

Annual Environmental Cleanup Report – 2018

Submitted to:

Governor Kate Brown

Oregon Legislative Assembly

Oregon Environmental Quality Commission

January 2018



Environmental Cleanup Program

700 NE Multnomah St.
Suite 600

Portland, OR 97232

Phone: 503-229-5696

800-452-4011

Fax: 503-229-5850

Contact: Bruce Gilles

www.oregon.gov/DEQ

DEQ is a leader in
restoring, maintaining and
enhancing the quality of
Oregon's air, land and
water.



State of Oregon
Department of
Environmental
Quality

This report prepared by:

Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232
1-800-452-4011
www.oregon.gov/deq

Contact:
Bruce Gilles, Manager
Environmental Cleanup and Emergency Response Section
503-229-6391

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.

Table of Contents

Executive Summary	1
1. Accomplishments – Fiscal Year 2017	2
Sites in DEQ’s Database	2
Confirmed Release List	3
Sites on the Inventory	3
Preliminary Assessments	3
Removals	3
Remedial Investigations	3
Feasibility Studies	4
Records of Decision	4
Remedial Actions	4
No Further Action Decisions	4
2. Program Highlights, Fiscal Year 2017	5
Portland Harbor Cleanup	5
North Ridge Estates Cleanup	5
Former GNB Battery, Salem	5
Lebanon Area Groundwater	5
Willamette Industries Sweet Home	6
Armstrong World Industries/Scappoose Bay	6
Former Bend Demolition Landfill (OSU-Cascades Campus)	6
Astoria Marine Construction Company	6
River Street Warehouse Fire, Portland	7
Cleanup Program Improvements	7
Voluntary Cleanups	7
Brownfields	8
Prospective Purchaser Agreements	9
Orphan Sites	9
3. Cleanup Milestones and Projections	11
Cleanup Phases Initiated and Completed for Fiscal Year 2017; Forecast for Fiscal Year 2018	11

Executive Summary

This annual report from the Oregon Department of Environmental Quality updates the Environmental Cleanup program’s efforts to assess, investigate and clean up contaminated lands and help return them to productive use. Oregon Revised Statute 465.235 mandates this yearly report to the Oregon Legislature, the Governor, and Oregon’s Environmental Quality Commission. This report includes:

- A description of fiscal year 2017 Cleanup program activities and key statistics.
- A summary of Cleanup program highlights including: ongoing work with EPA to plan remedial actions and prevent new contamination within the Portland Harbor Superfund site; efforts to improve program performance; voluntary cleanup progress; brownfields work and milestones; prospective purchaser agreement projects; and an outline of future funding needs for the state’s orphan site program.
- The current four-year operational plan for fiscal years 2016 – 2019 (fiscal year ending June 30).

Cleanup Actions – Fiscal Year 2017

Completed actions	FY 2017		FY 2016 + FY 2017	
	Forecast	Actual	Forecast	Actual
Removal Actions	12	3	24	12
Preliminary Assessments (PAs)	8	6	15	10
Remedial Investigations (RIs)	15	6	27	10
Feasibility Studies (FSs)	8	6	15	12
Records of Decision (RODs)	5	2	10	7
Remedial Actions (RAs)	13	11	23	18
No Further Action Determinations (NFAs)	85	71	165	144
Totals:	146	102	279	210

While DEQ continues to investigate and clean up contaminated sites, completions for fiscal year 2017 were below projections. This has been a trend over the past few years. Cleanup program analysis suggest that the reasons are:

1. The increasing presence of “simpler” sites in the program, where investigation and cleanup activities often do not require full-scale preliminary assessments, remedial investigations, feasibility studies, or remedial actions as defined under Oregon Administrative Rules;
2. Site investigation outcomes that show suspected contaminated sites not posing significant risks to human health or the environment and therefore requiring little or no remedial action; and
3. The most important program metric is issuance of no further action letters to property owners, and these are averaging 200-300 per biennium, a significant achievement.

DEQ continues to return contaminated and unusable lands to productive use through prospective purchaser agreements and funds specifically directed to address “orphan” sites – highly contaminated properties whose responsible parties are unknown, unwilling or unable to clean up these sites. In fiscal year 2017, DEQ completed its work with an external workgroup that provided useful advice on enhancing the Cleanup program’s ecological risk assessment process. DEQ also completed a pilot program designed to verify whether institutional and engineering controls on sites are still protecting human health and the environment. See sections 2 and 3 of this report for more information on all of these topics.

1. Accomplishments – Fiscal Year 2017

Oregon's Environmental Cleanup program:

- Discovers, evaluates and prioritizes sites contaminated with hazardous substances for further action;
- Oversees the investigation and cleanup of sites presenting significant risks to human health or the environment through voluntary cleanup, or through enforceable agreements for high priority sites;
- Assists property owners and communities in restoring productive use of contaminated sites using brownfield technical assistance and prospective purchaser agreements; and
- Leads the investigations and cleanups at “orphan sites” in cases where the responsible party is unknown, unwilling, or unable to complete necessary cleanup actions.

This section summarizes Cleanup program achievements in fiscal year 2017 (July 1, 2016, to June 30, 2017).

Sites in DEQ's Database

Since 1988, DEQ has identified over 5,400 contaminated and potentially contaminated sites in Oregon and compiled information regarding these sites in the Environmental Cleanup Site Information database. DEQ identified 75 new sites in fiscal year 2017.

The most highly contaminated sites have been identified and the discovery of new sites should decline in the future. However, the “universe” of future cleanup sites is unknown. State law does not require reporting of contaminated sites to DEQ (with the exception of underground storage tank releases and current spills above reportable quantities). Thus, there are “legacy” contaminated sites that DEQ may not learn about until: 1) they come into the voluntary cleanup program (described in section 2 below); or 2) a third party reports them to DEQ; or 3) they are discovered by DEQ's Cleanup staff conducting research in various parts of the state. Additionally, new releases still occur, and people find unexpected contamination during construction or other activities – events that DEQ cannot predict.

Oregon's Cleanup Process

DEQ **screens** sites where hazardous substances may have been released to determine the need and priority for further action. A **preliminary assessment** may be conducted to investigate the presence of contamination, which may involve collection of samples for laboratory testing to assess the extent of contamination. In the event of an emergency, a **removal** may be needed to stabilize the site and prevent current exposure to contamination.

Sites known to be contaminated proceed through a two-step investigation process to determine how (or whether) they are to be cleaned up. A **remedial investigation** determines the full nature and extent of the contamination and evaluates risks posed to human health and the environment from exposure to contamination to determine a need for a cleanup. For sites posing unacceptable risk, a **feasibility study** evaluates various site cleanup options. From this information, DEQ determines what needs to be cleaned up and how it should be done.

When the necessary cleanup is relatively straightforward and simple, an initial removal action may be all that is required. However, if the cleanup is more difficult and complex, DEQ may issue a formal cleanup decision (called a **record of decision**) after a **public comment period**. The resulting cleanup is called a **remedial action**. In addition to (or instead of) removing or treating the contamination, an **engineering control** (such as capping or fencing) may be put in place to isolate the contamination with an **institutional control** recorded to limit future activities at the site so that people and animals are not exposed to the contamination.

A site receives a **no further action** designation when DEQ determines that the site poses no significant threat to human health or the environment. This may occur at any point during the investigation and cleanup process.

Confirmed Release List Sites

In fiscal year 2017, DEQ added three sites to the Confirmed Release List and removed two. The list includes sites with documented contamination (rather than just being suspected).

Sites on the Inventory

In fiscal year 2017, DEQ added three sites to the Inventory of Hazardous Substance Sites and removed one. The Inventory lists sites where DEQ has confirmed contamination that presents risks to human health or the environment. Sites relying on engineering or institutional controls to manage risks must also remain on the Inventory.

Preliminary Assessments

A preliminary assessment is an investigation of a site, its surroundings, and plants and animals potentially affected by pollution. DEQ reviews the site history and conducts a walk-through to determine whether contamination is likely and what its effects could be – and may take samples. DEQ uses this information to determine the site’s priority for further investigation and cleanup. In fiscal year 2017, DEQ or parties working with DEQ initiated 11 preliminary assessments and completed six.

Removals

A removal is a cleanup that occurs before, during or in lieu of, a remedial investigation, feasibility study or a final cleanup remedy. Removals are commonly used to address “hot spots” of contamination. Removals help protect public health by preventing exposure to contaminants and the further spread of contamination. Removals are typically short-term activities over several months but on occasion may take several years to complete. In fiscal year 2017, Oregon initiated and completed three removal actions.

Remedial Investigations

A remedial investigation involves taking samples at a site to determine if contaminants are present, their locations, concentrations, and migration patterns. Remedial investigations include an evaluation of the risks that the contamination poses to human health and the environment (plants and animals). In fiscal year

Routes to Cleanup in Oregon

DEQ has several options for owners and operators of contaminated property to move through the investigation and cleanup process. The most common is **voluntary cleanup**. Property owners seeking a signoff from DEQ sign up to have DEQ oversee their projects to ensure that their work meets regulatory requirements. Parties can choose the standard voluntary cleanup approach or **independent cleanup**, depending on the project’s complexity and amount of oversight needed.

Parties intending to purchase property with existing contamination may enter a **Prospective Purchaser Agreement** with DEQ prior to the purchase that describes clean up actions they will perform at the property and receive protections from liability from DEQ and third parties for contamination remaining.

DEQ also “discovers” contaminated properties through **site assessment**. DEQ learns about potential contamination from complaints, unsolicited reports and other DEQ programs or government agencies, in addition to conducting its own inquiries. DEQ evaluates and ranks sites based on their known or potential threats. Responsible parties are encouraged to address site contamination through voluntary cleanup.

DEQ will require parties with high priority sites to conduct investigation and cleanup under the terms of a legally enforceable order.

DEQ may designate the site an **orphan** and conduct the cleanup of high priority sites using its orphan site account where responsible parties are unknown, unable or unwilling to perform a cleanup.

Qualifying contaminated **dry cleaner** sites are also addressed by DEQ through a separate account funded by fees paid by eligible dry cleaning facility owner/operators.

Other types of cleanups are conducted under separate statutory authority. DEQ’s **emergency response** program ensures new hazardous material spills are immediately cleaned up by the spilling party. Petroleum releases from **underground storage tanks** are addressed through the agency’s underground storage tank program to meet federal and state requirements.

2017, DEQ provided oversight on two new remedial investigations and approved four as final. Remedial investigations often take more than a year to complete so investigations started in a given fiscal year are generally completed in a subsequent fiscal year.

Feasibility Studies

Feasibility studies provide detailed comparisons of possible cleanup methods for site contamination posing unacceptable levels of risk. Various remedial approaches or technologies are developed and evaluated for protectiveness. Options that would protect human health and the environment are then evaluated for effectiveness, ease of implementation, reliability, implementation risk and reasonableness of cost, as the law requires. DEQ recommends an option as the cleanup strategy and makes the selection after consideration of public comment. DEQ initiated two feasibility studies in fiscal year 2017, and approved six as complete.

Records of Decision

A record of decision (also known as a ROD) documents DEQ's decision on a site's cleanup method, based on the options evaluated in the feasibility study. DEQ finalizes the record of decision after evaluating public comments on the proposed approach and adjusting it as needed. The record of decision draws upon remedial investigation and feasibility study findings to summarize the nature and extent of contamination and any risks it poses, the alternatives considered in the feasibility study, and the selected cleanup alternative to be implemented. DEQ initiated five records of decision in fiscal year 2017, and completed two. It takes several months to write a record of decision, open it for public comment, and approve it.

Remedial Actions

A remedial action is the final cleanup action at a site. Remedial actions may involve eliminating contamination from a site by excavation or treatment, or isolating the contamination through institutional controls, such as deed restrictions that limit certain land or water uses to prevent exposure, or use of engineering controls such as caps, fencing or subsurface barriers. DEQ provided oversight for 15 remedial actions initiated in fiscal year 2017 and determined that 10 were complete.

No Further Action Decisions

DEQ makes a "no further action" (NFA) decision after concluding that a site no longer poses risks to human health or the environment, and no additional investigation or cleanup is needed. During fiscal year 2017, DEQ issued NFA decisions for 71 sites. The number of NFA decisions exceeds the number of records of decisions and remedial actions because many simple sites are cleaned up independently and then request DEQ review that site is now protective in order to issue a NFA decision. In other cases, DEQ determines that low levels of contamination do not threaten human health or the environment. At the end of fiscal year 2017, there were 2,034 cleanup sites with DEQ NFA decisions. This amounts to about 38 percent of all sites in DEQ's ECSI database.

2. Program Highlights, Fiscal Year 2017

Portland Harbor Cleanup

Portland Harbor is a heavily industrialized stretch of the Lower Willamette River north of downtown Portland. It stretches south from Sauvie Island to the Broadway Bridge. EPA listed Portland Harbor on the [National Priorities List](#), known as Superfund, in December 2000. Sediments in the river are contaminated with various toxic compounds, including metals, polynuclear aromatic hydrocarbons, polychlorinated biphenyls (known as PCBs), chlorinated pesticides, and dioxins. River levels of these pollutants appear to be highest near contaminated sites on the shore, known as upland sites.

EPA, DEQ and other agencies, tribal governments, community groups and companies are working to investigate and clean up contamination in Portland Harbor. EPA is the lead agency for investigating and cleaning up contaminated sediments in the river itself. DEQ is the lead agency for investigating and cleaning up contamination on upland sites, working with individual property owners. EPA and DEQ coordinate with six Tribal governments and other natural resource trustees. EPA issued its Record of Decision for the site in January 2017, calling for a \$1 billion cleanup. DEQ's upland and upriver source-control work is part of the overall strategy for addressing site contamination, and involves DEQ evaluating potential sources of PCBs and other key contaminants in areas immediately upstream of Portland Harbor.

North Ridge Estates Cleanup

North Ridge Estates is an EPA [National Priorities List](#) site comprised of a residential subdivision approximately three miles north of Klamath Falls. The site is contaminated with asbestos-containing material resulting from demolition of about 80 military barracks buildings from the 1940s. The EPA is the lead agency for the cleanup and DEQ is working closely with EPA on implementing the cleanup. In March 2014, EPA set aside approximately \$37 million to fund remedial actions, with the focus on removing ACM from all residential parcels and disposing of it in two on-site landfill cells. The second year of work is done, and the project is on track to complete most remaining work in 2018. DEQ and the state will be responsible for 10 percent of total cleanup costs, as well as for ongoing site operation and maintenance following approval and certification of remedial actions, in accordance with EPA's requirements of all states at NPL sites.

Former GNB Battery, Salem

The Former GNB Battery was an automotive battery manufacturer from 1945 to 1989. In 1991, GNB began site assessment activities and found widespread lead contamination of onsite soils. Throughout the rest of the 1990s further investigation and soil cleanup occurred. Various facility decommissioning activities occurred at this time. The property owner and DEQ agreed to restrict certain property uses to protect people occupying the site. In 1999, DEQ issued a No Further Action letter that included the conditions on land use. In late 2016, the current property approached DEQ about removing the restrictions in place on the property. This resulted in DEQ requesting additional sampling in February 2017, which identified more surface soils with high concentrations of lead along with high concentrations of lead in dusts throughout the building once used for battery production. The building had been converted to multi-tenant commercial use. DEQ along with the Oregon Health Authority required building closure until cleanup of lead residues are completed. DEQ, OHA and Oregon OSHA assisted in the cleanup oversight and/or encapsulation of lead dusts in the building that are not feasible to remove. This project is in the final stages and DEQ will likely issue a new further action letter in early 2018. The owner will need to inspect and maintain areas of possible contamination to ensure that the building is safe for workers and visitors in the future. This project has led to a broader consideration of how NFAs address building hazards in the future.

Lebanon Area Groundwater

The Lebanon Area Groundwater Contamination study area consists of approximately 900 acres of downtown and northern downtown in Lebanon, Oregon. Perchloroethylene, a solvent commonly used in dry cleaning, and its breakdown products, have contaminated the groundwater under Lebanon through historical environmental

releases from multiple sources. Most of the properties in the affected area are connected to city water and are, therefore, not affected by the groundwater contamination. However, some residential wells in the study area have contamination levels that would pose a health hazard if used for drinking water by occupants. DEQ's recommended remedy has several components, including identifying and sampling water wells, and providing alternative water supplies, such as city water, to residents with contaminated wells. It also includes some additional engineering and institutional controls, limiting certain uses of groundwater in areas of contamination, and long term monitoring of the groundwater contamination. DEQ issued public notice of its proposed final cleanup action, held a public meeting in November 2017 to solicit public input, and concluded the public comment period. DEQ is now in the process of finalizing the Record of Decision for the selected remedial action. DEQ is currently overseeing the biannual survey of wells in the area, and collection of well water samples for analysis.

Willamette Industries Sweet Home

DEQ and Linn County are investigating contamination in soil, groundwater and sediment at the former Willamette Industries Mill site in Sweet Home. Funding for the investigations, to-date, were provided by an EPA Brownfield and Site Assessment grant to Linn County. A recent investigation found groundwater contaminated with formaldehyde, diesel and heavy oil at the property boundary, raising concerns that groundwater contamination could reach private wells northwest of the site. DEQ sampled 12 wells in that neighborhood and detected diesel in two wells and formaldehyde in nine of 12 wells. Only formaldehyde exceeded DEQ's residential tap water risk-based concentration. DEQ has contacted Weyerhaeuser, the successor to Willamette Industries, to help provide alternative water supplies to the affected residents and determine the source of the contamination.

Armstrong World Industries/Scappoose Bay

Armstrong World Industries manufactures ceiling tile at a facility just south of St. Helens, in Columbia County. Since 1929, this 175-acre property has been used to manufacture a variety of fiberboard products. Historical discharges of untreated process wastewater contaminated the upland property, bordering wetlands, and Scappoose Bay. In 2010, DEQ entered into a voluntary cleanup agreement with Armstrong and two former operators, Owens Corning Fiberglass Corp. and Kaiser Gypsum Co. to investigate the site. Dioxins/furans, metals, and polycyclic aromatic hydrocarbons are the primary contaminants of concern. Final work plan negotiations were underway in 2016, when Kaiser filed for bankruptcy. Since then, DEQ has worked with the Oregon Department of Justice to resolve site-cleanup liabilities attributable to Kaiser and the other parties.

Former Bend Demolition Landfill (OSU-Cascades Campus)

DEQ has been involved in the redevelopment of this closed Deschutes County demolition debris landfill, on the west side of the City of Bend. DEQ has worked with numerous stakeholders to help redevelop this, and other properties, into the OSU-Cascades campus. This includes helping provide or secure multiple grants and funding mechanisms from the DEQ's Solid Waste Orphan account, a Community Wide Assessment (EPA brownfield) grant to Deschutes County, and an EPA Area Wide Planning grant to OSU-Cascades. DEQ is now working with OSU-Cascades on a possible Prospective Purchaser Agreement from DEQ and a related work plan to implement about \$9 million in recent legislative funding designed to remove and reuse a significant portion of the solid waste at the site. The priority is to address decomposed wood waste on a portion of the property subject to subsurface fires, now and in the past.

Astoria Marine Construction Company

The Astoria Marine Construction Company site is located along the Lewis and Clark River near Astoria. In 2012, EPA deferred a Superfund listing of AMCCO with the condition that DEQ lead the remedial investigation and cleanup. DEQ issued the Record of Decision for the cleanup remedy in February 2017, which incorporates comments provided by Tribal governments and the community of Astoria. DEQ coordinates with natural resource trustees including federal, State, and representatives from four Tribes (Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians of Oregon, the Nez Perce Tribe and Yakama Nation) for their input on this cleanup site. A restoration agreement in principle with federal,

State, and Tribal Trustees has been reached, excepting the Yakama Nation. Remedy implementation and restoration could occur as early as the summer 2018. DEQ will continue to communicate with trustees and the community on project milestones, and ensure that remedy design and construction take into account concerns voiced by these stakeholders.

River Street Warehouse Fire, Portland

On May 14, 2017, a fire broke out at an abandoned 1.8-acre warehouse overlooking the Willamette River in a densely populated, mixed commercial/residential area of North Portland. The warehouse contained asbestos roofing paper and within a layer of the flooring. Asbestos fragments were released into the air during the fire; residual ACM also remained on-site after the fire. EPA and DEQ formed a unified command and conducted an emergency action spanning several weeks to find, collect, and properly dispose of all wind-dispersed ACM, including areas across the river in downtown Portland. Once the emergency phase ended, EPA continued removing ACM from the former building's debris pile, having determined that the site owner was unable to pay for this needed follow-up work. Estimated at 20,000 cubic yards, the pile contained extremely friable – and therefore potentially dangerous – asbestos.

DEQ and EPA are co-funding the removal of ACM debris from the warehouse with most of the funding coming from EPA. Removal of the mixed ash/asbestos debris and warehouse flooring will cost approximately \$6 million. EPA lacked funding to dispose of all of the remaining ACM. Due to the high potential threat of residual asbestos, DEQ agreed to fund the disposal from its Orphan Site Account (described below), and EPA is grateful for this assistance. The removal will be completed in early 2018.

Cleanup Program Improvements

Institutional and Engineering Controls Site Review Pilot Project

Oregon has over 1,000 institutional and engineering controls in place, some of which are over 20 years old. In 2017, DEQ implemented a pilot for reviewing sites with long-term controls in place, to ensure they are working and continue to protect people and wildlife from exposure to remaining contamination. The report showed that most of the 20 sites evaluated are in good shape, while a few need attention. The report also described many procedural, administrative, and staff-resource issues to be addressed before DEQ can add a comprehensive IC/EC review process to the Cleanup repertoire. DEQ will be evaluating next steps in 2018.

Ecological Risk Assessment Guidance

In 2014, DEQ convened an external workgroup to improve Oregon's ecological risk assessment process. The workgroup provided DEQ with recommendations in a final report published in spring 2017. These recommendations are high-level, providing several approaches to provide more opportunities for sites to screen out or undergo cleanup actions earlier in the process, compared to current guidance, with the goal of making the process more cost-effective and timely. Key recommendations include: 1) adopting exclusions for sites without natural habitat areas, or that lack the significant natural habitat needed to support sustainable populations of wildlife receptors; 2) developing improved sampling guidelines and data quality criteria; and 3) updating screening level values. Some of the approaches require further evaluation to determine how they can be implemented consistently with Oregon cleanup rules.

DEQ is considering the workgroup's recommendations, and will determine whether to adopt interim policies and update the guidance in sections, or perform a comprehensive overhaul based on the recommendations.

Voluntary Cleanups

The 1991 Oregon Legislature authorized a Voluntary Cleanup program to provide DEQ oversight to willing parties for investigating and cleaning up contamination from their properties. This cooperative approach helps parties proceed efficiently and meet funding and redevelopment deadlines. In 1999, DEQ added a second voluntary cleanup pathway, **Independent Cleanup** – which allows parties to complete their own remedial actions with limited or no DEQ oversight. If a party gives DEQ 90 days' notice, Cleanup staff typically can review and approve a final cleanup report within 60 days after report submittal. The independent cleanup

option is available for relatively simple and moderately contaminated sites that may exceed acceptable risk levels but do not pose significant threats to human health or the environment.

As of December 2017, about 250 sites were active in the Voluntary Cleanup program, with some 205 sites following the traditional pathway and 45 in independent cleanup. Since 1991, the Voluntary Cleanup program has issued NFA decisions for 1,173 sites, far more than an enforcement/penalty approach could have produced.

Brownfields

A brownfield is a vacant or underused property where actual or perceived contamination hinders the site's expansion or redevelopment. These are often highly visible eyesores where uncertainty about potential cleanup liability has derailed opportunities to bring new site uses and jobs that would revitalize a community's health and vitality. Nearly every community has brownfields. They are vacant lots we drive by daily, the piles of polluted dirt behind rusting chain-link fences, abandoned storefronts along our main streets. Cleanup and reuse of these properties can cure blight, increase local property tax bases, provide jobs, help meet Oregon's land-use goals, and enhance public health and the environment.

In fiscal year 2017, DEQ provided significant technical assistance and advice to 16 local governments that received EPA brownfield planning, site assessment, or cleanup grants. DEQ used about \$250,000 in EPA grant funds at six brownfields to conduct site investigations and explain further-action recommendations (or make NFA decisions). The paragraphs below are examples of important brownfield activities and outcomes DEQ was involved in during the fiscal year.

Oregon Brownfields Coalition

In 2014, DEQ joined the *Oregon Brownfields Coalition*, a diverse group of public, private, and nonprofit partners with a common agenda of finding collaborative strategies to transform brownfield liabilities into community assets quickly and equitably. In the 2015 and 2016 legislative successes included recapitalizing Business Oregon's Brownfields Redevelopment Fund, allowing local communities to create land banks, and authorizing local property tax reductions for certain brownfield remedial costs. The Coalition resumed work on a potential state income tax credit bill that would permit credits against qualified brownfield remedial action costs.

The Coalition will continue work on brownfields financial and policy incentives in calendar year 2018, including strengthening DEQ's Off-site Contaminant Migration Policy to protect innocent recipients of contamination by codifying it into law. DEQ intends to remain an active partner in the Coalition, providing advice and guidance, as needed, on brownfields initiatives developed by external organizations.

Former Boise Cascade Mill – Salem

The City of Salem's Riverfront Park is redeveloping several brownfield properties, including expanding the park on a former mill operated by Boise Cascade Corp. The work involves building a pedestrian footbridge to Minto Island, and proposed pedestrian paths along Pringle Creek to enhance connectivity between the park and downtown Salem. Previous sampling indicated that operations at the former mill were a likely source of dioxins in Pringle Creek and Willamette Slough. However, Office Depot (which had acquired Boise Cascade) was initially skeptical that they were responsible for sediment contamination in the area.

DEQ's brownfield staff used EPA funding to augment past sediment sampling, which was designed to determine if dioxins from past mill operations had contaminated slough sediments. It turned out that dioxin congener ratios from the 2016 sediment samples were in fact consistent with sample results from the former bleach plant, as well as from Boise Cascade's former wastewater lagoons on Minto Island.

This additional sampling helped DEQ determine that dioxins were present in slough sediments at high concentrations, persuading Office Depot to take further action. In April 2017, DEQ entered into a consent order with Office Depot to perform a remedial investigation and feasibility study. Judicious use of public-

sector brownfield resources leveraged private-sector remedial funding that otherwise might not have been available.

Oregon House Bill 2968

In 2017, the Oregon Legislature passed, and Governor Brown signed, HB 2968 – requiring DEQ to research and propose recommendations on actions needed to enable parties to complete voluntary remedial actions acceptable to both DEQ and EPA. Such a coordinated process would be designed to provide state and federal liability releases. Under the bill, DEQ must: 1) consult with EPA; 2) consider other states’ actions related to voluntary removal or remedial actions intended to create or expand affordable housing on brownfields; and 3) report to the legislature by Sept. 15, 2018. The study’s purpose is to explore ways to enhance brownfield cleanup and redevelopment in Oregon, with a focus on building affordable housing where possible. In mid-2017 DEQ hired an intern to conduct background research and report on findings. DEQ also surveyed brownfields stakeholders, and met with EPA to begin collaborating on remedial decision-making and liability considerations. Work will continue in 2018, including additional stakeholder outreach.

Prospective Purchaser Agreements

Prospective Purchaser Agreements, or PPAs, facilitate the cleanup and return to productive use of properties contaminated with hazardous substances. The agreements provide developers and others with the means to manage risk and liability before acquiring contaminated property, and to make financial investments and move forward with redevelopment following acquisition. A PPA is a legally binding agreement between DEQ and a prospective purchaser that limits the purchaser’s liability for environmental cleanup at the property, in exchange for the purchaser providing a “substantial public benefit” such as cleanup, funding for cleanup, redevelopment of a vacant or underused property, or any other important public purpose. For each project, DEQ uses its discretion in determining what constitutes a substantial public benefit, believing that flexibility is key to providing the best community outcomes from new site uses.

During fiscal year 2017, DEQ completed seven PPAs. Six are in DEQ’s Northwest Region, and are equally divided between continuing industrial use and converting properties to affordable housing. One in DEQ’s Western Region supported expansion of an existing industrial use. DEQ also worked on several others that are still in progress. The PPA program continues to effectively transition properties from long-term state cleanup oversight (NuWay Oil in Portland) and also supports redevelopment of major Superfund sites previously under federal oversight (Northwest Aluminum in The Dalles). DEQ is also using the PPA program to extend the innovative and effective settlement framework for the Columbia Slough in Portland (supporting ongoing industrial uses) and in Klamath Falls/Lake Ewauna (helping to facilitate the transition from legacy lumber-related operations to commercial and residential uses).

Orphan Sites

*Industrial Orphan sites*¹ are contaminated properties whose responsible parties are unknown, unwilling, or unable to conduct cleanup. These sites include individual properties as well as area-wide sites where hazardous substances have affected sources of drinking water.

DEQ generally designates a site as an orphan when it poses serious threats to human health or the environment. DEQ may also consider designating contaminated sites with significant but unrealized reuse (brownfields) potential as orphans. DEQ may also refer large and complex orphan sites to EPA for listing on the NPL and use the Orphan Site Account to pay the state’s required 10 percent share of remedial action costs. Since 1992, DEQ has declared 108 sites as industrial orphans. It is important to note that 34 of these sites have been cleaned up to no further action status, with many now supporting enhanced uses through redevelopment. The remaining orphans are in various stages of investigation and cleanup, including long-term monitoring and/or operation and maintenance (such as ongoing treatment systems to protect drinking water resources). During fiscal year 2017, DEQ worked actively on about 20 orphan sites.

¹ There is also a *Solid Waste Orphan* account to clean up contaminated solid waste landfills, funded by solid waste disposal fees rather than bond sales. To date, DEQ has declared four former landfills as solid waste orphans.

The 2017 Legislature approved two general fund-financed bond sales to be issued during the 2017-2019 biennium. The first bond sale occurred on October 18, 2017, providing \$5.8 million to fund projected Industrial Orphan expenditures through fiscal year 2021. The second bond sale is scheduled for spring 2019. Based on ongoing and projected future orphan cleanup work, DEQ projects that funds from the 2017 and 2019 bond sales, coupled with cost-recovery activities (see below) will be exhausted by the end of fiscal year 2021.

DEQ will continue funding sites presenting significant risks to human health or the environment where responsible-party resources are unavailable. Subject to the availability of funds, DEQ will also consider using orphan funds to complete site cleanups rather than simply stabilize contamination, and to address eligible sites where development potential is significant.

Since 1991, DEQ has returned approximately \$9.3 million to the Orphan Site Account by recovering some past expenditures from responsible parties and their insurance companies. While prospects for additional cost recovery are limited, DEQ will continue pursuing recovery of past orphan expenses to maximize funding available for current and future orphan sites.

As mentioned above, states must contribute 10 percent of EPA's remedial-action costs at NPL sites with no viable responsible parties. Subject in part to the cost and timing of EPA's remedial activities at NPL sites in Oregon, DEQ anticipates the need for \$5 - \$10 million of additional orphan funding to meet its estimated federal match requirements over the next 10 years.

In summary, in the coming years DEQ will continue to face a very significant issue in paying for orphan site cleanups, including the required state share of remedial-action costs at NPL sites.

3. Cleanup Milestones and Projections

Cleanup Phases Initiated and Completed for Fiscal Year 2017; Forecast for Fiscal Year 2018

Site actions	FY 2017 (Actual)		FY 2018 (Forecast)	
	Initiated	Completed	Initiate	Complete
Suspected Release Sites Added to Database		75		7
Added to Confirmed Release List		3		4
Added to Inventory		3		4
Site Screenings	25	13	18	2
Preliminary Assessments	11	6	5	6
Removal Actions	3	3	8	8
Remedial Investigations	2	6	7	10
Feasibility Studies	2	6	5	4
Records of Decision	5	2	5	6
Remedial Actions	15	11	15	15
No Further Action Determinations		71		80

Fiscal year 2018 forecasts are based on estimates developed as part of the four-year plan shown below, as well as on developments during calendar year 2017. One-time actions show data in the “complete” columns only.

Four-Year Plan: Projected Cleanup Actions, 7/1/15 – 6/30/19

Site actions	2015-17 Biennium	2017-19 Biennium
Suspected Release Sites Added to Database	160	155
Added to Confirmed Release List	15	15
Added to Inventory	14	14
Site Screenings	35	33
Preliminary Assessments	17	17
Removal Actions	23	23
Remedial Investigations	25	27
Feasibility Studies	18	15
Records of Decision	10	10
Remedial Actions	22	22
No Further Action Determinations	180	185

This four-year plan was created for the 2015 Environmental Cleanup Annual Report.