RCRA Compendium of Next Generation Compliance Examples

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Office of Enforcement and Compliance Assurance
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Introduction

Protecting clean air and water and ensuring our communities are safe from pollution is more complex today than ever. Whether it's pollution that's not apparent to the naked eye or large numbers of small sources that collectively have a big impact on the environment, new challenges require us to innovate and improve. This Compendium shows how EPA and state hazardous waste programs are using modern tools to advance the goals of the Resource Conservation and Recovery Act (RCRA) in rulemaking, permits, enforcement, and other functions. The Compendium can be a resource for all EPA, state, tribal, and local waste programs, both for managers and line staff, in thinking about new ways to achieve those goals.

The Compendium was developed as part of EPA's Next Generation Compliance strategy and is a joint effort of EPA's Office of Enforcement and Compliance Assurance and the Office of Resource Conservation and Recovery. Next Generation Compliance promotes the principle that today's environmental challenges require a modern approach to compliance with the use of new tools and approaches while strengthening vigorous enforcement as the backbone of environmental protection. In addition to new tools based on technological advancements, Next Generation Compliance seeks to leverage creative thinking about how to better design rules and permits to maximize compliance and environmental results.[1]

The benefits of using these strategies go beyond improving compliance to enhancing facility operations and overall environmental performance, raising public awareness and understanding of environmental impacts, and strengthening the role of communities as partners in the system of environmental protection. For more information about Next Generation Compliance in general, see https://www.epa.gov/compliance/next-generation-compliance.

This Compendium illustrates how Next Generation Compliance thinking and tools are being used to enhance compliance and reduce air pollution under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The examples are gathered from all aspects of federal and state waste programs, including under RCRA Subtitle D (solid waste). The examples are presented together because of their potential for wide application. In addition, text boxes throughout the Compendium highlight examples from other environmental programs that might be adapted for use by RCRA programs.

The inclusion of a Next Generation Compliance example in this Compendium does not create a requirement for federal, state or tribal regulators to use that tool. Rather, these examples represent ideas that regions, states, and tribes may use or build on as appropriate and practical, with input from affected facilities and communities, and where legal authority exists for doing so. The examples below are intended to stimulate creative thinking on how such approaches might be used in a variety of contexts.

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[1] For a discussion of theoretical and empirical literature demonstrating the effectiveness and limits of traditional individual-facility monitoring and enforcement in promoting compliance and deterrence, see, e.g., *Monitoring, Enforcement, & Environmental Compliance: Understanding Specific & General Deterrence*, State of the Science White Paper prepared for EPA (Oct. 2007); and *Compliance Literature Search Results – Citations to Over Two Hundred Compliance-Related Books and Articles From 1999 to 2007* (April 2007), *both available at* https://archive.epa.gov/compliance/resources/reports/compliance/research/web/html/index.html.

Leveraging Other State and EPA Efforts

Consistent with Next Generation Compliance, EPA and states are engaged in a wide range of initiatives to bring environmental protection into alignment with the public expectation for on-demand information and highly efficient transactions among all stakeholders, both in the public and private sectors. For example:

- EPA and states are working together through E-Enterprise for the Environment[2] to assess and reformulate business processes, transition from paper-based to electronic reporting, and use shared services to provide for interactive transactions between regulators and with the business community. These efforts will support and build the foundation for more widespread use of Next Generation Compliance tools, such as Smart Tools for Inspectors and electronic permitting.
- As stated in EPA's Draft EJ 2020 Action Agenda,[3] it is an objective of the Agency to consider environmental justice concerns in all appropriate EPA permitting activities, and collaborate with state, tribal and local co-regulators, communities and permit applicants to identify and share tools, best practices, and approaches. Next Generation Compliance advanced monitoring, reporting and transparency tools can be used as part of appropriate permit terms and conditions to address environmental justice concerns to the extent supported by the relevant information and law.
- Continued progress in the arenas of Next Generation Compliance and E-Enterprise will also support and help implement many of the common core principles and best practices advanced by the State Program Health and Integrity effort, which seeks to improve implementation of national environmental programs through closer consultation and collaboration between states and EPA.

Format and Use of Examples Included in this Compendium

The RCRA examples included in this Compendium are grouped by the type of Next Generation Compliance tool they reflect:

Each section provides an introduction to one of the Next Generation Compliance tools above; it then explains how that tool can be used to help advance the goals of the RCRA program; finally, it lists examples from the RCRA program which illustrate use of that Next Generation Compliance tool. A number of the examples included in this Compendium are described in more detail in the attached

[2] For more information, see https://www.epa.gov/e-enterprise.

[3] Available at https://www.epa.gov/environmentaljustice/ej-2020-action-agenda.

Appendix with excerpts of the relevant rule, permit, or settlement language as well as links to the complete documents. Text boxes throughout the Compendium highlight examples from other environmental programs that might be adapted for use by RCRA programs.

The examples described in this Compendium are intended to initiate a dialogue between states and EPA on best practices and generate more solutions as partners in environmental protection. Creating a culture of continuous learning by sharing experiences at joint EPA/state association meetings and other venues will ensure this document serves as a "living resource" for achieving better environmental results. If you have additional examples or updates on the implementation of any of the examples cited in this Compendium, please contact Chrisna Baptista at baptista.chrisna@epa.gov.

Designing More Effective Rules and Permits

What are the Benefits of Effective Rule and Permit Writing?

A basic, important foundation for effective regulatory programs is clear communication and, to the extent possible, avoiding unnecessarily complex requirements. [4] Clarity and simplicity reduce the risk of noncompliance resulting from simple misunderstanding. Regulated entities frequently cite rule complexity as among their key compliance challenges.[5]

The applicability of a requirement – who is subject to it – is one possible source of complexity and confusion. If the rule or permit is not clear who a requirement applies to and what the regulated entity is required to do, the intended effect may not be achieved. A complex document such as a permit may have many requirements within it. Providing the regulated party a simplified "roadmap" may ensure that requirements are not overlooked or misunderstood. In addition, periodic self-monitoring, self-certification and reporting provisions require regulated entities to accurately determine their compliance status and report the results to regulators or the public. Such provisions promote compliance, deter violations and assist regulators and the public to monitor compliance.

As discussed in EPA's *Best Practices to Enhance Coordination in the RCRA Program*,[6] when permits are drafted, renewed or modified, an effort should be made to ensure that permits are clear, unambiguous and enforceable by:

- Not paraphrasing regulations but repeating them verbatim or incorporating them by reference into the permit;
- Using the word "must" wherever appropriate;
- Providing clarification of terms, where needed, in the definitions section;

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[4] See, e.g., Hindin, D. and Silberman, J., *Designing More Effective Rules and Permits*, George Washington Journal of Energy & Environmental Law (Spring 2016), *available at* https://gwujeel.files.wordpress.com/2016/05/completed_jeel_vol7_issue2_designingmoreeffectiverulesandpermits.pdf.

[5] For example, in a study of large quantity hazardous waste generators and management facilities in the U.S., the researcher found evidence that the facilities subject to more complex requirements were more likely to violate. *See* Sarah Stafford, *Rational or Confused Polluters? Evidence from Hazardous Waste Compliance Contributions*, 5 ECON. ANALYSIS & POL'Y 1 (2006).

[6] *Available at* https://www.epa.gov/enforcement/guidance-best-practices-enhance-coordination-rcra-program.

- Establishing clear deadlines for each required action or document submission; and,
- Preserving EPA's right to enforce terms it submits during the comment period for a state-issued draft permit pursuant to 40 C.F.R. § 271.19(e)(2) (EPA Review of State Permits).

Other tools, such as self-monitoring, certification, and reporting provisions require regulated entities—directly or through their agents or contractors—to accurately determine their compliance status and report the results to regulators and/or the public. Self-certifications are more likely to be effective when they are specific, based on objective standards, transparent, and readily verifiable.

More Effective Rule and Permit Writing Examples

The following RCRA examples are grouped to show principles of effective rule and permit design, such as enabling regulated entities to easily identify who is regulated and applicable requirements, as well as regulatory examples of self-monitoring and self-certifications.

Examples of Providing for Easy Identification of Who Is Regulated and the Applicable Requirements

- NY's executive summary of permit requirements: New York State Department of Environmental Conservation (NYSDEC)'s executive summaries for permits provides treatment, storage, and disposal (TSD) facilities with permit requirements at a high level that can be used by senior executives in the company or by the State. All key operational requirements, including reporting requirements and associated due dates, are captured in one place, in order to help new plant personnel quickly understand the overall requirements.

- NH's required, in-person, annual personnel training: New Hampshire Department of Environmental Services (DES) established a Hazardous Waste Coordinator (HWC) certification program requiring each hazardous waste generator that generates more than 220 pounds of hazardous waste in one month to have on staff at the facility where the hazardous waste is generated an HWC certified by DES; the intent is to ensure that no business will be out of compliance due to a lack of knowledge of the rules. Initial certification provides the HWC with the regulatory "nuts and bolts," while later certification courses are designed to encourage generators to move "beyond compliance" by developing resource conservation, waste minimization, and recycling programs at their facilities. For more information, see http://des.nh.gov/organization/divisions/waste/hwcb/hwcs/hwccp/index.htm. See Appendix for more details.

Examples of Rules Requiring Self-Monitoring and Self-Certification

- CO rule with self-certification checklist: Colorado Department of Public Health and Environment (DPHE) implemented a regulatorily-required self-certification program for Small Quantity Generators (SQGs) of hazardous waste. Each year, self-certification packets are sent to all SQG facilities with a comprehensive compliance checklist that covers all standard hazardous waste regulatory requirements for SQGs. In addition, an instruction booklet is included that gives item-by-item guidance on how each checklist question should be evaluated and completed by facility staff. Once complete, the checklist must be returned to DPHE. DPHE measured significant increases in compliance as a result of this self-certification program; facilities in compliance with all regulatory requirements increased from 31% in 2008 to 84% by 2011. The State believes that

this is due to 1) annual re-familiarization of, and re-certification by, facility staff with and to the regulatory requirements; 2) clear and easy-to-understand explanations and 3) a regulatory requirement that each facility must complete and submit the self-certification checklist. For more information, see https://www.colorado.gov/pacific/sites/default/files/HM_hw-sqg-self-certification-report_0.pdf. See Appendix for more details.

- NH rule with self-certification checklist: New Hampshire's SQG Self-Certification Program requires SQGs to review their hazardous waste management procedures, conduct a self-inspection of their facility, and certify compliance to DES every three years. SQGs that are not in compliance must develop a Corrective Action Plan specifying how they plan to come into compliance within 90 days from the date the declaration is due. For more information, see http://des.nh.gov/organization/divisions/waste/hwcb/hwcs/sqgcp/index.htm. See Appendix for more details.

- EPA rule with certification of compliance and website posting: EPA's 2015 Rule for Disposal of Coal Combustion Residuals (CCR) from Electric Utilities requires each owner or operator of a CCR unit to obtain certifications by qualified individuals verifying that the technical provisions of the rule have been properly applied and met and to notify State Directors of numerous actions, including that certified demonstrations have been completed. Further, the owner or operator must document their compliance with the rule's technical requirements and post those documents on a publicly available website in a timely and transparent manner. This method of combining self-certification with transparency is intended to facilitate citizen and state oversight and overall enforcement of the rule's requirements. For more information, see https://www.epa.gov/coalash/coal-ash-rule.

Transparency in the RCRA Program

What are the Benefits of Transparency?

Transparency means making the performance of regulators and regulated parties more visible to the public – for example, requiring regulated entities to post information on websites. Making information public in this way can create an added incentive for regulated parties to avoid violations and to reduce

pollution even below legal limits.[7] It can also improve the accountability and performance of regulators by making their decisions more visible and accessible, and better access to information can make regulators more efficient. Transparency also serves to increase public awareness, strengthening the role of the public in identifying concerns and potential violations.[8]

Transparency is not a new idea, but new technologies that have enhanced the rapid collection and dissemination of large amounts of information have made it more effective than ever before.[9] If monitoring data can be uploaded and reported quickly, and publicized on the web, what was once available only to facilities and regulators can be communicated to a much larger audience. Where there are opportunities to communicate information to the affected public, it is important to convey that information clearly and with the appropriate context.

Transparency Examples

The following examples of RCRA rules, permits and settlements are grouped to show the types of transparency provisions implemented, such as for regulated entities to post compliance related information online. There are also examples of EPA- or state-run websites designed to provide information about waste programs to the public.

Requirements to Post Relevant Information to the Web

- EPA rule requiring compliance information to be posted on the web: The 2015 Coal Combustion Residue Rule requires owners or operators of CCR units to record compliance with the rule's requirements in the facility's operating record. In addition, the facility must notify the state of decisions and maintain a publicly available website of compliance information, such as annual groundwater monitoring results, corrective action reports, fugitive dust control plans and

➢Innovations from Other Environmental Programs:

NJ's public notice of cleanup activities: The New Jersey Department of Environmental Protection (NJDEP) requires companies to perform public notification and outreach beginning at the onset of the remedial investigation phase. The State provides two options for public notification: posting a notification sign at the site or periodic notification letters to owners and tenants within 200 feet of the site boundary that summarize site conditions. These letters must describe the planned remediation, including material for nearby non-English speaking populations. Notifications must include contact information for the company, the name and telephone number for the licensed site remediation professional of record for the site, and the NJDEP Preferred Identification (PI) number. To confirm compliance with this requirement, the company must submit a photograph of the notification sign to the municipal clerk of each municipality in which the site is located, as well as to the county health department and the local health agency. See http://www.nj.gov/dep/srp/guidance/public_notification/ & http://www.nj.gov/dep/srp/guidance/public_notification/signsguide.htm.

[7] See, e.g., Laplante, B., Lanoie, P. & Foulon, J., Incentives for Pollution Control - Regulation and Public Disclosure, No. 2291, Policy Research Working Paper Series, The World Bank (2000), *available at* http://ideas.repec.org/p/wbk/wbrwps/2291.html.

[8] 5 See, e.g., Fung, A. & O'Rourken, D., Reinventing Environmental Regulation from the Grassroots Up: Explaining and Expanding the Success of the Toxics Release Inventory, Env. Man., Vol. 25(2), pp. 115–127 (2000), *available at* http://nature.berkeley.edu/orourke/PDF/tri.pdf.

[9] See, e.g., U.S. EPA, Resource Conservation and Recovery Act Public Participation Manual (2016), *available at* https://www.epa.gov/hwpermitting/resource-conservation-and-recovery-act-rcra-public-participation-manual.

closure completion notifications. These requirements provide the public with information about CCR units in their state. It also provides citizens and states with the information they need to fully engage in the rule's implementation. See Appendix for more details.

- Settlement requiring website posting: Under a 2016 consent agreement/final order (CA/FO), EPA Region 7 found that A.T. Still University (ATSU) in Kirksville, Missouri had failed to perform waste determinations on multiple waste streams and failed to properly store and label hazardous waste on its main campus. Under the CA/FO, the University must post on its website memorandums of agreement (MOAs) with local authorities for one year. For the MOA postings, see https://www.atsu.edu/search/results/0f8186a0baac9c2b1fe8a7f71e298cb8. See Appendix for more details.

- Settlement allowing for direct EPA web posting: In response to a fuel release from the Red Hill Bulk Fuel Storage facility near Honolulu, Hawaii, EPA and the Hawaii Department of Health (HDOH) negotiated a 2015 administrative order on consent (AOC) requiring respondents to address fuel releases and implement infrastructure improvements. Under the AOC, all information submitted to EPA and HDOH that is not claimed confidential may be made available to the public without further notice to respondents. This has allowed EPA to create a series of webpages that provide information and access to documents on all aspects of implementing this AOC from background on the site to monitoring reports and workplans. See https://www.epa.gov/red-hill. This site also contains links to similar sites maintained by HDOH and the Navy. Members of the public can sign up to receive email notices and other information related to the settlement at https://www.epa.gov/red-hill/forms/red-hill-administrative-order-consent-email-list. See Appendix for details.

➢Innovations from Other Environmental Programs:

OH's "Reverse 911" emergency alert system: Ohio EPA uses a "reverse 911" system to allow quick and easy communication with public water systems. The system allows the State to initiate a group call to provide emergency alerts or compliance reminders to three audiences: public water systems; certified operators; and certified labs. The notification system can be used in the event of an emergency to provide immediate instructions on how drinking water systems can best protect public health during a weather event or natural disaster and to send reminders about upcoming deadlines, consumer confidence reports, license renewals, enforcement order deadlines, and other pending requirements. See http://www.epa.ohio.gov/portals/47/nr/2011/june/Reverse911.pdf.

Requirement to Make Relevant Information Accessible to the Public

- Signage at solid waste facilities: CT DEEP regulations require permitted solid waste facilities to prominently post and maintain a sign at the facility entrance that includes the facility's name and the DEEP permit number, issuance date, and expiration date. In addition, DEEP permits specify that the sign shall also include a phone number that provides the general public the ability to register questions or complaints twenty-four (24) hours per day, seven days a week. Permittees are also required to maintain a log of all calls received and how such calls were addressed or resolved, and report this information to DEEP on a quarterly basis. This requirement allows the public to directly contact a facility where issues of concern arise such as chemical or other odors, releases from the site be it erosion, dust, litter, stormwater or vehicle drag out, aesthetics or concern for potential environmental impacts. See Appendix for more details.

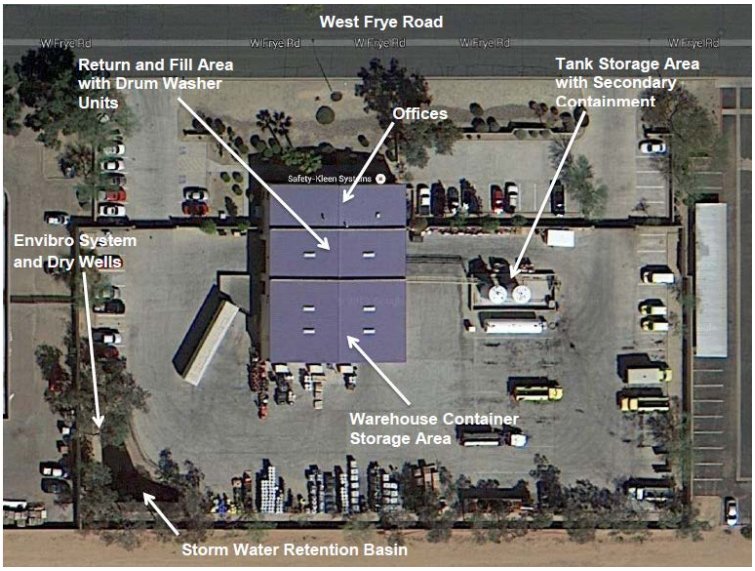
RCRA Permit and Enforcement Data on State Websites

- MO's online notice of permit actions: Missouri Department of Natural Resources posts RCRA notices online (in addition to publishing as required by regulations such as 40 CFR 270.42(i)) in order to reach a broader audience, such as the once a year notice of approved RCRA permit modifications required to be published in a statewide newspaper. See http://dnr.mo.gov/env/hwp/permits/notices.htm.

- AL's online permits and enforcement information: Alabama Department of Environmental Management's eFile system provides the public access to over 1 million electronic documents such as permits, inspection reports, complaints, compliance reports, and enforcement actions. See http://app.adem.alabama.gov/eFile/.

- OK's online permit access: Oklahoma Department of Environmental Quality posts all hazardous waste permits online to be viewed or downloaded by the public. This includes permits for hazardous waste landfill disposal sites, facilities that store hazardous wastes, hazardous waste transfer facilities, and certain types of recycling or treatment facilities. See http://www.deq.state.ok.us/lpdnew/hwpermits/HWPermits.htm.

- AZ's online permit access: Arizona DEQ posts TSDF permits online, along with additional information that could be relevant to the public, such as plain English descriptions of the facility, the facility's history, aerial photographs of sites, and maps of the site location and areas of the facility. See https://azdeq.gov/function/permits/index.html.



Example of AZ DEQ's posting of an aerial photo of a RCRA TSDF.

- CT's online enforcement case summaries: Connecticut DEEP maintains an on-line searchable repository of enforcement case summaries that provide a brief description of violations or alleged violations and a summary of compliance steps, civil penalties, and/or supplemental environmental projects included in the enforcement action. The types of enforcement actions included are administrative consent orders, final unilateral orders and final dispositions of civil cases through the Connecticut Attorney General's Office. The public may search by town, date or media/program interest or the public may select multi-media for cases that involve more than one media/program. See http://www.depdata.ct.gov/enforcement/enfform.asp?deepNav=|.

- CA's online permit, cleanup and enforcement information: California Department of Toxic Substances Control (DTSC)'s EnviroStor system provides all existing information on permits and corrective action at hazardous waste facilities, as well as other cleanup projects. EnviroStor allows searches for information on completed facility inspection and enforcement actions in addition to site investigation, site cleanup, permitting, and planned, current, or completed corrective actions under DTSC's oversight. See http://www.envirostor.dtsc.ca.gov/public/mandated_reports.asp.

- CA's online groundwater information: California's State Water Resources Control Board maintains the GeoTracker system, which manages data for sites that impact groundwater, such as sites that require groundwater cleanup and permitted facilities such as operating USTs and land disposal sites. See http://geotracker.waterboards.ca.gov/.

Electronic Reporting in the RCRA Program

What are the Benefits of Electronic Reporting?

Regulated facilities have many obligations to report information to regulators. Increasingly, this is being done electronically. Electronic reporting typically entails use of an electronic "smart" form or web tool that guides the regulated entity through the reporting process (simply emailing reports is not true electronic reporting).

Electronic reporting creates opportunities beyond simply streamlining the transfer of information. Electronic reporting reduces costs associated with paper reporting and provides regulators with more complete and timely data, allowing more effective prioritization of monitoring and enforcement actions. The websites through which reporting is done can provide feedback to reporters (e.g., flagging data that appear to be erroneous), and can also be used to provide compliance information or other assistance.

In 2013, EPA issued a policy statement on electronic reporting providing:

> "We are establishing a new Agency-wide policy on e-reporting that specifies in developing new regulations that we will start with the assumption that reporting will be electronic and not paper based. And we will use shared services to do this to the maximum extent possible. This Policy Statement is one important step forward in the Agency's larger E-Enterprise for the Environment Initiative."[10]

Electronic Reporting Examples

The following examples show EPA and state tools for accepting electronic reporting, as well as examples of rules requiring RCRA-regulated entities to report electronically.

[10] "E-Reporting Policy Statement for EPA Regulations," Memorandum from Deputy Administrator Robert Perciasepe to Assistant Administrators et al., dated September 30, 2013, available at https://www.epa.gov/compliance/policy-statement-e-reporting-epa-regulations.

Rules Providing for Electronic Reporting

- Electronic manifests: in 2014, EPA finalized the Hazardous Waste Electronic Manifest Rule, establishing the legal and policy framework to establish an electronic hazardous waste manifest (e-Manifest) system. Currently, approximately 160,000 entities in at least 45 industries that are involved in shipping, transporting and receiving RCRA hazardous wastes annually use between 4.6 and 5.6 million EPA Uniform Hazardous Waste Manifests to track hazardous waste shipments from the generator to disposal site. This rule will allow use of e-Manifests, with a goal of replacing the paper manifest forms. For more information, see https://www.epa.gov/hwgenerators/hazardous-waste-electronic-manifest-system-e-manifest.

- Hazardous Waste Export-Import: in October 2015, EPA proposed amendments to existing regulations regarding the export and import of hazardous wastes from and into the United States. The proposed rule provides for mandatory electronic reporting to EPA and integration with the Customs and Border Protection automated export system, so that exporters will automatically receive immediate feedback if the consent is not valid and thus prevent non-validated shipments from leaving the country. For more information, see https://www.epa.gov/hwgenerators/proposed-rule-hazardous-waste-export-import-revisions.

- RCRA contingency plans: EPA's proposed Hazardous Waste Generator Improvements Rule includes a request for comment on whether contingency plans should be submitted electronically to emergency responders to enhance their ability to respond safely and effectively to an emergency at a generator's facility and what EPA's role should be in electronic submittals. For more information, see https://www.epa.gov/hwgenerators/proposed-rule-hazardous-waste-generator-improvements.

- CA's electronic reporting: California requires all regulated businesses and local government agencies, called Unified Program Agencies (UPA), to use the Internet to file required information previously filed by paper forms. This includes facility data regarding hazardous material regulatory activities, chemical inventories, underground and aboveground storage tanks, and hazardous waste generation. It also includes data such as inspections and enforcement actions. For more information, see http://www.calepa.ca.gov/CUPA/EReporting/.

> ➢Innovations from Other Environmental Programs:
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> *Example of electronic reporting system that supports federal and state requirements*: The Emergency Planning and Community Right-to-Know Act (EPCRA) requires certain facilities to report general hazard types and locations of hazardous chemicals to state and local officials. EPA developed a software program called "Tier2 Submit" to help facilities prepare and electronically report their chemical inventory reports. The program contains a drop down menu of states, and will automatically load data fields of federal requirements along with any applicable state requirements. See https://www.epa.gov/epcra/tier2-submit-software.

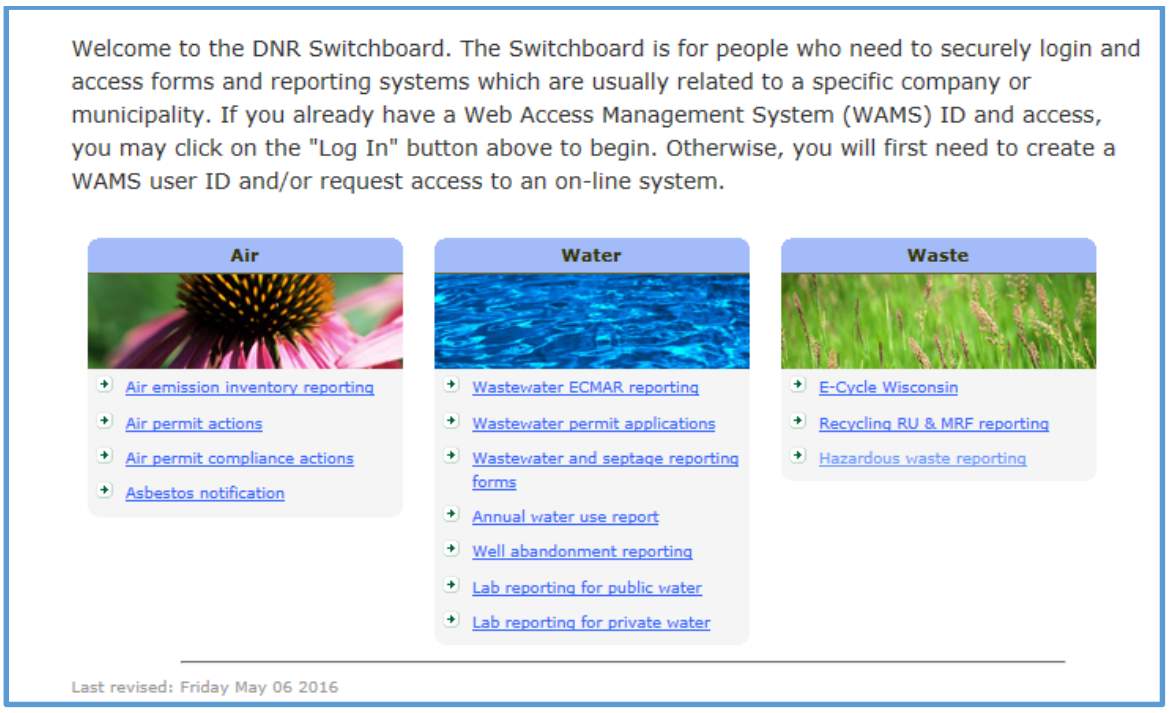
Examples of State Electronic Reporting Tools

- Electronic permitting: As part of E-Enterprise for the Environment, states and EPA are actively studying the use of electronic systems for permitting programs. More widespread use of electronic permitting at the state level offers opportunities for greater clarity and compliance in

all phases of environmental permitting programs. See the report at http://www.exchangenetwork.net/ee/ePermitting_Report_12_31_15.pdf.

- OH's reporting tool for generator, transporter and TSD information: Ohio Environmental Protection Agency's eBusiness Center's Hazardous Waste Report Service, also known as eDRUMS, allows for electronic reporting of information which is captured on Site Identification, Generation and Management, Waste Received from Off-site, Off-site Transporter and Receiving Facility Information, and Process Systems for Treatment, Disposal, or Recycling forms. See http://www.epa.test.ohio.gov/dmwm/Home/HWAnnualReportProgram.aspx.

- WI's reporting tool for annual reports: Wisconsin Department of Natural Resources (DNR)'s Switchboard is a secure e-business portal which allows generators to electronically submit annual hazardous waste reports to the DNR on their regulated waste activities. See the portal at http://dnr.wi.gov/topic/Switchboard/.



Wisconsin's DNR Switchboard

- WA's reporting tool for notifications and annual reports: Washington ECY's TurboWaste.Net application allows facilities that generate, transport, or otherwise manage hazardous waste to file state-required Notifications of Dangerous Waste Activity and Dangerous Waste Annual Reports over the internet. See https://fortress.wa.gov/ecy/turbowaste/Login/Splash.aspx/.

Examples of Electronic Decision Tools

- EPA's solid waste decision tool: the Definition of Solid Waste Decision Tool V2 is an interactive decision support tool designed to follow the process for determining whether a material meets the definition of solid waste (for purposes of being a hazardous waste under 40 CFR 261.1(b)).

The tool simplifies this determination into a step by step process presented, with links to resources such as EPA training modules and EPA interpretations and decisions in the Definition of Solid Waste Compendium. See the tool at https://archive.epa.gov/epawaste/hazard/web/html/tool.html.

- EPA's online waste solvents decision guide: "Solvents in the Workplace – How to Determine If They Are Hazardous Waste," is a user-friendly, mobile device-navigable guidance that walks users through a series of questions and answers that will help a facility determine if it may have generated a hazardous waste solvent. The guidance provides information to assist a facility in recyling or reusing its solvents, which could reduce its waste management costs and the nation's need for virgin materials. See the guide at https://www.epa.gov/hwgenerators/guide-how-determine-if-solvents-workplace-are-hazardous-waste.

- TX's electronic permit application checklist: Texas Commission on Environmental Quality's RCRA Part B Application Administrative and Technical Evaluation Checklist (Electronic Checklist) creates customized checklists for facilities applying for Part B permits based on the characteristics of the facility or operation. The Electronic Checklist asks applicants to provide screening information, then uses that information to create a worksheet that contains a list of items that need to be populated in the Part B application in order for the application to be complete. The Electronic Checklist is intended to provide clarity and ease to RCRA permit applicants and reduce application deficiencies related to incomplete applications, saving time and money for both facilities and the State. For more information, see http://www.tceq.texas.gov/permitting/waste_permits/ihw_permits/ihw.html.

- CT's RCRAHelp! online guidance: Connecticut Department of Energy and Environmental Protection (DEEP)'s RCRAHelp online searchable assistance tool is designed to help stakeholders figure out which hazardous waste requirements apply. It is broken down into several sections that are arranged in a methodical order so that users can begin with the first section and work down the list; or, for information on a specific requirement, the webpage offers easy-to-use links to the sections where help may be needed. See http://www.ct.gov/deep/rcrahelp.

Advanced Monitoring in the RCRA Program

What are the Benefits of Advanced Monitoring?

Advanced monitoring refers to a broad range of sampling and analytic equipment, systems, techniques, practices, and technologies for better detecting and measuring pollution. Advanced monitoring includes 1) monitors that can measure discharges from a particular source and 2) those that monitor pollutants in the ambient environment.

Advanced monitoring technology is generally defined by one or more of these factors:

- Not yet in widespread use in a particular sector or particular regulatory program;
- Monitors pollutants on a real-time or near real-time basis, often without lengthy lag times for laboratory analysis;
- Less expensive, easier to use, or more mobile than technologies currently in widespread use;

- Provides acceptable data quality that is more complete or easier to interpret and can meet a specific need; and/or
- Is an existing technology used in a new way to provide better information on pollutants, pollution sources, or environmental conditions.

Advanced monitoring can provide communities and individuals with real-time information about pollution or releases that affect them.[11] Advanced monitoring technologies have also been used by regulators and communities[12] to better identify and remedy problems before they become violations.[13] For instance, fenceline monitoring can help ensure that acceptable risk levels are not exceeded, particularly when configured in rules to serve as triggers for further monitoring or actions by the facilities. It may be particularly useful at large facilities or industrial sites with multiple facilities where complex gaseous emission mixtures are present and it is difficult to ascertain the source of the emissions.

➢Innovations from Other Environmental Programs:

Underground storage tank (UST) settlements that require real-time electronic leak detection monitoring: In a number of EPA settlements that cover multiple gas stations, facilities have agreed to replace conventional leak detection devices with more technologically-advanced leak detection equipment. Examples include remote monitoring and control of fuel storage and transfer operations; probing sensors connected to a centralized computer console unit with audible and visible alarms; sensors that electronically transmit data to a handheld mobile device; and overfill alarms with automatic shutoff devices.

Examples of Advanced Monitoring

The advanced monitoring examples below include such technologies as radiation detection monitors, continuous air monitoring for waste incineration units, using old technologies such as photographs in order to record compliance, and centralized remote monitoring for leaks at UST facilities.

Examples of Advanced Monitoring Used at RCRA Facilities/Sites

- EPA rule requiring continuous emissions monitoring: The Clean Air Act's Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources:

[11] While there are differences between monitoring air pollution and RCRA monitoring, some of the applications of advances in air pollution monitoring may be instructive for the Subparts AA, BB, CC RCRA air rules for process vents and equipment leaks. See Snyder, Emily G., et al., *The Changing Paradigm of Air Pollution Monitoring*, 47 Env. Sci. & Tech. 20, 11369-77 (2013), *available at* http://pubs.acs.org/doi/pdf/10.1021/es4022602.

[12] In addition to advanced monitoring by facilities, citizen science monitoring programs can be designed to engage members of the public in monitoring activities. Crowd sourcing of data, also known as "citizen science," may be an element of citizen monitoring programs. Options available to regulators include reconfiguring preexisting or establishing new websites to accept public reports of alleged violations or environmental concerns and consolidate them onto a map. Community residents could access the maps to see how their actions are contributing to a broader community effort to oversee environmental compliance, further encouraging citizens to participate in compliance oversight.

[13] See, e.g., O'Rourke, D. & Macey, G., *Community Environmental Policing: Assessing New Strategies of Public Participation in Environmental Regulation*, Association for Public Policy Analysis and Management, Vol. 22, No. 3, 383-414 (2003), *available at* http://nature.berkeley.edu/orourke/PDF/CEP-JPAM.pdf.

Commercial and Industrial Solid Waste Incineration Units apply to emissions from commercial and industrial solid waste incinerators. The rule requires Continuous Emissions Monitoring Systems (CEMS) for carbon monoxide for new sources and on existing energy recovery units. The rule allows the use of carbon monoxide CEMS on existing sources. New units and existing kilns without wet scrubbers are required to continuously monitor mercury, particulate matter, and hydrochloric acid. Additionally, sulfur dioxide and NOx CEMS are required for all new kilns.

- Settlement requiring photo documentation of compliance: Under a 2016 CA/FO with A.T. Still University (ATSU) in Kirksville, Missouri, EPA Region 7 found that ATSU had failed to perform waste determinations on multiple waste streams and failed to properly store and label hazardous waste on its main campus. The CA/FO requires ATSU to provide quarterly statements with photo documentation of its hazardous waste containers to EPA. See Appendix for more details.

Truck driving through TDEC's radiation monitor.

- TN's radiation detection monitor: Tennessee Department of Environment and Conservation uses advanced technology to monitor truckloads of waste entering the Department of Energy's Environmental Management Waste Management Facility (EMWMF). The EMWMF is a disposal facility in Oak Ridge, Tennessee designed to receive low-level radioactive waste, RCRA hazardous waste, waste as defined under the Toxic Substances Control Act of 1976 (TSCA), and combinations of these waste types. Tennessee installed a remotely operated, fixed, radiation-detecting portal monitor to monitor the estimated 113,000 standard dump truck loads passing through. The system detects gamma radiation and can distinguish between eight different energy ranges. If the portal monitor unexpectedly registers a higher than normal reading, the truck is stopped and the load is reassessed to see what was missed in the characterization process. In addition, if an anomalous reading occurs, the State can identify the specific truck and load and, based on the description of the load, determine whether the reading is consistent with the characterization information or if further analysis is needed.

Regulator Uses of Advanced Technology for Inspectors

- Smart Tools for RCRA Inspectors: EPA and states are working together under E-Enterprise for the Environment to develop Smart Tools for field data collection, reporting and evidence, and data management. Smart Tools will allow RCRA inspectors to document their inspections using a mobile device or

➢Innovations from Other Environmental Programs:

States using smart tools/tablets for underground storage tank inspections: Many states are already using tablets in the field for UST inspections, including Rhode Island, Indiana, Arkansas, Oregon, Washington, South Carolina, Connecticut, and Arizona. Some have the capability to print Notices of Violation on site.

tablet, download regulatory requirements, identify and link various information sources, and upload data into EPA systems.

Independent Third-Party Verification in the RCRA Program

What are the Benefits of Independent Third-Party Verification?

Properly structured third-party monitoring and verification in rules, permits and settlements can enhance accountability, improve compliance, and produce better compliance data.[14] Third-party monitoring, when combined with public disclosure, informs the public of the regulated entity's compliance status and enables public responses to noncompliance. Effective third-party verification approaches are structured to ensure that auditors are competent and independent and that audit or inspection criteria are objective and fact-based. [15]

Independent Third-Party Verification Examples

- Permits with independent third party verification: CT DEEP uses standardized language for independent third-party audits in solid waste facility permits designed to effect a better compliance rate with the statutes, regulations and permit itself. The permit condition requires that the regulated entity retain an independent third-party to inspect, discover, disclose to the permittee and report any violations to DEEP. The third party may not be a subsidiary of or affiliated corporation to the permittee or permitted facility; may not own stock in the permittee or any parent, subsidiary, or affiliated corporation; and may not have other direct financial stake in the outcome of the compliance audit. DEEP's permit language also requires the third party to have expertise and competence in environmental auditing and the regulatory programs being addressed through the permit. See Appendix for more details.

- In re Mann Distribution LLC administrative order on consent establishes a well-designed independent third party auditing program. The order addressed RCRA generator and Clean Air Act 112(r)(1) general duty clause violations found at a chemical distribution facility in Warwick, Rhode Island. The order requires Respondents to implement an independent third-party inspection program in addition to imposing other compliance requirements. The Order includes the following auditor competence, independence, reporting, and oversight requirements in order to help create a culture of compliance at Mann:
    - The third-party inspection team members' resumes and qualifications must be submitted to EPA;
    - Inspections must be documented through photographs, film, and written reports, which are provided to the local fire department and EPA;

[14] See, e.g., Kunreuther, H., McNulty, P. & Kang, Y., *Improving Environmental Safety Through Third Party Inspection*, Wharton School - U. of Penn. (Oct. 2001); Lesley K. McAllister, *Regulation by Third-Party Verification*, 53 B.C. L. REV. 1, 22-23 (2012); and Esther Duflo et al., *Truth-Telling By Third-Party Auditors And The Response of Polluting Firms: Experimental Evidence From India*, 128 Q. J. of Econ. 4 at 1499-1545 (2013).

[15] See Short, J.L. & Toffel, M.W., *The Integrity of Private Third-Party Compliance Monitoring*, Kennedy School - Harvard, Working Paper RPP-2015-20 (Dec. 2015), available at https://www.hks.harvard.edu/content/download/78659/1765209/version/1/file/RPP_2015_20_Short_Toffel.pdf.

- No member of the third-party inspection team may have previously performed work for respondents or for any of respondents' officers, nor are they allowed to work for respondents or for any of respondents' officers for five years after the inspections are completed;
- The first of four inspections will be announced, but the other three are to be unannounced with no notice to respondents but with advance notice to EPA, providing EPA and/or the local fire department with the right to join any inspection;
- Respondents will have no control over the timing of the second, third and fourth inspections, and no communication can occur between respondents and the third-party inspectors without EPA simultaneously being copied; and
- Within 15 days of each inspection, the third-party team must simultaneously submit to EPA and respondents an inspection report, photographs, and digital video of the inspection (respondents do not have the opportunity to review any draft or final inspection report before its submittal).

Innovative Enforcement in the RCRA Program

What are the Benefits of Innovative Enforcement?

Innovative enforcement combines the lessons learned in implementing Next Generation Compliance to more effectively and efficiently track compliance with settlements while supporting new approaches to improve compliance. The innovative enforcement settlements can promote use of automated technologies to enhance hazardous waste tracking, require use of safer technological alternatives,[16] or leverage a settlement to have impacts throughout an industry.

Innovative Enforcement Examples

- Settlement requiring use of UPC scanners to improve compliance: Under a Walmart consent decree settling alleged RCRA and Federal Insecticide Fungicide and Rodenticide Act violations, Walmart has required all of its suppliers to submit chemical information about their product formulas to a third party contractor who determines if the materials would constitute hazardous waste if discarded. The third party also will generate a database for Walmart with a determination about each product, which all Walmart employees can access with a hand-held scanner. The system will then generate easy-to-follow instructions for how that product should be handled pursuant to RCRA requirements. Walmart will also ensure adequate environmental personnel and training at all levels of the company and develop an Environmental Management System (EMS).[17] For more information see https://www.epa.gov/enforcement/wal-mart-stores-inc-settlement. See Appendix for more details.

[16] Next Generation Compliance concepts can also be applied, in accordance with Section 6602(b) of the Pollution Prevention Act, to eliminate hazardous waste so that we don't have the need to manage it, lowering risks to human health nor the environment. This can be accomplished through product redesign, substitution of raw materials, and/or process or equipment modifications.

[17] An Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. See https://www.epa.gov/ems for more information.

- Settlement requiring safer technological alternatives: Under the CF Industries (CFI) consent decree, CFI agreed to spend approximately $12 million to reduce and properly manage hazardous wastes generated at its Plant City, Fla. phosphoric acid and ammoniated fertilizer manufacturing facility. The settlement includes an innovative requirement for CFI to reconfigure its current operations to eliminate the release of hazardous wastewaters from fertilizer production. Specifically, three secondary scrubbers for the granulation plants will no longer pump corrosive wastewater back to the Phosphogypsum Stack System since they will be using phosphoric acid as the scrubbing media. Since the effluent acid is recycled back into the process, there is no media-shifting of pollutants from the air to water. For more information, see https://www.epa.gov/enforcement/cf-industries-inc-settlement. See Appendix for more details.

- Settlement that impacts other firms within industry: Lynx Enterprises, Inc. operates a fabrication shop which fabricates products or parts from mild steel, stainless steels, aluminum, wood, and plastics. Lynx failed to determine if wastes generated by the facility are hazardous, obtain a permit for storage of hazardous waste, or meet hazardous waste training requirements, among other violations of RCRA. As part of a settlement with EPA Region 9, Lynx agreed to contract with a qualified independent third party to perform on-site source reduction meetings at 29 other metal finishing companies in the San Joaquin County and South San Francisco Bay areas to review each facility's waste streams generated, evaluate potential source reduction measures, and describe waste minimization measures that could be implemented.

Additional Resources

For additional information about Next Generation Compliance, see the following documents:

- Cynthia Giles, *Next Generation Compliance*, The Envtl. Forum, Sept.-Oct. 2013, at 22, *available at* https://www.epa.gov/sites/production/files/2014-09/documents/giles-next-gen-article-forum-eli-sept-oct-2013.pdf.

- U.S. EPA, Office of Enforcement and Compliance Assurance, *Use of Next Generation Compliance Tools in Civil Enforcement Settlements* (January 2015), *available at* https://www.epa.gov/sites/production/files/2015-01/documents/memo-nextgen-useinenfsettlements.pdf.

- U.S. EPA, *NPDES, CAA, and Cleanup Compendia of Next Generation Compliance Examples* (September 2016), *available at* https://www.epa.gov/compliance/compendia-next-generation-compliance-examples-water-air-waste-and-cleanup-programs.

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