standards. A chemical-specific drinking water standard, currently established by the SDWA, applies to water for both residential and nonresidential use.

Recommendation 2.7

For all updated values, the TAG recommends a process and decision framework for selection of the generic exposure assumptions that is transparent and provides opportunities for meaningful public input.

Recommendation 2.8

The CSA recommends a process for publicly reviewing and updating the algorithms and exposure parameters for generic cleanup criteria once every three years or less, consistent with the legal requirements for the promulgation of administrative rules and adequate opportunity for public review and

comment. The specific alternative processes for updating are outlined in the appended Legal TAG 4 Report.

Recommendation 2.9

The CSA supports the use of data sources for the generic exposure assumptions for reasonable and relevant scenarios that best meet the fundamental data source characteristics as follows, herein referred to as Data Quality Objectives (DQOs).

Relevant and Applicable to Michigan: The extent to which the information is relevant and applicable to Michigan generic criteria development (e.g., representative of Michigan population and conditions, currency of the information, adequacy of the data collection period).

Clear and Comprehensive: The degree of clarity and completeness with which the data, assumptions, methods, quality assurance, sponsoring organizations, and analyses employed to generate the information are documented.

Sound and Credible: The extent to which the scientific and technical procedures, measures, methods, or models employed to generate the information is reasonable for, and consistent with, the intended application, and are regularly maintained, subject to peer review, and the best available science.

Transparent and Objective: The data are published or publicly available and free from conflicts of interest.

Certainty: The extent to which the variability and uncertainty (quantitative and qualitative) in the information or the procedures, measures, methods, or models are evaluated and characterized, including peer review and agreement of studies.

Recommendation 2.10

The CSA recommends evaluating Michigan-specific data, EPA sources, and other sources against current generic exposure values to select values that best meet the DQOs and consistent with the decision framework.

Recommendation 2.11

The CSA recommends using Michigan-specific data to generate values for the exposure parameters when it is available and best meets the DQOs.

Recommendation 2.12

As a starting point, the CSA recommends the use of the identified values TAG 2 presents in Table A (Appendix B) of its report, and the use of the decision framework proposed by TAG 2 to establish and confirm values for all exposure factors, including those recommended by the TAG 2.

Recommendation 2.13

The CSA recommends that the MDEQ include the basis and percentile for each value presented in Tables A and B of the TAG 2 report.

In addition, the CSA recommends that MDEQ continue to evaluate and actively pursue the use of probabilistic approaches to ensure that the combination of exposure factors eventually selected for an exposure scenario represents a reasonable maximum exposure (RME). Specifically, the CSA recommends that prior to seeking public input on any generic residential or nonresidential exposure scenario and its corresponding exposure factors, a probabilistic analysis be used to assess the validity of the final combination of selected point-estimate exposure factors, where feasible.

Recommendation 2.14

To the extent possible, the CSA recommends that the MDEQ provide a detailed description of each value in a technical support document that includes DQOs, citations, and calculations.

Vapor Intrusion Criteria (TAG 3)

TAG 3 met four times between July and September 2014 to review and discuss the vapor intrusion investigation process under Part 201. Following review by the CSA, Public Sector Consultants provided the TAG with a White Paper on vapor intrusion regulatory issues. The White Paper included five questions for the TAG to address in their deliberations.

In answering these questions, the TAG concluded, and the CSA agrees, that the vapor intrusion criteria and guidance under Part 201 should be revised.

Recommendation 3.1

The CSA recommends that the MDEQ use a tiered approach as the most appropriate process to investigate whether or not there is a vapor intrusion pathway that poses an unacceptable risk.

Recommendation 3.2

The CSA accepts and encourages MDEQ to adopt the investigative approach detailed in the series of exhibits provided in the TAG 3 report endorsed by all TAG 3 members.

Key Legal Issues for Updating Generic Cleanup Criteria (TAG 4)

TAG 4 reviewed the legal options for updating generic cleanup criteria under Part 201. The TAG members agreed upon the following general principles:

- The need to expand public participation and review of proposed changes
- A publicly announced time frame to establish the frequency of future updates
- Timely opportunities to allow changes in cleanup criteria that reflect new scientific information

TAG members did not achieve consensus on whether just the algorithms alone, or specific criteria (i.e., Table 4) and periodic updates to criteria, need to be established by rule. Generally, the TAG agreed that the Administrative Procedures Act (APA) would likely need to be followed, but to what degree was debated. On the question of the algorithms, criteria, and updates, two opinions from TAG 4 are presented for consideration by the CSA:

Opinion (Alternative) 1: Place the algorithms, inputs, and resulting tables into the rules (including future updates to inputs) pursuant to Part 201 and the APA.

Although Section 20120a does not explicitly state that the MDEQ must establish cleanup criteria through rules, other sections of Part 201 show the legislature's intent that the MDEQ should do so. Further, following the rule-promulgation process to establish criteria is likely required by the APA. Every court to analyze the definition of a "rule" under the APA has held that the term is to be read broadly, while any exceptions are to be read narrowly. The current state of the law, interpreting the one exception that is potentially relevant (although the cases are somewhat inconsistent), likely would lead to the conclusion that the exception does not apply to establishing generic cleanup criteria under Part 201.

Opinion (Alternative) 2: Place the algorithms in the rule; publish the inputs along with a process for revising those inputs similar to a process outlined in the TAG 4 Report. Therefore, there would always be a table of the criteria based on the current inputs plugged into the algorithms as established by rule.

If the rule includes the algorithm and a method of publishing and revising the inputs to the algorithms, and the resulting value table (that included a robust public participation component), the rule would survive any challenge under the APA.

Recommendation 4.1

After CSA review of the TAG 4 Report and considerable discussion by the CSA of the two alternatives outlined, the CSA reached a consensus recommendation that the MDEQ should proceed with the update of the Generic Cleanup Criteria under Part 201 following Option 1 by placing the algorithms, inputs, and resulting tables into the rules (including future updates to inputs) pursuant to Part 201 and the APA. In addition, the CSA supports the consensus recommendations of TAG 4 with respect to the general principles that should be followed during adoption of the updated cleanup criteria.

The Michigan Environmental Council's (MEC) representative on the CSA does not support this consensus recommendation and objects to its fairness. At least two other divisions of the MDEQ make decisions regarding the "inputs" as they pertain to health impacts outside the rule process. Parties responsible for the cleanup of a contaminated parcel pursuant to MCLA 324.21020b are allowed within a site-specific cleanup to advocate for the change to health impacts inputs outside the rule process, but members of the public do not have the ability to do so.

Appendices

Appendix A: TAG 1 Final Report: Updating Chemical/Physical Parameters and Toxicity Data
Appendix B: TAG 2 Final Report: Updating Exposure Pathway Assumptions and Data Sources
Appendix C: TAG 3 Final Report: Updating Part 201 Vapor Intrusion Criteria
Appendix D: TAG 4 Final Report: Key Legal Issues for Updating Michigan's Generic Cleanup Criteria