

INTERRAGENCY COMMITTEE ON CHEMICAL MANAGEMENT

EXECUTIVE ORDER NO. 13-17

REPORT TO THE GOVERNOR

JULY 1, 2018

DRAFT REPORT

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Executive Summary

In June 2016, the Legislature enacted Act No. 154, which directed the Agency of Natural Resources (ANR) to convene a working group, known as the Act 154 Chemical Use Working Group, to develop recommendations to the Vermont General Assembly related to regulation of chemicals of emerging concern, increasing the State's ability to prevent citizen exposure to harmful chemicals, and increasing public access to chemical information. The Working Group's Report, submitted to the General Assembly in January 2017, recommended, among other things, establishment of an interagency committee to improve coordination among involved regulatory agencies, creation of a central electronic reporting system to assist businesses with compliance and provide state agencies and the public access to chemical information, the amendment of existing requirements to ensure state agencies have complete chemical inventory information, and strengthening of the Toxic Use Reduction and Hazardous Waste Reduction Act (TURA).

On August 7, 2017, Governor Scott issued Executive Order No. 13-17, which directed the creation of an Interagency Committee on Chemical Management (ICCM). Composed of representatives from various State Agencies and Departments, its tasks were to make initial recommendations to the Governor, after consultation with a citizen advisory panel, as to how the State should establish a centralized or unified electronic reporting system, amend existing recordkeeping and reporting requirements to ensure sufficient chemical inventory reporting, and strengthen TURA. The ICCM also convened a Citizen Advisory Panel (CAP) as directed by the Executive Order to provide input and expertise to the ICCM. The ICCM conducted a review of the current state of chemical reporting and recordkeeping, potential amendments to improve the state's ability to assess health and environmental risk from chemical use, and TURA. Their review revealed a wide variability in reporting and recordkeeping processes and publicly available information, avenues to improve assessment of human health and environmental risk from chemicals, and opportunities to strengthen TURA. The ICCM and CAP's work resulted in a series of recommendations, all of which gained consensus by the ICCM members. Executive Order Section III.A. directs the ICCM to make initial recommendations to the Governor on or before July 1, 2018. The ICCM makes the following recommendations in this Report:

- A. Creation of a Centralized Electronic Reporting and Inventory System (CERCI). CERCI would guide the regulated business customer to the appropriate reporting forms by presenting the customer with a series of questions and choices to determine what they need to report on. The system would have a single log-in and account management for State chemical reporting by the regulated business customer. The system would provide online reporting forms including electronic signature, document upload capability, and payment processing where fees are collected. Once information is submitted, this system would provide an administrative console to allow state administrators the ability to monitor, manage and review data before data is loaded to local Agency databases. Data can then be extracted, transformed, and loaded from local agency databases to a data warehouse to provide the state and the public a role-based accessed view of chemical reporting activities across the state. The system would also include a website that provides the state, via role-based access, the ability to query chemical reporting activities and search activities via a map interface. The system would also include a website that

provides the public with the ability to query chemical reporting activities including the ability to search activities via a map interface.

- B. Establishment of a review framework for evaluating necessary changes to state chemical reporting and recordkeeping, and coordinating chemical management actions across state agencies. In the event where it is unclear whether state reporting and recordkeeping requirements are appropriately protecting Vermonters from an unsafe chemical, class of chemicals, or grouping of chemicals, an Agency or Department would propose that the ICCM review the current state of applicable recordkeeping and reporting requirements. The ICCM would then engage a technical team and citizen advisory panel to provide input and assistance in its review, culminating in the ICCM providing recommendations to the involved Agency or Department. This process is intended to align state actions and ensure coordination of chemical management across state government.

- C. Improvement of the Toxics Use Reduction and Hazardous Waste Reduction Act (TURA). TURA effectiveness would be improved by updating the list of chemicals and threshold amounts to include the Toxics Release Inventory List and Hazardous Wastes, and Toxics in Children's Products. This would also include a subset of chemicals with lower thresholds (i.e., Persistent Bioaccumulative Toxic chemicals – identified in Toxics Release Inventory chemical list with lower thresholds). Reporting requirements would also be amended to include entities with 10 full-time employees onsite or 500 corporate employees total. Other improvements include providing additional staff time to implement the regulatory program, additional training for planners, creation of an electronic database and electronic reporting, and allowance of alternative resource or environmental impact planning.

I. Introduction

In June 2016, the Legislature enacted Act No. 154, which directed the Agency of Natural Resources to convene a working group, known as the Act 154 Chemical Use Working Group, to develop recommendations to the Vermont General Assembly aimed at closing regulatory gaps related to chemicals of emerging concern, such as perfluorooctanoic acid (PFOA), increase the State's ability to prevent citizens from exposure to harmful chemicals, and increase public access to information about chemicals in their community. The Working Group's Report, submitted to the General Assembly in January 2017, recommended, among other things, the establishment of an interagency committee to improve coordination and collaboration among agencies charged with oversight of chemical regulation, creation of a central electronic reporting system to assist businesses with compliance and provide state agencies and the public access to information about chemicals, the amendment of existing recordkeeping and reporting requirements to ensure state agencies have complete chemical inventory information, and the amendment of the Toxic Use Reduction and Hazardous Waste Reduction Act (TURA) to strengthen planning requirements.

On August 7, 2017, Governor Scott issued Executive Order No. 13-17 (EO), which directed the creation of an Interagency Committee on Chemical Management (ICCM). It consisted of a representative from the Agency of Natural Resources; Agency of Agriculture, Food, and Markets; Department of Health; Department of Labor; Agency of Commerce and Community Development; and Agency of Digital Services. Its tasks were to make initial recommendations to the Governor, after consultation with a citizen advisory panel, as to how the State should establish a centralized or unified electronic reporting system, amend existing recordkeeping and reporting requirements to ensure sufficient chemical inventory reporting, and strengthen TURA. The EO directs the ICCM to submit its initial recommendations on or before July 1, 2018. Appendix A contains a copy of the EO. The ICCM convened a Citizen Advisory Panel (CAP) as directed by the Executive Order to provide input and expertise to the ICCM. The CAP consists of a broad range of private, public, and academic organizations and individuals. Appendix B contains a listing of the ICCM and CAP members, as well as other contributing staff and individuals.

The ICCM convened its first meeting on September 27, 2017, and met monthly thereafter. It also established several subgroups which met during this time period to work on various tasks and activities to further the ICCM's work. The ICCM began with a review of the current state, and used that analysis to inform its recommendations. The Act 154 Chemical Use Working Group's January 13, 2017 Report informed a general review as to the deficiencies in the current legal framework and policy as they relate to chemical reporting, chemical management, cleanup and remediation, and civil remedies. Based on the charge of the Executive Order, the ICCM further reviewed the current state pertaining to chemical reporting and recordkeeping to inform its recommendations on a centralized electronic reporting system. It did so by conducting a full identification and inventory of State government entities or programs engaged some type of chemical reporting and recordkeeping. Thirty one (31) state programs were identified. Each of the respective state entities responsible for administering these programs then provided an overview of each, and how they related to the Executive Order topics. It also evaluated existing chemical reporting and recordkeeping by looking at types, thresholds, entities and amounts of chemicals subject to recordkeeping and reporting to evaluate coordination of chemical management actions across state agencies. The ICCM also reviewed TURA by examining its

current state with respect to types, thresholds, entities and amounts of chemicals subject to reporting and planning. The current state of these programs as they relate to the Executive Order tasks is discussed more fully in Section II. The ICCM then engaged in a series of meetings and activities utilizing subgroups made up of ICCM members and additional technical staff from the various State entities to develop initial draft recommendations. The CAP, other interested parties, and the ICCM then reviewed, discussed, and commented on the output of the subgroups and preliminary draft recommendations. Following receipt of comments, the ICCM developed its recommendations into a draft report, which the CAP and other interested parties also commented on. After review and consideration of those comments, the ICCM finalized its recommendations. Throughout this process, the ICCM agreed to make decisions on its recommendations by seeking consensus, or general agreement, and where it could not, a majority vote would be utilized with opposing positions memorialized. Section III contains the ICCM's recommendations to the Governor, all of which represent consensus. These recommendations address how to: 1) create a centralized electronic reporting system; 2) create a review framework for evaluating necessary changes to State chemical reporting and recordkeeping and coordinating chemical management actions across state agencies; and 3) strengthen TURA. The report describes the processes the ICCM used to develop these respective recommendations, and where applicable, a process for implementing them. The Appendices that follow the recommendations contains background documents and supporting information as follows:

- Appendix A is a copy of Executive Order No. 13-17.
- Appendix B is a list of ICCM Members, CAP Members, and other individuals who attended meetings, participated in discussions, and submitted comments.
- Appendix C is a pdf version of the ICCM's Master Matrix which it compiled early in the course of its work to help inform the current state and its recommendations. Due to its size, it is not viewable in hard copy, but can be viewed in its electronic version by zooming. In addition, a link to the document, which has been placed on the ICCM's website, is included in the Appendix.
- Appendix D contains the Implementation Plan for the electronic reporting system which the Lean Team developed during the course of the Lean Event.
- Appendix E contains a diagram of the Chemical Reporting System Architecture. This is a visual representation of the system.
- Appendix F contains the TURA Subgroup's Recommendation Matrix, which it created as part of its facilitated discussions to inform the ICCM's recommendations.
- Appendix G contains the comments from the CAP and other interested parties on the draft Report

The ICCM also maintained a website throughout this process, which can be found at: <http://anr.vermont.gov/about/special-topics/chemical-management-committee>

II. Overview of the Current State

A. The Current State of Chemical Reporting and Recordkeeping in Vermont

Vermont citizens may be exposed to harmful chemicals in drinking water, food supplies, outdoor and indoor air, in the workplace, and in consumer products. During the winter and spring of 2016, the State discovered widespread contamination—approximately 310 homes over 20 ppt—of private drinking water supplies with perfluorooctanoic acid (PFOA) in Bennington County. PFOA is a chemical of emerging concern, which means that it is a substance that has historically not been regularly monitored or thoroughly evaluated for risks, but has the potential to enter the environment and cause adverse health impacts. PFOA is one of thousands of chemicals on the Toxic Substances Control Act (TSCA) Chemical Substance Inventory that has the potential to enter the air, groundwater, soils and surface water and pose a threat to human health and the environment.

The discovery of PFOA contamination in Bennington County revealed that the State does not have sufficient information—use, volume, location and toxicity—about chemicals present in the State. Specifically, the State does not have adequate chemical inventories. Although users, manufacturers, and distributors of chemicals are subject to a myriad of federal and state recordkeeping and reporting requirements, complete chemical inventory information is not available in one database that is easily accessible by state agencies and the public.

Section III.A.(2) of the EO tasked the ICCM with recommending how the State should establish a centralized or unified electronic reporting system to facilitate compliance by businesses and other entities with chemical reporting and other associated regulatory requirements. The ICCM began this task by examining the current state of chemical reporting and recordkeeping to inform its recommendations. Currently, there are thirty one (31) state regulatory programs engaged in some type of chemical reporting and recordkeeping. The preliminary review work of the ICCM revealed variability as the overarching theme in all aspects of chemical reporting and recordkeeping. This variability begins with the regulated entity at the initial stage of inventory.

The regulated entity when creating and updating its inventory is challenged with identifying chemicals and keeping appropriate records or reporting purposes. With respect to chemical identification and inventories, there is variability in how chemicals are named or identified depending on the involved regulatory program's reporting requirements, resulting in inconsistent chemical identifiers. There is also inconsistent identification of chemicals in products with multiple chemicals. Existing exemptions do not capture complete inventories. The requirements can be confusing for small businesses, particularly for new businesses. The internal format that the regulated entities use may vary, and that information is not always updated in real time, all of which lead to reporting challenges.

Once that entity seeks to report its inventory information to the involved regulatory agency, it may have to do so through variable formats such as paper or hard copy to electronic submissions. In addition, the criteria, format and contents of the reporting forms, and supporting documentation vary greatly depending on the requirements of the reporting program. Multiple contacts within and across an agency or agencies may also be encountered. If the regulated entity is required to pay a fee, methods of submission vary from physical submittal to electronic payment, with variability in issuing refunds.

Once the regulatory program receives that information, data entry, scanning, and uploading of documents occurs manually for some programs. Each of those programs utilizes its own tracking system or database representing a myriad of internally-created systems using a variety of technology platforms or vendor-provided systems. There are limited resources for receipt and entry functions. Only one electronic database (Tier II) populates another database.

The review and QA/QC of the information is also variable. Regulatory programs employ different methods to address deficient information, and review occurs multiple times. In addition, there are limited resources with technical expertise to conduct these reviews. This plays a role in the information made available to the public.

Chemical information is not generally searchable by the public independently, resulting in the need to request that information from the involved regulatory program. Production of information to the public is made in variable formats, and required reports may not present data in a useful format. Confidential or trade secret information has to be managed and protected as part of any production, as well as information that impacts public safety and security. External customers may not know who (i.e. what agency or program) to contact for information, there are variable timelines for production and availability of documents after QA/QC, and limited resources to respond to information requests. There are also constraints to changes in format of data due to federal requirements or third party vendors. Appendix C contains a matrix compiled by the ICCM which helped to inform this review and assessment of the current state. The 3-day Lean Event discussed more fully below also informed this assessment.

In sum, the State currently does not have adequate chemical inventories. Although users, manufacturers, and distributors of chemicals are subject to a myriad of federal and state recordkeeping and reporting requirements, complete chemical inventory information is not available in one database that is easily accessible by the regulated community, state agencies, and the public.

B. The Current State of Chemical Reporting and Recordkeeping and Coordinating Chemical Management Actions Across State Agencies

Section III.A.(3) of the EO tasked the ICCM with recommending necessary changes to chemical recordkeeping and reporting requirements to facilitate assessment of risks to human health and the environment, as well as a general instruction to recommend regulatory or legislative changes needed to ensure that Vermont is proactively managing chemicals, both those currently regulated and emerging contaminants.

The ICCM utilized its review of the current state of chemical reporting and recordkeeping to inform its recommendations, included in Appendix C, and the work of the sub-group. That preliminary review work of the ICCM revealed variability as the overarching theme in all aspects of chemical reporting and recordkeeping, as discussed above within the context of developing a central electronic reporting system *and inventory*. (CERSI?) Regulatory programs that have recordkeeping and reporting requirements largely operate independently, with few programs coordinating across Agencies. There is currently no process or entity that ensures the coordinated management of chemicals across State government.

C. The Current State of TURA

Section III.A.(4) of the EO tasked the ICCM with recommendations to improve TURA's effectiveness. To inform its recommendations, the ICCM utilized a review of the chemicals currently subject to TURA and their threshold amounts, the entities responsible for reporting, reduction planning requirements, current staffing levels, and program administration. The Act 154 Chemical Use Working Group Legislative Report, Appendix C, pages 62 – 64, and the TURA Facilitated Sub-group Event discussed more fully below helped to inform this review.

The substances regulated under the program include toxic substances listed in the Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Section 313 and hazardous wastes that are identified in the Vermont Hazardous Waste Management Regulations. Facilities that are subject pollution prevention planning requirements are those that are "large users" of toxics substances, as well as facilities that generate greater than 2,640 pounds of hazardous waste (or 26.4 pounds of acute hazardous waste) per year. A "large user" is a facility with 10 or more full-time employees, that is in Standard Industrial Classification (SIC)¹ 20 – 39 and that: (A) manufactures, processes or otherwise uses, exclusive of sales or distribution, more than 10,000 pounds of a toxic substance per year; or (B) manufactures, processes or otherwise uses, exclusive of sales or distribution, more than 1000 pounds but less than 10,000 pounds of a toxic substance per year if that substance accounts for more than 10% of the total toxic substances used at the facility during the year. Facilities for which ANR determines that no source reduction opportunities exist may be exempted from the planning requirements.

Facilities that are subject to planning are required to submit plans or plan summaries to ANR every three years and to annually submit progress reports. The plans must include a list of the toxic substances that exceed the threshold and/or the hazardous wastes routinely generated by the facility. Facilities have the option to submit the entire plan or a summary that includes a cover sheet, management policies on pollution prevention and employee training related to pollution prevention, and a summary of pollution prevention performance goals. Pollution prevention plans are exempt from the definition of public records and are therefore not subject to public inspection and copying under the Vermont Public Records law. However, facilities are also required to develop and submit plan summaries to include methods to be taken by the facility to reduce toxics use and waste generation over the next three years, a list of toxic substances and hazardous wastes that are covered by the plan, and a statement of the facility's policy and commitment regarding toxics use and hazardous waste reduction. Plan summaries are public records and available to the public. Annually, each facility subject to the planning requirement must prepare and submit a hazardous materials management performance report, known as an Annual Progress Report. The reports are submitted on paper and are available to the public.

Limited data from the plans and annual progress reports are maintained by ANR in a database. This data includes information regarding completion of plans and progress reports, fees received, total pounds of toxics or hazardous waste managed, pounds of toxics or hazardous waste reduced, and toxics use reductions methods used. The database is not accessible on a public platform. One employee is tasked with devoting ½ of their time to implementing the program.

Facilities that have implemented planning measures have reduced hazardous waste generated by 2.3 million pounds and toxics used by 1.4 million pounds since 2006. This program does not

¹ The SIC has been updated to the North American Industrial Classification System (NAICS).

directly address contaminants of emerging concern, but it relies on two other regulatory programs (SARA Title III, Section 313 and RCRA/Vermont Hazardous Waste Program) to identify the substances that make a facility subject to regulation, so the response to contaminants of emerging concern mirrors the response of those two regulatory programs.

III. Recommendations to the Governor

A. Creation of a centralized electronic reporting system and inventory (CERCI)

Executive Order 13-17, Section III.A.2. directs the Interagency Committee on Chemical Management (ICCM) to “Recommend how the State should establish a centralized or unified electronic reporting system to facilitate compliance by businesses and other entities with chemical reporting and other associated regulatory requirements in the State. The recommendation shall:

- a. identify a State agency or department to establish and administer the reporting system;
- b. estimate the staff and funding necessary to establish and administer the reporting system;
- c. propose how businesses and the public can access information submitted to or maintained as part of the reporting system(s), including whether public access to certain information or categories of information should be limited due to applicable statutory requirements, regulatory requirements, trade secret protection, or other considerations;
- d. propose how information maintained as part of the reporting system can be accessed, including whether the information should be searchable by: chemical name; common name; brand name; product model; Global Product Classification (GPC) product brick description; standard industrial classification; chemical facility; geographic area; zip code; address; other criteria; or a combination thereof;
- e. propose a method for displaying information or filtering or refining search results so that information maintained on the reporting system can be easily accessed; and
- f. estimate a time line for establishment of the reporting system.”

1. Background and Process To Develop the Recommendation

To arrive at its recommendations, the ICCM conducted three primary discovery, analysis, and planning activities; 1. a program and system inventory, 2. held a Lean event to analyze current and future states, and 3. conducted a system envisioning exercise to architect a unified chemical reporting system.

2. Program and System Inventory

The ICCM began its analysis by conducting an inventory of current chemical reporting programs across Vermont state agencies and Departments. The ICCM compiled a matrix of State

programs, including those from the Agency of Natural Resources, the Agency of Human Services; Department of Labor; Agency of Agriculture, Food and Markets; Department of Public Safety; Agency of Commerce and Community Development, that administer chemical reporting systems and maintain recordkeeping requirements. This included information on the purpose of the program, chemicals regulated, method of reporting, method of access to the data, data gaps, and record keeping requirements and issues. A pdf version of the matrix can be found in Appendix C. Due to its size, it is not viewable in hard copy, but can be viewed in its electronic version by zooming. In addition, a link to the document, which has been placed on the ICCM's website, is included in the Appendix.

3. Lean Event

Following the inventory and analysis of current reporting programs, the ICCM Technical sub-committee prepared for and convened a three-day Lean event on February 6, 7, and 8, 2018, with the primary goal of the project to create a unified electronic reporting system that (1) helps facilitate compliance by businesses and other entities with chemical reporting requirements; (2) provide state agencies with easily accessible information about chemicals to prioritize resources to address risks to Vermonters from unsafe chemicals; and (3) provide meaningful public access to information about chemicals in Vermont. The scope of the Lean event was limited to those State chemical reporting requirements that are related to the use, storage, distribution, manufacture, or disposal of chemicals. Specifically, the following programs fell within the scope of the project:

- Occupational Safety and Health Administration Hazard Communication Standard
- Emergency Planning and Community Right-to-Know Act (Tier II)
- Chemical Disclosure Program for Children's Products
- Pesticides – Use, Sales/Distribution, Production
- Vermont Hazardous Waste Management Program
- Pollution Prevention Planning Program

For each program, the scope of the project included existing chemical reporting requirements and any additional chemical reporting requirements that are necessary to facilitate assessment of risks to human health and the environment posed by chemical use in the State. In terms of the reporting process, the scope of this project was from the point where the regulated entity submits chemical inventory and other information to the point in time where the applicable state agency makes the information reported by the regulatory entity available to the public. Eight state programs and seven reporting systems supporting those eight programs were analyzed during the Lean event.

During the three-day event, the team discussed and identified the primary customers of the chemical reporting programs, identified gaps and issues in the current state, and leveraged an affinity diagramming² exercise and Kano analysis³ to determine, group, and prioritize

² An Affinity Diagram is a tool that gathers large amounts of language data (ideas, opinions, issues) and organizes them into groupings based on their natural relationships (Viewgraph 1). The Affinity process is often used to group ideas generated by Brainstorming. (BalancedScoreCard.org)

³ The Kano Model of Customer Satisfaction classifies product attributes based on how they are perceived by customers and their effect on customer satisfaction. These classifications are useful for guiding design decisions in that they indicate when good is good enough, and when more is better. Project activities in which the Kano Model

requirements of a unified reporting system. In addition, members of the ICCM Citizens Advisory Panel (CAP) were brought in on the second day to provide input on the current and future states.

Customers identified as part of the chemical reporting programs included:

- Regulated Community
- Public (individuals, stakeholders, emergency responders and planners, researchers/academia)
- State Program Administrators (Compliance & Assistance programs, Regulators, ICCM)
- Federal Partners

The Lean event current state analysis highlighted that across the programs there several deficiencies including:

- Inconsistent chemical identifiers and naming standards;
- Multiple formats, reporting systems including paper based manual systems, reporting methods, and criteria;
- Variable methods to pay fees and issue refunds;
- Data variability in quality, timeliness, completeness;
- Variability in data and information access which is confusing to public and offers no statewide view of chemical activities in Vermont;
- Confusing to businesses on where and when to report chemical activities.
- Varying levels of allowable public access due to security exemptions and Federal guidance

At the conclusion of the Lean event, participants coalesced around several high-level future state recommendations including providing an online reporting guide to assist the regulated community in determining their reporting requirements, provide a singular online portal for chemical reporting by the regulated community, and integrate reported chemical data in to a statewide publicly accessible view.

The team also developed Key Performance Indicators (KPIs) that could be used to measure program and system performance. As the system is developed, rolled out, and implemented they would necessarily need to be revisited and revised:

- Reduce data duplication by 100% for consolidated systems 1 year after rollout;
- Increase compliance with required reporting by 10% for all systems 1 year after rollout;
- 95% of reporting submissions for consolidated systems are complete 1 year after rollout;
- 75% customer satisfaction rate for consolidated systems 1 year after rollout;
- Annual increase in new system usage (regulated entity and public) by 10%;
- Consolidate number of sources for public access/information from many, many to 1 at rollout;

is useful include identifying customer needs, determining functional requirements, concept development, and analyzing competitive products.

- Increase program data that is publicly available by 50% 1 year after rollout;
- Reduce staff time for processing reported information by 80% for consolidated systems 1 year after rollout.

At the end of the Lean event, the team developed an implementation plan towards developing a system recommendation and high-level timeline for implementation. Appendix D contains a copy of the Centralized Electronic Reporting System and Inventory Implementation Plan. Note that the dates and milestones established by the Lean Team in the Plan were based on the date of the Lean Event. These will necessarily need to be amended if this process moves forward into implementation.

4. System Envisioning Session

Following the Lean event, the team conducted a one-day envisioning exercise on March 16, 2018 to architect a unified reporting system that met both the requirements garnered in the Kano analysis, minimized the gaps in the current state of chemical reporting, prioritized chemical reporting programs to onboard in to system, and met the goals of the Executive Order. A diagram of the reporting system architecture can be found in Appendix E. As part of this envisioning session, the ICCM technical committee conducted a deeper analysis of the data elements across the reporting programs in scope to better understand where State chemical reporting programs and systems were similar and dissimilar to guide a future unified solution. The team inventoried data across 24 reporting systems from the 31 programs inventoried in the master matrix identifying 6 common data groupings across those systems. This information can be used to help determine a data standard across State regulatory programs as well as determine how the public and state administrators can query and filter the data. Common data groupings included:

1. Business Information
2. Chemical Information
 - Waste code
 - Name
 - CAS ID
 - EPA ID
3. Chemical Quantity
 - Spilled, released
 - Storage
 - Use
 - Units (lbs, liters)
4. Chemical Concentration
 - Units (ppm)
5. Location Information
 - Business location
 - Spill location
 - Sample location
 - Well locations
 - Address
 - SPAN
 - Lat/long
6. Product Information

5. Recommendations

At the conclusion of these discovery and planning activities, the ICCM arrived at a model it believes can achieve the intended goals of the Executive order and meet the needs of the primary customers identified during business process analysis. The below system recommendation proposes how businesses and the public can access information submitted to or maintained as part of the reporting system, including whether public access to certain information. In addition, the recommendation proposes how information maintained as part of the reporting system can be accessed, including how the information is searchable by several criteria as well as a method for displaying information or filtering or refining search results so that information maintained on the reporting system can be easily accessed.

The recommended centralized electronic reporting system and inventory is comprised of the following components:

1. Public-facing pre-reporting website. A website that guides the regulated business customer to the appropriate reporting forms by presenting the customer with a series of questions and choices to determine what they need to report on. The site also provides information on current regulations and regulated chemicals.
2. Authentication & User Account component. Single log-in and account management for State chemical reporting by the regulated business customer. This system component provides the ability to update and maintain user accounts with contact and business information. This component may leverage an existing authentication service already in use by the State.
3. Online Forms Platform. Software or service that allows for development of online forms including electronic signature, document upload, and payment processing where fees are collected. This component presents a menu of web-based dynamic chemical reporting forms available to the regulated business customer. Forms are pre-populated where applicable with customer account information to expedite data entry and reduce data errors. The online forms allow control of data values entered to reduce data errors and enforce complete reporting submittals thereby reducing or eliminating administratively incomplete applications. Optional system functions would allow for a standardized file, generated by the regulated business system, to be uploaded to provide form information where feasible or a data transmission via a web service.
4. Forms Database. The forms database that stores data submitted via online forms. This system component provides an administrative console to allow state administrators the ability to manage and review data before data is loaded to local Agency databases. This component provides the ability to monitor regulated business customer reporting activities and automate reminders on reporting deadlines.
5. Extract Transform Load⁴ (ETL) process that copies or moves data from the forms database to local Agency databases or vice versa to allow local database values to pre-populate forms to facilitate data entry by the regulated business customer.

⁴ ETL is short for *extract, transform, load*, three database functions that are combined into one tool to pull data out of one database and place it into another database.

Extract is the process of *reading data* from a database. In this stage, the data is collected, often from multiple and different types of sources.

6. Local Agency databases. The local Agency databases and systems that store chemical reporting data used to administer state chemical regulatory programs. Data standardization is required across local Agency databases to facilitate the ETL process as well as to facilitate chemical reporting data moved in to a data warehouse to support public chemical discovery websites.
7. Extract Transform Load process from local Agency databases to data warehouse.
8. Data warehouse. Data extracted, transformed, and loaded from local agency databases to data warehouse to provide the state and the public a role-based accessed view of chemical reporting activities across the state. This system component provides an administrative console to allow the state to manage data on the data warehouse.
9. State administrators' chemical discovery website. Website that provides the state, via role-based access, the ability to query chemical reporting activities by several criteria including the ability to search activities via a map interface.
10. Public chemical discovery website. Website that provides the public with the ability to query chemical reporting activities by several criteria including the ability to search activities via a map interface. Criteria includes data elements supported by the data standard including chemical name; common name; brand name; product model; standard industrial classification/NAICS; chemical facility; geographic area; zip code; address; other criteria; or a combination thereof. These criteria may also be used to display information, filter, or refine search results so that information maintained on the reporting system can be easily accessed. There may be limitations on searchability of some of the information due to security reasons.
11. State Open Data Portal. Chemical reporting data can be made available via the State's existing Open Data Portal. The Open Data Portal offers another avenue for the public or other interested parties the ability to query and download applicable chemical data.

As viewed through the primary customers use of the State unified chemical reporting system, the envisioned system architecture can provide the following functionality to meet the goals of the Executive Order.

For the regulated community, the system will:

- Provide a pre-reporting website to inform and guide me to chemical reporting requirements based on my business activities;
- Provide current information on state chemical reporting requirements and regulations;
- Provide a single log-in to the State chemical reporting system which will contain the form or forms necessary for me to comply with State chemical reporting requirements;

Transform is the process of *converting the extracted data* from its previous form into the form it needs to be in so that it can be placed into another database. Transformation occurs by using rules or lookup tables or by combining the data with other data.

Load is the process of *writing the data* into the target database.
(<https://www.webopedia.com/TERM/E/ETL.html>)

- Provide the ability to upload supporting documents;
- Provide a comprehensive chemical list including multiple identification numbers and names;
- Provide a method to maintain my business contact and other relevant information. This information can be used to pre-populate chemical reporting forms to reduce the amount of information I must enter in to forms;
- Provide a method to upload a file or connect to a web service to submit chemical reporting data provided a data standard is met;
- Allow the user to save forms mid-session to complete at another time;
- Allow the user to access past data submittals;
- Automatically create invoices, compile fees, allow online payments, and generate itemized receipts;
- Be responsive in design to display correctly on mobile devices;
- Be secure so that sensitive information is only accessed by users with appropriate credentials;
- Provide state staff points of contact per reporting requirement area;
- Provide technical support during working hours;
- Provide for training on how to use the system.

For a State Administrator, the system will:

- Provide for form validation and error checking to reduce data entry errors or missing data before submittal;
- Provide for role-based access to ensure only authorized state staff may access data pertinent to their areas of interest;
- Provide the ability to archive historical data;
- Provide a primary point of contact for the regulated businesses to reconcile data questions;
- Offer tools to provide outreach and assistance to registered regulated community users;
- Provide a method to maintain a comprehensive chemical list including multiple identification numbers and names to meet the chemical reporting goals of the State of Vermont;
- Provide automated methods to report data to Federal or multi-state partners;
- Provide the ability to upload supporting documents and manage submitted documents;
- Provide the means to review submitted data before migrating data to local Agency databases or other data transfers;
- Provide data transformation and migration mechanisms to migrate data to local Agency databases;
- Provide local Agency web clients to data;
- Provide the ability to automate the email communication to registered users on regulation updates and regulated chemicals;
- Provide functionality to search for publicly available information by chemical name, common name, brand name, product model, standard industrial classification/NAICS, chemical facility, geographic area, zip code, address, other criteria supported by the publicly available data;

- Provide the ability to browse data geographically;
- Provide a method to generate a report of search results;
- Have technical support available during working hours.
- Provide for training on how to use the system.

For the Public, the system shall:

- Via a website, provide functionality to search for publicly available information by chemical name, common name, brand name, product model, standard industrial classification/NAICS, chemical facility, geographic area, zip code, address, other criteria supported by the publicly available data.
- Provide the ability to browse data geographically;
- Provide access to data in a timely manner;
- Provide information/documentation about the data;
- Provide points of contact for reported data;
- Provide a method to generate a report of search results.
- Provide training materials on how to use the website.

To support the system requirements outlined above, the system requires:

- i. A master chemical data list/inventory that meets the reporting and querying requirements of the State Agencies, regulated community, and the public;
- ii. Chemical reporting data standard to support state and public discovery of chemicals;
- iii. Local agency web database applications or web interface to forms datastore to fully enable a statewide electronic non-paper-based system to manage chemical data.

6. Legislation

Since the proposed system would be incorporating specific information and fields from existing forms used by the respective regulatory programs, it is not anticipated that changes to current reporting requirements would be needed, however the Lean Team's proposed implementation plan includes a task and timeframe to evaluate this aspect to ensure the reporting system meets existing requirements. In addition, there will be a need to address the costs of the development and maintenance of this system through the overall budgeting process.

7. Administration, Staffing, Funding, and Timing

Per the Executive Order to identify a State agency or department to establish and administer the reporting system, it is recommended that the Agency of Natural Resources in collaboration with the Agency of Digital Services, lead the establishment and overall management of a unified chemical reporting system. The Agency of Natural Resources currently chairs the Interagency Committee on Chemical Management. Additionally, ANR and ADS has experience in leveraging forms platform solutions to provide reporting and permitting portals as well as data integrations across disparate data sources to inform public websites and applications.

Per the Executive Order to estimate the staff and funding necessary to establish and administer the reporting system, the following project breakdown is provided in the tables below:

Cost Estimate

Cost estimates were based on ANR’s and ADS’s experience implementing public-facing online forms solutions, implementing data integration processes from multiple databases, creating public portals, and developing internal and public stakeholder training resources for information technology projects. It should be noted that as a general premise, pollution prevention costs less, compared to the costs associated with cleanup and remediation. The recommendations in this report have the potential to provide the state with the ability to be proactive in its oversight of chemical use. In addition, the costs of the development and maintenance of this system which would be established through the overall budgeting process, and across State Agencies, would make the overall cost manageable and achievable.

Implementation	Low	High	Average
Project Planning	\$10,080	\$20,160	\$15,120
Software & Hardware	\$343,000	\$347,000	\$345,000
Development	\$188,412	\$692,580	\$440,496
Training	\$16,800	\$26,880	\$21,840
Maintenance 4 Years Average	\$492,396	\$492,396	\$492,396
Total	\$1,050,688	\$1,579,016	\$1,314,852

Staffing Estimate

Project staffing estimates to establish and maintain the system take into consideration project team roles and participation including project managers, enterprise architects, developers, and business project leads. The below estimate does not include additional non-IT program staff involved in developing system requirements, system testing, or external stakeholder participation. These numbers reflect the number of staff who at various times would be engaged in the process, but not devoting their full time given competing priorities, maintaining existing systems, and availability of project program staff. Thus, approximately 20-30% of each full time employee would be engaged on the project on average for the duration of the project. Staffing commitment details would be determined during the project planning phase. The staffing estimate is broken down into similar categories as the cost estimate:

Implementation (# of employees)	Low	High	Average
Project Planning	12	20	16
Software & Hardware	2	6	4
Development	12	16	14
Training	6	10	8
Maintenance 4 Years Average	6	10	8

Per the Executive Order to estimate a time line for establishment of the reporting system, the committee considered estimated project team staff hours to implement the system and extrapolated that out to include program staff, competing priorities and responsibilities, procurement timelines, scheduling, and available work days. In addition, duration of the project

management phases (exploration, initiation, planning, execution, and closing) in relation to the size of the project and number of Agencies and stakeholders was considered. Upon approval to proceed with the project to create a unified chemical reporting system, the committee estimates the project to take approximately 4 years from project kick off to completion. Appendix D contains a copy of the Centralized Electronic Reporting System and Inventory Implementation Plan. Note that the dates and milestones established by the Lean Team in the Plan will necessarily need to be amended if this process moves forward.

B. Establishment of a Review Framework for Evaluating Necessary Changes to State Chemical Reporting and Recordkeeping and Coordinating Chemical Management Actions Across State Agencies

EO 13-17, Section II.A.3. directs the ICCM to recommend any necessary statutory amendments or regulatory changes to existing State recordkeeping and reporting requirements for chemicals, hazardous materials, and hazardous wastes that are required to facilitate assessment of risks to human health and the environment posed by chemical use in the State. The recommendations shall consider:

- a. the thresholds or amounts of chemicals used, manufactured, or distributed, and hazardous materials and hazardous wastes generated or managed, in the State that require recordkeeping and reporting;
- b. the persons or entities using, manufacturing, or distributing chemicals and generating or managing hazardous materials and hazardous wastes that are subject to recordkeeping and reporting requirements; and
- c. any changes required to streamline and modernize existing recordkeeping and reporting requirement to facilitate compliance by business and other entities.

1. Background and Process To Develop the Recommendation

To arrive at its recommendations, the ICCM established a subgroup consisting of representatives from the Departments of Labor, Health, and Environmental Conservation, and the Agency of Agriculture, Food, and Markets. The subgroup met via phone calls and discussed the response to EO 13-17, Section II.A.3. The recommendations from the subgroup were discussed with the ICCM and updated based on ICCM feedback.

2. Recommendations

a. Reporting and Recordkeeping Change Evaluation Process

In order to maintain dynamic chemical management in Vermont, the ICCM proposes to create a process for the review of current reporting and recordkeeping requirements. This process is intended to align state actions and to ensure the coordination of chemical management across

state government. The Toxics Use and Hazardous Waste Use Reduction Act program would also utilize this same review process for evaluation of additions, deletions, or changes to chemicals, lists of chemicals, or thresholds beyond what is specified in statute or what has been recommended in section C below.

In the event where it is unclear whether state reporting and recordkeeping requirements are appropriately protecting Vermonters from an unsafe chemical, class of chemicals, or grouping of chemicals, an Agency or Department shall propose that the ICCM review the current state of recordkeeping and reporting requirements in the state and provide the ICCM with any relevant documentation and an agency recommendation.

If the ICCM concurs that a review is needed, the ICCM will task the Technical Team with conducting a review that will look at, among other things, whether such a recordkeeping or a reporting requirement change would be duplicative, whether it would be feasible, whether there are existing federal or Vermont health protective standards, and what actions other states have taken with regard to the subject chemical, class of chemicals, or grouping of chemicals.

Once the review is complete, the Technical Team shall submit a draft report of its recommendations to the ICCM. The recommendation may include regulatory or statutory changes to requirements and or thresholds as well as education and outreach opportunities to better inform the public about potential risks or targeted sampling that should be done to understand if sensitive receptors may be impacted. The ICCM will then discuss the proposal, provide any feedback, and/or require additional analysis by the Technical Team. Once the ICCM determines the draft report is complete, it will share that draft with the Citizen Advisory Panel (CAP).

The CAP will review and comment on the recommendation. The ICCM shall then determine whether changes to the recommendation are needed based on feedback from the CAP. Once satisfied with the recommendation, the ICCM will vote to move forward with the recommendation.

The follow-up action will depend on the recommendation from the Technical Team, but typically the result would be for either an Agency or Department to initiate their procedures to make changes to recordkeeping or reporting requirements if they can be done administratively. The result may also be coordinated action by multiple Agencies or Departments. It remains the prerogative of any agency to initiate processes outside the scope of the ICCM.

In the event that a statutory change is needed, the State Agency or Department will initiate their own process for making statutory amendments. As needed, the Chair or members of the ICCM will provide testimony to the General Assembly in support of the change.

b. Targeted Chemical Management Action Coordination

The ICCM shall also – except in the case of an emergency – provide an opportunity for state agencies to discuss actions proposed by member Agencies and Departments to make specific

changes to clean up standards, health advisory levels, and PELs (Permissible Exposure Levels), among others as individual changes often have impacts on the required actions of other Agencies and Departments or could aid them in developing appropriate approaches to managing chemicals in line with their statutory jurisdiction.

Therefore, prior to submitting a chemical management action to ICAR in relation to rulemaking or prior to establishing a new health advisory level or other non-regulatory action, ICCM members shall inform the ICCM of their forthcoming actions to ensure coordination across all government entities. The ICCM will not have the authority to approve any action under an individual Agency or Department authority, but it will work to ensure the necessary follow up actions by its members are discussed and coordinated in advance of prospective actions.

If this proposed structure is adopted, the ICCM will direct a review of the following chemicals. These chemicals represent clear instances in which it's likely that additional recordkeeping or reporting is needed:

1. Trichloroethylene (TCE):

What is the reason this should go through the ICCM review?

TCE is carcinogenic to humans, as defined by the International Agency for Research on Cancer (IARC). The current VOSHA regulations allow for TCE to be used in the workplace, and the current VOSHA PEL TWA for TCE is 270,000 $\mu\text{g}/\text{m}^3$. The VOSHA PEL was established in 1989 and has not been updated based on current science. In 2016 at the request of DEC, the Vermont Department of Health derived a non-residential indoor air screening value for TCE. This value is 0.7 $\mu\text{g}/\text{m}^3$. The exposure to TCE is over 385,000 times higher in the workplace than what is considered health protective.

What do we know now about use?

Currently, the State of Vermont is not aware where TCE is being used in a workplace. Additionally, when used in a workplace, employers are required to notify the employees. The workplace does not have to notify the State. TCE can be used for many purposes in the workplace. The limited use of TCE and the higher prevalence of PCE used in dry cleaning has indicated TCE as a byproduct of chemical breakdown. Investigations have found such a correlation of TCE in buildings with vapor intrusion from dry cleaner contamination. Dry cleaning facilities historically used PCE in their process and may have disposed of PCE improperly. The Department of Environmental Conservation did a research project in 2016 to determine locations of current and previous dry cleaners and have those data.

2. Diisocyanates:

What is the reason this should go through the ICCM review?

Diisocyanates are a family of chemicals used in some spray foam insulation products. If the products are not properly used and cured, the products can release diisocyanates into the air. Diisocyanates are sensitizers and can create respiratory problems when people are exposed multiple times, at lower doses each time. Both workers and residents who have their homes treated are at risk of exposure to diisocyanates. In extreme cases when spray foam insulation is not applied correctly, residents become sensitized and cannot live in their own homes.

What do we know now about use?

Diisocyanates don't fall under Tier 2 reporting. The State of Vermont is not aware where diisocyanates could be found. There are no record keeping requirements for the use of diisocyanates and when used in the work place employees would be notified as part of the Hazard Communication Standard. There is no required notification to homeowners regarding the potential for exposure to diisocyanates.

3. 1,4-dioxane:

What is the reason this should go through the ICCM review?

1,4-dioxane is a carcinogen. It is an unregulated contaminant, meaning there is no EPA MCL for 1,4-dioxane in water.

What do we know now about use?

The extent of 1,4-dioxane contamination in Vermont is unknown since, in addition to not being required, the standard analytical method used when analyzing other chlorinated solvents does not include 1,4-dioxane. Also, the State does not have a good sense of where 1,4 dioxane is being used or was previously used in Vermont. Several neighboring states have discovered contamination of 1,4-dioxane in groundwater.

C. Improve the Effectiveness of the Toxics Use Reduction and Hazardous Waste Reduction Act (TURA)

EO 13-17, Section II.A.4. directs the ICCM to "Recommend any necessary statutory amendments or regulatory changes to the Toxic Use Reduction and Hazardous Waste Reduction Act under 10 V.S.A. Chapter 159, Subchapter 2. The recommendations shall consider:

- a. a list of chemicals or materials subject to the reporting and planning requirements;
- b. the thresholds or amounts of chemicals used or hazardous waste generated by a person that require reporting and planning;

- c. the persons or entities using chemicals or generating hazardous waste that are subject to reporting and planning;
- d. proposed revisions to the toxic chemical or hazardous waste reduction planning requirements, including conditions or criteria that qualify a person to complete a plan;
- e. any changes to streamline and modernize the program to improve its effectiveness;
- f. estimate the staff and funding necessary to implement and administer any recommended statutory changes or regulatory changes; and
- g. other state programs to reduce the use of toxic and hazardous waste, including the staff and funding required to implement the programs.

1. Background and Process To Develop the Recommendation

To arrive at its recommendations, the ICCM formed a TURA subgroup to the ICCM Technical Group to work on this portion of the Executive Order. The subgroup consisted of staff currently working on the implementation of Toxic Use Reduction and Hazardous Waste Reduction Act at the Department of Environmental Conservation and representatives from the Agency of Natural Resources, the Department of Labor and Department of Health.

Prior meeting as a subgroup, DEC personnel held a webinar on March 20, 2018 with facilities currently subject to the planning requirements to hear feedback on the effectiveness of the existing program and their thoughts on potential changes. Seventeen facilities participated in the webinar and two others called or emailed with comments.

The TURA subgroup then met for two 4-hour working meetings on March 27 and 28, 2018 where the group considered options before making recommendations for each of the elements listed in subsections 4(a) through (g) above.

The subgroup brainstormed options for each of the subsections (a) through (g) under EO Section II.A.4, conducted research on the options between meetings, then discussed each option as a group and decided on recommendations. The subgroup developed a matrix, found in Appendix F as TURA Subgroup Recommendation Matrix that lists the current state, recommended changes, and the rationale and implementation mechanism for each recommendation as an outcome from the two-day event.

2. Recommendations

The ICCM arrived at a series of recommendations it believes can strengthen TURA. Where changes to legislation are proposed, the existing statute is identified, with additions to the statute are denoted by underlined text, deletions by strikethrough.

a. List of chemicals:

Recommendation: Use the list of toxics or toxic substances described in 10 VSA § 6624(7) (includes the chemicals included in the Toxics Release Inventory, also known as Title III, Section 313 of the Superfund Amendments and Reauthorization Act of 1986) with the addition of the “Chemicals of High Concern to Children” list from 18 VSA §1773. Expanding the list to include Chemicals of High Concern to Children will result in the addition of 25 chemicals to the list of reportable chemicals

In the future, chemicals may be added to the list of toxic substances through a process described above in section III (B)(2)(a) Reporting and Recordkeeping Change Evaluation Process.

Rationale: Expanding the list of chemicals defined as toxic substances will result in increased efforts to plan to reduce the amounts of those chemicals in use which will lead to increased environmental, occupational and public health protection. In the future, as our knowledge of chemicals used in Vermont improves/increases, we may want to focus toxics use reduction and hazardous waste reduction planning on additional chemicals not currently regulated. The development of a robust, scientifically sound, transparent process to add chemicals for planning will be needed.

Mechanism: statutory change
Suggested change to 10 VSA § 6624(7) as follows:

(7) "Toxic substance" or "toxics" mean any substance in a gaseous, liquid, or solid state listed pursuant to Title III, Section 313 of the Superfund Amendments and Reauthorization Act of 1986 and chemicals listed as “chemicals of high concern to children” in 18 VSA §1773, as amended. This list of substances may be altered as specified in subsection 6625(d) of this title. "Toxic substance" or "toxics" does not include constituents of fuels used to provide energy, unless those fuels include hazardous wastes from a generator's process.

Regarding adding or removing any toxic substance or hazardous waste from the provisions of Subchapter 002, 10 VSA § 6625(d) includes the following language which would need to be changed if a different process were adopted:

(d) The Secretary shall adopt rules to carry out this subchapter. The rules shall include a provision for exempting from the requirements of this subchapter generators for whom the Secretary determines no source reduction opportunities exist. The Secretary may, by rule, add or remove any toxic substance or hazardous waste from the provisions of this subchapter. In order to add or remove any toxic substance or hazardous waste from the provisions of this subchapter, the Secretary shall make findings with respect to toxicity, potential impact on public health and the environment, and the potential for use reduction or waste reduction of the toxic substance or hazardous waste.

b. Threshold amounts:

Recommendation: Use the threshold amounts specified in 10 VSA §6624(4)(A) and (B) for most toxic substances/toxics but require reporting at lower thresholds for substances listed under the Toxics Release Inventory list as Persistent, Bioaccumulative and Toxic and use the lower threshold amounts stated in Toxics Release Inventory list of chemicals.

Rationale: Chemicals with higher environmental persistence, a tendency to bioaccumulate, and toxicity exhibit increased risk at lower volume thresholds.

Mechanism: statutory change

Suggested change to 10 VSA § 6624(4) as follows:

(4) "Large user" means a facility with 10 or more full-time employees that is in the Standard Industrial Classification (SIC) Code required by the Secretary to report and that:

(A) Manufactures, processes or otherwise uses, exclusive of sales or distribution, more than 4,545.5 kg (10,000 lbs) of a toxic substance per year; or

(B) Manufactures, processes or otherwise uses, exclusive of sales or distribution, more than 454.4 kg (1,000 lbs) but less than 4,545.5 kg (10,000 lbs) of a toxic substance per year if that substance accounts for more than 10 percent of the total of toxic substances used at the facility during the year; or

(C) Manufactures, processes or otherwise uses, exclusive of sales or distribution, more than the reporting threshold established in 40 CFR §372.28 for chemicals of special concern, i.e., designated as persistent, bioaccumulative, or toxic.

c. Persons/Entities Reporting:

Recommendation: Update all reference to (Standard Industrial Classification) SIC codes to refer to North American Industrial Classification System (NAICS) codes, as the industrial classification system replaced SIC codes in 1997. Also amend the definition of Large User in 10 VSA § 6624(4) to include facilities with 10 or more employees onsite or less than 10 onsite and greater than 500 corporate-wide.

Rationale: NAICS codes are more commonly used today and more descriptive of facility type. The large user employee threshold to be amended would include smaller facilities that are part of large corporations that have the resources to effectively plan for toxics use and hazardous waste reduction.

Mechanism: statutory change

Suggested change to 10 VSA § 6624(4), as follows:

(4) "Large user" means a facility with 10 or more full-time employees or that has less than 10 full-time employees in Vermont and corporate-wide has 500 or more full-time employees, that is in the ~~Standard Industrial Classification (SIC)-Code~~ North American Industrial Classification System (NAICS) codes required by the Secretary to report and that: ...

Also, change the other reference to SIC codes, 10 VSA § 6625 (e):

(e) The Secretary shall adopt, by rule, a list of ~~SIC~~ NAICS codes that identifies those facilities that are subject to this subchapter as a large user. The list initially must include SIC codes 20 through 39. In adding additional ~~SIC~~ NAICS codes, the Secretary shall make findings with respect to chemical use within the ~~SIC~~ NAICS category, and shall find:

- (1) that the potential impact on public health and the environment is significant; and
- (2) that the potential for use reduction and waste reduction within the category is significant.

d. Reduction Planning requirements, conditions, and criteria:

Recommendation: Require a modest amount of training for those who certify a toxics use or hazardous waste reduction plan.

Rationale: Required training and additional educational opportunities will help planners achieve stated policy goals (reduction of toxics use and hazardous waste generation) through identification of new reduction techniques/opportunities and development of more meaningful, robust plans

Mechanism: Statutory change to add a new section to 10 VSA§ 6629(c) that lists the training requirement, followed by rulemaking to further describe training requirement.

Suggested change to 10 VSA§ 6629(c):

§ 6629. Toxics use reduction and hazardous waste reduction plan; plan summary

* * * *

(c) The toxics use reduction and hazardous waste reduction plan shall be prepared for each site pursuant to the format adopted under section 6626 of this title and shall include:

* * * *

(10) Every plan completed pursuant to this section shall be reviewed and certified by a responsible corporate official, consultant or engineer who has had eight hours of training within the prior three years on hazardous waste or toxics use reduction techniques, as demonstrated to the Secretary.

e. Streamline and modernize the program:

Recommendation:

Upgrade electronic database, including the following functionality:

- allow for secure online plan and annual report submittal and fee payment;
- provide automated fee calculation;
- offer more online assistance and resources to help planners achieve the goals of the program;
- Streamline information required to be submitted;
- automate and integrate with other databases, including the proposed centralized electronic reporting system, when feasible.

Once an improved electronic database is in place, information will be used to target assistance and identify patterns of chemical use and hazardous waste generation in the state.

Alternative Plans - Allow for alternative resource conservation and environmental impact planning (e.g., greenhouse gas, water use, or solid waste/organics reduction) in lieu of toxics use/hazardous waste planning for established planners and to be allowed for alternate planning cycles, e.g., 2020 planning cycle – resource conservation plan, 2023 cycle – toxics use/hazardous waste reduction plan. Planners submitting alternative plans would still track and report annually on toxics use /hazardous waste generation and reductions.

Rationale:

Upgrade Database – The TURA program’s current system is primarily paper-based and data is not aggregated in any way that allows for analysis. Upgrading/modernizing the database will allow for electronic reporting and fee payment, reduce need for paper submittal, and allow for review and analysis of data.

Alternative Plans – Where planners have met reduction goals based on current feasibility, technology, etc. (where additional planning may not lead to further reductions), allowing them to implement programs focused on efficiencies related to other processes that they may have would provide more of an incentive to implement and will also have a positive environmental benefit.

Mechanism:

Upgrade electronic database and target assistance – No statutory changes required. 10 VSA Section 6626(b) requires the Secretary to establish a data and information system for use in administering the provisions of this subchapter and part (b)(4) of that section requires the Secretary to “identify additional data and information needs of the program.”

Alternative Plans - Statutory Change and rulemaking

Suggested changes:

10 VSA§ 6624 Definitions – add definition of “resource conservation” such as, Resource Conservation means an action that decreases the use or consumption of a natural asset such as water, energy, or raw materials, or increases the efficiency of the use of the asset, without increasing the risk to the public, including workers and consumers, or the environment and without increasing the amount of waste generated.

Add new section, 10 VSA§ 6633 or 6634 to establish requirements for developing resource conservation plans as an alternative to developing toxics use or hazardous waste reduction plans. The requirements would address applicability, general plan requirements, and required information in each resource conservation plan.

f. Staff and funding necessary to implement and administer any recommended statutory changes or regulatory changes:

Recommendation: increase staffing from ½ FTE to 1 FTE.

Rationale: This modest increase is in consideration of the need for increased organizational coordination, content development, database and process improvements, rulemaking, increase in number of planners and implementation of training program and accounting for efficiencies realized by electronic reporting and fee payment. Modest resources will allow the state to identify facilities that should be planners which will increase compliance and provide additional data to state and public regarding toxics use in Vermont.

Mechanism: Internal ANR staffing and budgeting process

g. Other state programs to reduce the use of toxic and hazardous waste, including the staff and funding required to implement the programs.

Recommendation: The Toxics Use and Hazardous Waste Use Reduction Act program would utilize the review process for evaluation of additions, deletions, or changes to chemicals, lists of chemicals, or thresholds as discussed above in Section B. There would also be continued participation of the Toxics Use and Hazardous Waste Reduction

Program staff in the ICCM technical team process will facilitate coordination between the program and other state programs related to chemicals management and hazardous waste, for example, the Department of Labor's VOSHA Project WorkSAFE.

Rationale: Adopting this process would provide science-based, consistent, transparent, flexible public process for listing and designation of chemicals used in Vermont. State programs related to chemicals management are represented on the ICCM.

Mechanism: No statutory change needed.

Appendices

Appendix A

Executive Order No. 13-17

STATE OF VERMONT
EXECUTIVE DEPARTMENT
EXECUTIVE ORDER NO. 13-17

[Interagency Committee on Chemical Management]

WHEREAS, Vermont citizens may be exposed to harmful chemicals in drinking water, food supplies, outdoor and indoor air, and in consumer products; and

WHEREAS, the State does not have sufficient information—use, volume, location and toxicity—about chemicals present in the State; and

WHEREAS, sufficient information about chemicals present in the State is critical to the State's ability to effectively respond to emergencies and threats to human health posed by harmful chemicals; ensure the safety of first responders; prioritize limited resources to address those chemicals that pose the greatest risk to Vermonters; assist Vermont businesses with compliance with federal and State laws related to chemical reporting and management requirements; and provide information to citizens about chemical use in the State; and

WHEREAS, Act 154 of 2016 directed the Agency of Natural Resources to convene a working group to provide recommendations to the General Assembly to close regulatory gaps related to chemicals of emerging concern like perfluorooctanoic acid (PFOA), increase the State's ability to prevent citizens from exposure to harmful chemicals, and increase public access to information about chemicals in their community; and

WHEREAS, the Act 154 report to the General Assembly recommended, among other things, the establishment of an interagency committee to improve coordination and collaboration among agencies charged with oversight of chemical regulation; the creation of a central or unified electronic reporting system to assist businesses with compliance and provide state agencies and the public access to information about chemicals; the amendment of existing recordkeeping and reporting requirements to ensure state agencies have complete chemical inventory information; and the amendment of the Toxic Use Reduction and Hazardous Waste Reduction Act to strengthen planning requirements; and

WHEREAS, in order to better protect Vermonters from exposure to unsafe chemicals in drinking water and the environment and assist businesses with compliance with federal and State laws related to chemical reporting and management requirements, there is a need to (1) ensure coordination and collaboration among State agencies charged with oversight of chemical regulation; (2) create a central or unified electronic reporting system for businesses that use, manufacture, distribute, and release chemicals; and (3) ensure existing State laws and regulations provide state agencies with sufficient chemical inventory information.

NOW THEREFORE, BE IT RESOLVED, that I, Philip B. Scott, by virtue of the authority vested in me as Governor, do hereby create the Interagency Committee on Chemical Management (Committee), as follows:

I. Composition

The Committee shall consist of the following members:

- A. the Secretary of the Agency of Natural Resources or designee;
- B. the Secretary of the Agency of Agriculture, Food and Markets or designee;
- C. the Secretary of the Agency of Commerce and Community Development or designee;
- D. the Commissioner of the Department of Health or designee;
- E. the Commissioner of the Department of Labor or designee;
- F. the Commissioner of the Department of Public Safety or designee; and
- G. the Secretary of the Agency of Digital Services or designee.

II. Chair of Committee and Committee Support

The Chair of the Committee shall be the Secretary of the Agency of Natural Resources.

The Committee shall have the administrative, technical, and legal assistance of the Agency of Natural Resources. The Committee shall have technical assistance from the Agency of Agriculture, Food and Markets; the Department of Health; the Department of Public Safety; and the Department of Labor.

III. Committee Charge and Process

The Committee shall make initial recommendations to the Governor to improve and strengthen existing recordkeeping and reporting processes and regulatory requirements. The Committee shall (1) evaluate chemical inventories in the State on an annual basis; (2) identify potential risks to human health and the environment from regulated and unregulated chemicals in the State; and (3) make recommendations to the Governor to address these risks. The Committee shall meet at least monthly until July 1, 2018 and at least semiannually thereafter.

- A. On or before July 1, 2018, the Committee shall make initial recommendations to the Governor, after consultation with a citizen advisory panel, as to how the State should establish a centralized or unified electronic reporting system, amend existing recordkeeping and reporting requirements to ensure sufficient chemical inventory reporting, and strengthen the Toxic Use Reduction and Hazardous Waste Reduction Act. The Committee shall:
- (1) Convene a citizen advisory panel to provide input and expertise to the Committee. The citizen advisory panel shall consist of persons available to the Committee on an as-needed basis to provide the following expertise:
 - One individual with expertise in toxicology;
 - One individual with expertise in environmental health;
 - One individual with expertise in maternal and child health;
 - One individual with expertise in industrial hygiene or occupational health;
 - One individual with expertise in human health and environmental risk assessment;
 - One individual with expertise in manufacturing products, located in Vermont and subject to Vermont recordkeeping and reporting requirements;
 - One individual with expertise in retail sales, located in Vermont;
 - One individual associated with a small business, located in Vermont and subject to Vermont recordkeeping and reporting requirements;
 - One individual associated with an academic institution with expertise in chemical management or chemical policy;
 - One individual with expertise in environmental law;
 - One individual with expertise in public policy, with a focus on chemical policy; and
 - One individual with expertise in development and administration of information reporting technology or databases.
 - (2) Recommend how the State should establish a centralized or unified electronic reporting system to facilitate compliance by businesses and other entities with chemical reporting and other associated regulatory requirements in the State. The recommendation shall:
 - a. identify a State agency or department to establish and administer the reporting system;
 - b. estimate the staff and funding necessary to establish and administer the reporting system;

- c. propose how businesses and the public can access information submitted to or maintained as part of the reporting system(s), including whether public access to certain information or categories of information should be limited due to applicable statutory requirements, regulatory requirements, trade secret protection, or other considerations;
 - d. propose how information maintained as part of the reporting system can be accessed, including whether the information should be searchable by: chemical name; common name; brand name; product model; Global Product Classification (GPC) product brick description; standard industrial classification; chemical facility; geographic area; zip code; address; other criteria; or a combination thereof;
 - e. propose a method for displaying information or filtering or refining search results so that information maintained on the reporting system can be easily accessed; and
 - f. estimate a time line for establishment of the reporting system.
- (3) Recommend any necessary statutory amendments or regulatory changes to existing State recordkeeping and reporting requirements for chemicals, hazardous materials, and hazardous wastes that are required to facilitate assessment of risks to human health and the environment posed by chemical use in the State. The recommendations shall consider:
- a. the thresholds or amounts of chemicals used, manufactured, or distributed, and hazardous materials and hazardous wastes generated or managed, in the State that require recordkeeping and reporting;
 - b. the persons or entities using, manufacturing, or distributing chemicals and generating or managing hazardous materials and hazardous wastes that are subject to recordkeeping and reporting requirements; and
 - c. any changes required to streamline and modernize existing recordkeeping and reporting requirements to facilitate compliance by business and other entities.
- (4) Recommend any necessary statutory amendments or regulatory changes to the Toxic Use Reduction and Hazardous Waste Reduction Act under 10 V.S.A. Chapter 159, Subchapter 2. The recommendations shall consider:
- a. a list of chemicals or materials subject to the reporting and planning requirements;
 - b. the thresholds or amounts of chemicals used or hazardous waste generated by a person that require reporting and planning;

- c. the persons or entities using chemicals or generating hazardous waste that are subject to reporting and planning;
- d. proposed revisions to the toxic chemical or hazardous waste reduction planning requirements, including conditions or criteria that qualify a person to complete a plan;
- e. any changes to streamline and modernize the program to improve its effectiveness;
- f. estimate the staff and funding necessary to implement and administer any recommended statutory changes or regulatory changes; and
- g. other state programs to reduce the use of toxic and hazardous waste, including the staff and funding required to implement the programs.

(5) Draft any necessary legislation to implement the Committee's recommendations under sections (2), (3), and (4) above.

B. The Committee shall issue a report and make recommendations to the Governor as to any necessary legislative or regulatory actions to reduce risks to Vermonters from unsafe chemicals on December 15, 2018 and biennially thereafter. The report shall include:

- (1) a summary of chemical use in the State based on reported chemical inventories;
- (2) a summary of identified risks to human health and the environment from reported chemical inventories;
- (3) a summary of any change under federal statute or rule affecting the regulation of chemicals in the State; and
- (4) recommended legislative or regulatory action to reduce risks to human health and the environment from regulated and unregulated chemicals of emerging concern.

IV. Authority of Agencies

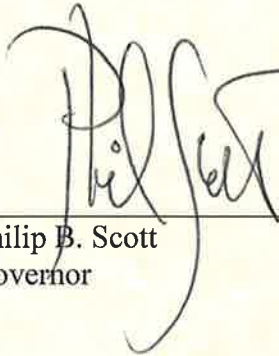
This Executive Order shall not limit the independent authority of a State agency to promulgate regulations related to the reporting, use, distribution, manufacture, or release of chemicals or take other actions under existing State or applicable federal law.

V. Effective Date

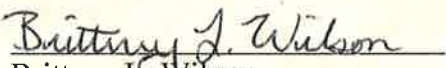
This Executive Order shall take effect upon signing.



WITNESS my name hereunto subscribed and the Great Seal of the State of Vermont hereunto affixed at Montpelier this 7th day of August, 2017.


Philip B. Scott
Governor

By the Governor:


Brittney L. Wilson
Secretary of Civil and Military Affairs

Executive Order No. 13-17

Appendix B

Acknowledgements and List of ICCM and CAP Members

Acknowledgements and List of ICCM and CAP Members

The Agency of Natural Resources would like to thank all the members of the ICCM and CAP for their participation, time, and contributions to this initiative.

ICCM Members:

Tracy Dolan, Department of Health
Carey Giguere, Agency of Agriculture, Food and Markets
Chris Herrick, Department of Public Safety
Scott Meyer, Department of Labor
Casey Mock, Agency of Commerce and Community Development
Peter Telep, Agency of Digital Services
Peter Walke, Agency of Natural Resources

Citizen Advisory Panel:

Ian Balcom, Lyndon State College
Rick Bibens, Bibens Ace Hardware
Terese Churchill, EverGreen Environmental Health & Safety
Wolfgang Dostmann, University of Vermont
Jon Groveman, Vermont Natural Resources Council
Deborah Hirtz, University of Vermont
Ruma Kohli, Global Foundries
Bindu Panikkar, University of Vermont
Barb Patterson, Stone Environmental
Adam Rainville, Maple Landmark
Ken Rumelt, Vermont Law School
Jessica Wignall, ICF

The ICCM wishes to thank the following individuals for contributing to the work of the ICCM and the content of this report:

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Karen Clark, Department of Health
Todd Cosgrove, Department of Public Safety
Sarah Vose, Department of Health
Vernon Nelson, Department of Health
John Hunt, Agency of Digital Services
Justin Kenney, Department of Finance and Management
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Mary Borg, Agency of Natural Resources
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Chuck Schwer, Agency of Natural Resources
Eamon Twohig, Agency of Natural Resources
John Wakefield, Agency of Natural Resources
Tami Wuestenberg, Agency of Natural Resources
John Zaikowski, Agency of Natural Resources

**The ICCM wishes to thank the following individuals for attending meetings,
participating in discussions, and submitting comments:**

Alison Crowley DeMag, American Chemistry Council
Johanna de Graffenreid, Vermont Public Interest Research Group
William Driscoll, Associated Industries of Vermont
Mitch Krauss, Burton Snowboards
Matt McMahan, MMRVT
Nat Shambaugh, Interested Citizen
Erin Sigrist, VTRGA
Martin Wolf, Seventh Generation
John Brabant, Vermonters for a Clean Environment

Appendix C

ICCM Master Matrix

Link to ICCM Master Matrix: <http://anr.vermont.gov/about/special-topics/chemical-management-committee>

Appendix D

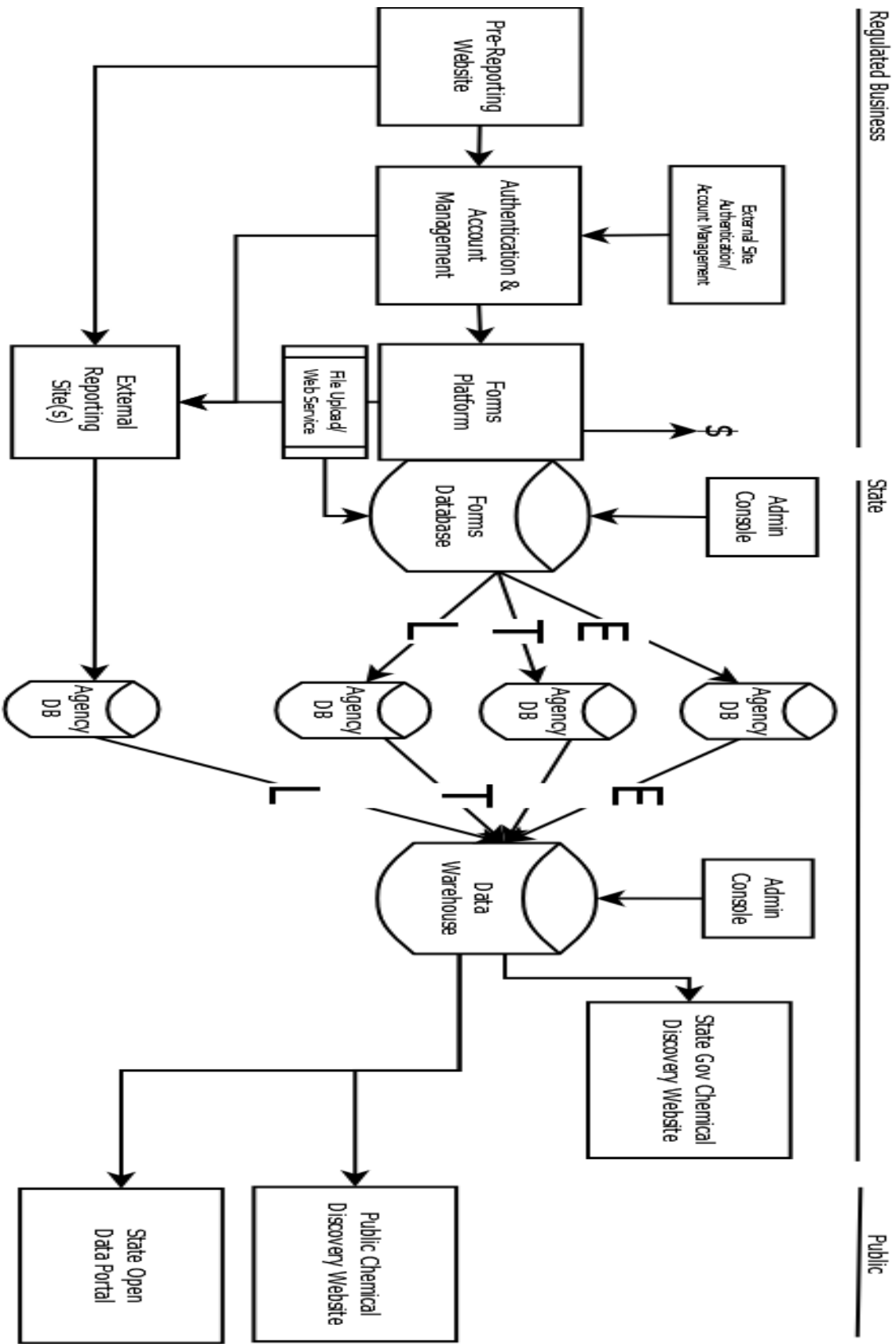
Centralized Electronic Reporting System and Inventory Implementation Plan

Lean Project Implementation Plan

Phase	Task #	Task Description	Due Date	Owner	Participants	% Complete	Notes
1	1	Analyze customer & activity overlap among programs in scope	3/16/2018	Chuck Schwer			
1	2	Contact EPA about Tier II data/software requirements	2/23/2018	ADS- PJ Telep			
1	3	Analyze data fields across systems in scope to identify similar and dissimilar data including sensitive data	3/30/2018	ADS- PJ Telep			
1	4	Analyze each data set to identify ones for integration	3/16/2018	Chuck Schwer			
1	5	Analyze program forms to identify common elements	3/16/2018	Chuck Schwer			
1	6	List functional requirements of a online reporting system	3/16/2018	Chuck Schwer			
1	7	Scope high level data architecture of online reporting system	4/13/2018	ADS			
1	8	Determine connections to external systems (state or Federal)	4/13/2018	ADS			
1	9	Determine back-end system integrations	4/13/2018	ADS			
1	10	Rough mock-up of interface(s)	5/1/2018	ADS			
1	11	Develop pre-reporting decision tree & interface draft	5/1/2018	Lynn Metcalf			
1	12	Analyze historical data migration requirements	6/1/2018	ADS			
1	13	Seek input from stakeholders on proposed solution	6/1/2018	ICCM-Jen Duggan			
1	14	Determine who builds centralize online reporting system	6/1/2018	ADS CIO			
1	15	Determine support model	6/1/2018	ADS CIO			
1	16	Identify system host Agency	6/1/2018	ADS CIO			
1	17	Determine non-IT state program project staff and time commitment (toward costs estimate)	6/1/2018	ADS PM			
1	18	Estimate effort (hours) to create new system	6/1/2018	ADS			
1	19	Determine if there are statutory or regulatory changes necessary to support new system	6/1/2018	Jen Duggan			
1	20	Determine annual M&O costs of system	6/15/2018	ADS			
1	21	Determine system governance	6/15/2018	ICCM			
1	22	Determine state staff user roles	6/15/2018	ICCM			
2	23	Author report	7/1/2018	ICCM			
3	24	Garner Legislative and leadership approval and resources to commence project	?				
4	25	Initiate IT project process with ADS/BGS - 1 year	? + 1 year				
5	26	Build and deploy system - 3 year time estimate	? + 1 year + 3 years				

Appendix E

Chemical Reporting System Architecture Diagram



Appendix F

TURA Subgroup Recommendation Matrix

**Recommendations for Changes to Toxic Use Reduction and Hazardous Waste Reduction Act
under 10 V.S.A. Chapter 159, Subchapter 2**

EO Provision (III)(A)(4)	Current Requirement	Recommendation	Rationale	Mechanism
a. List of chemicals	<ul style="list-style-type: none"> US EPA Toxics Release Inventory List and Hazardous Wastes identified in VHWMR 	<ul style="list-style-type: none"> US EPA Toxics Release Inventory List, VHWMR Hazardous Wastes, Chemicals of High Concern to Children (18 VSA §1773), and additions through either rulemaking or newly established process possibly modeled on the process used under the Massachusetts Toxics Use Reduction Act to add or remove chemicals regulated under that Act. 	<ul style="list-style-type: none"> Expanding list of chemicals of concern will result in their reduction through planning, leading to increased environmental/occupational and public health protection. 	<ul style="list-style-type: none"> Statutory Change; Either rulemaking or newly established process to add chemicals in the future
b. Threshold amounts	<ul style="list-style-type: none"> Thresholds set in 10 V.S.A. § 6624(4) 	<ul style="list-style-type: none"> 10 V.S.A. § 6624 and Subset of chemicals with lower thresholds (i.e., Persistent Bioaccumulative Toxic chemicals – identified in Toxics Release Inventory chemical list with lower thresholds) 	<ul style="list-style-type: none"> Facilities that use Persistent, Bioaccumulative Toxic chemicals and other chemicals that pose higher risks should be required to plan when these chemicals are present at lower thresholds due to an increased potential for these chemicals to harm public health and the environment. 	<ul style="list-style-type: none"> Statutory change
c. Persons/entities reporting	<ul style="list-style-type: none"> Set in 10 V.S.A. § 6624: Large toxic substance users, 10 FTEs or more, Listed SIC codes - or- Large & Small-quantity generators of HW under VHWMR 	<ul style="list-style-type: none"> Existing thresholds and waste generator status but use NAICS codes instead of SIC codes Amend to 10 FTEs onsite or 500 corporate total 	<ul style="list-style-type: none"> NAICs – more commonly used today; more descriptive of facility type. Adding corporate employee number would bring in additional planners that are likely to have resources because they are part of a larger corporate entity but that have 9 or less employees onsite. (VDOL data indicates ~3% more entities would be required to plan) 	<ul style="list-style-type: none"> Statutory change
d. Reduction planning requirements, conditions and criteria	<ul style="list-style-type: none"> Annual performance reports must be certified by responsible corporate official or P.E. - 10 V.S.A. § 6630. No certification requirement for plans under 10 V.S.A. § 6629 	<ul style="list-style-type: none"> Specify that persons who certify plan must have minimum required training on hazardous waste and toxics use reduction techniques (8 hours per 3-year planning cycle). 	<ul style="list-style-type: none"> Required training and additional resources and educational opportunities will help planners to achieve stated policy goals (reduction of toxics use or hazardous waste generation) through development of more meaningful plans for reducing toxics and waste. 	<ul style="list-style-type: none"> Statutory change, followed by rulemaking to further describe training program
e. Streamline; modernize program	<ul style="list-style-type: none"> Paper/PDF submissions, Access database, One on one/limited assistance 	<ul style="list-style-type: none"> Upgrade database/electronic reporting system improvements (in the short-term) that could be integrated into ICCM uniform system) Automatic fee system Offer targeted technical assistance and training Update planners on statutory and regulatory changes/ FAQs Modify plan and report substantive requirements (what is required to be reported) Allow for alternative resource/environmental impact planning 	<ul style="list-style-type: none"> <u>Reporting system</u> – Facilitate easier reporting and fee payment; allow for compilation of, access to, review and analysis of data; facilitate coordination among agencies and programs. <u>Targeted assistance</u> – Improve compliance and reduction of chemicals used (see d. above); and will provide State with real-time information on use of newly-listed chemicals. <u>Alternate planning</u> – Allow planners that have met reduction goals based on current feasibility, technology, etc., (where additional planning may not lead to further reductions) to implement programs focused on efficiencies re: other processes (e.g., greenhouse gas reduction, water use reduction) that they may have more of an incentive to implement and that will also have a positive environmental benefit. (Alternative planners would still report toxics use/waste generation over thresholds, so the State could still track use/generation). 	<ul style="list-style-type: none"> No statutory changes for trainings and assistance (implement 6626); maybe regulatory changes. No statutory change required to improve database and reporting system. Changes to allow alternative plans will require statutory change and rulemaking
f. Staffing/funding	<ul style="list-style-type: none"> ½ FTE 	<ul style="list-style-type: none"> 1 FTE 	<ul style="list-style-type: none"> 1 FTE is based on need for organizational coordination, content development, expanded reporting, increase in number of Planners, and implementation of required training. There would be efficiencies from electronic reporting system; and budget increase for staff/labor/materials. Modest resources will allow the State to identify facilities that should be planners – this will increase compliance and provide additional data to State and public re: toxics use in the State. Additional resources would help 	<ul style="list-style-type: none"> Internal ANR staffing and budgeting process

			State to be proactive/monitor what facilities are using what chemicals to be able to respond to emergencies or identify risks based on usage throughout the State (i.e., PFOA/PFOS).	
g. Other state programs		<ul style="list-style-type: none"> • Continue work within ICCM technical team to facilitate coordination between VT TUR program and other state programs related to chemicals management. • Enhance relationship b/w DOL VOSHA/WorksSafe and ANR 	<ul style="list-style-type: none"> • DOL/ANR relationship: Enhanced partnership will maximize resources among agencies and enhance interagency cooperation. 	No statutory changes needed

Appendix G

Comments on draft Report