

Annual Environmental Cleanup Report – 2019

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Environmental Cleanup Program

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



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Executive Summary

This annual report from the Oregon Department of Environmental Quality provides updates on 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 2018 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.
- A new four-year operational plan for fiscal years 2020 – 2023 (fiscal year ending June 30).

Cleanup Actions – Fiscal Year 2018

Completed Actions	FY 2018	
	Forecast	Actual
Removal Actions	8	12
Preliminary Assessments (PAs)	6	7
Remedial Investigations (RIs)	10	3
Feasibility Studies (FSs)	4	1
Records of Decision (RODs)	6	4
Remedial Actions (RAs)	15	9
No Further Action Determinations (NFAs)	80	67
Totals:	129	103

While DEQ continues to investigate and clean up contaminated sites, completions for fiscal year 2018 were below projections. This has been a trend over the past few years. Cleanup program analysis suggests the reasons are:

1. DEQ limits placing facilities on the confirmed release list and inventory to those sites that will require long-term engineering or institutional controls as an element of a site remedy. Cleanup site information is readily available online through DEQ’s Environmental Cleanup Site Information database. By selective use of inventory listing, we save responsible parties the time and expense of DEQ performing these actions;
2. 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;
3. 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
4. Staff inconsistency in recording completed actions in the Environmental Cleanup Site Information database, for which we have provided additional training to staff in the past year to ensure we are capturing all completed actions.

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 2018, DEQ initiated a project to update the cleanup program's ecological risk assessment process incorporating many of the recommendations provided by an external workgroup in its 2017 report. DEQ is also developing guidance and procedures for conducting periodic reviews of sites subject to complete a pilot program designed to verify whether institutional and engineering controls are being implemented to ensure human health and the environment remain protective. DEQ also worked on guidance for evaluating buildings used for industrial manufacturing processes to help ensure hazardous debris are addressed prior to any future reuse of these buildings that involves public occupancy. See sections 2 and 3 of this report for more information on all of these topics.

1. Accomplishments – Fiscal Year 2018

Oregon's Environmental Cleanup Program:

- Identifies, 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 2018 (July 1, 2017 to June 30, 2018).

Sites in DEQ's Database

Since 1988, DEQ has identified over 5,500 contaminated and potentially contaminated sites in Oregon and compiled information regarding these sites in the Environmental Cleanup Site Information database (<https://go.usa.gov/xEYDP>). DEQ identified 72 new sites in fiscal year 2018.

Many highly contaminated sites have been identified, and the frequency of discovery of new sites should decline in the future. However, the complete “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 will not be on the list until: 1) they come into the voluntary cleanup program (described in section 2 below); 2) a third party reports them to DEQ; or 3) they are discovered by DEQ's Cleanup staff. Additionally, new releases of hazardous substances still occur, events that DEQ cannot predict.

Oregon's Cleanup Process

DEQ **screens** sites where hazardous substances may have been released to determine if there is a need for further action and, if so, what the priority is. 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

The Confirmed Release List identifies a subset of the sites in the DEQ Environmental Cleanup Site Information database, those with documented contamination that have not yet been through the Cleanup Program. Adding sites to the list is limited in practice to sites likely to require long term engineering or institutional controls. In fiscal year 2018, DEQ added two sites and removed five sites from the list as a result of completing cleanup to protective levels.

Inventory of Hazardous Substance Site

The Inventory of Hazardous Substance Sites contains 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 remain on the inventory. In fiscal year 2018, DEQ added two sites to the inventory and removed three.

Preliminary Assessments

A preliminary assessment is an investigation of a site, its surroundings, and plants and animals potentially affected by contamination. 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 2018, DEQ or parties working with DEQ initiated nine preliminary assessments and completed seven.

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 2018, Oregon initiated 11 and completed 12 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

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 agree to have DEQ oversee their projects to ensure that their work meets regulatory requirements. Parties may choose the standard voluntary cleanup approach or an **independent cleanup** depending on the project’s complexity and amount of oversight needed. DEQ is involved throughout all stages of a standard voluntary project, whereas DEQ only reviews information at the beginning and end of an independent project.

Parties intending to purchase contaminated property may enter a **prospective purchaser agreement** with DEQ prior to the purchase that describes cleanup actions they will perform at the property. In return, they receive protections from liability from DEQ and third parties.

DEQ also identifies contaminated properties through **site assessments**. 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 when responsible parties are unknown, unable or unwilling to perform a cleanup.

Qualifying contaminated **dry cleaner** sites are 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.

risks that the contamination poses to human health and the environment (plants and animals). In 2018, DEQ provided oversight on five new remedial investigations and approved three 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 proposes an option as the cleanup strategy, and makes a final selection after consideration of public comment. DEQ initiated one feasibility study in fiscal year 2017, and approved one 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 did not initiate any record of decision in fiscal year 2018, however four were completed. It normally 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 nine remedial actions initiated in fiscal year 2017, and determined that nine were complete.

No Further Action Decisions

DEQ makes a "no further action" (NFA) decision after concluding that a site no longer poses unacceptable risks to human health or the environment, and no additional investigation or cleanup is needed. During fiscal year 2018, DEQ issued NFA decisions for 67 sites. The number of NFA decisions exceeds the number of records of decisions and remedial actions because many simple sites are cleaned up under the independent cleanup program, and then request DEQ review to obtain 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 2018, there were 2,230 cleanup sites with NFA decisions. This amounts to about 40.5 percent of all sites in DEQ's Environmental Cleanup Site Information database.

2. Program Highlights, Fiscal Year 2018

DEQ worked on a number of high priority sites that had significant public interest in 2018, secured substantial federal funding of brownfields statewide, and was very active in issuance of prospective purchaser agreements to facilitate cleanups. The program fell short of several performance measures due to staff retirements that delayed some work during recruitment and training of new staff. The program is actively working to update project guidance procedures. Highlights of this year's work are provided below.

Portland Harbor Superfund Cleanup

The U.S. Environmental Protection Agency is the lead agency for investigating and cleaning up contaminated sediment along the 10-mile stretch of the Lower Willamette River designated as the Portland Harbor Superfund Site. EPA issued its Record of Decision (ROD) for the site in January 2017. On October 20, 2018, EPA proposed changes to the ROD based on long-term research showing that the chemical benzo(a)pyrene (BaP) is less toxic than previously thought. The toxicity of BaP is used as the basis for evaluating risk for a group of contaminants called carcinogenic polycyclic aromatic hydrocarbons (cPAHs), which are one of the classes of contaminants targeted for cleanup in the harbor.

Based on the updated health risk information, EPA is proposing changes to the cPAH cleanup levels that will require less sediment dredging and capping. Due to these changes, the cleanup area is expected to be reduced by about 17 acres out of the total 2,200 acres, and cost about \$35 million less than the original \$1 billion cleanup estimate. The proposed changes to the 2017 cleanup plan are described in an Explanation of Significant Differences (ESD) document. EPA took public comment on the proposed changes through December 21, 2018.

DEQ is reviewing the ESD and considering all public comments before making a final determination on whether to concur with EPA's final proposal.

North Ridge Estates Superfund Cleanup in Klamath Falls

North Ridge Estates is an EPA Superfund Site comprised of a residential subdivision approximately three miles north of Klamath Falls. The 745 acre 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 with DEQ supporting implementation. EPA completed remedial action in October 2018. The remedial action consisted of removing the top two to four feet of soil containing asbestos materials from all residential parcels and capping the excavated areas with clean soil. The contaminated material was consolidated into two onsite repositories and capped with clean soil. Oregon is responsible for 10 percent of the \$42 million total cleanup costs, as well as for ongoing site operation and maintenance following approval and certification of remedial actions. DEQ has received a credit for state costs incurred in our support role and providing the clean soil capping materials from the Department of State Lands that will offset a portion of the state's match obligations. State match funds are derived from the Industrial Orphan Site fund pursuant to ORS 465.381.

Former GNB Battery Facility in Salem

The former GNB Battery facility was an automotive battery manufacturer from 1945 to 1989. In 1991, GNB began site assessment activities and found widespread lead contamination of onsite soils. Investigation and cleanup of the property occurred throughout the 1990s and the facility's manufacturing equipment was removed. The property owner and DEQ agreed to restrict uses of the property to protect people from exposure to any remaining lead at the site. In 1999, DEQ issued a no further action letter that included restrictions on land use. The facility was later sold. In late 2016, the current property owner

approached DEQ about removing the restrictions on the use of the property. This resulted in DEQ requesting additional sampling in February 2017. The sampling identified more surface soils with high concentrations of lead, along with high concentrations of lead dust throughout the building once used for battery production. The building had been converted to multi-tenant commercial use. DEQ and the Oregon Health Authority required building closure until cleanup of lead residue was completed. DEQ, OHA and Oregon OSHA provided cleanup oversight of lead dust removal and encapsulation of lead dust that was not feasible to remove from the building. DEQ issued a conditional no further action determination in May 2018 that includes additional future use restrictions described in an Easement and Equitable Servitude filed on the property deed. Additionally, DEQ approved an Operations and Maintenance Program and Contaminated Media Management Plan for the property.

Lebanon Area Groundwater

The Lebanon Area Groundwater Contamination study area consists of approximately 900 acres of downtown and northern downtown in Lebanon. Perchloroethylene, a solvent commonly used in dry cleaning, and its breakdown products, have contaminated the groundwater under Lebanon through historical releases from multiple sources. Most of the properties in the affected area are connected to city water and are, therefore, not directly affected by the groundwater contamination. However, some residential wells in the study area have contamination levels that pose a health hazard if used for drinking water by occupants. 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 then issued a Record of Decision that describes the long term remedial action activities needed at this site. DEQ's selected remedy has several components, including identifying and sampling water wells and connecting impacted properties with contaminated wells to the city water supply from the Willamette River, limiting certain uses of groundwater in areas of contamination, and long term monitoring of the groundwater contamination. DEQ is currently in negotiations with responsible parties to settle past and future costs for implementing the remedial action specified in the ROD.

Willamette Industries in 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 was 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. In January 2018, DEQ provided bottled water to well owners with estimated levels of formaldehyde above the residential screening level while an evaluation of formaldehyde test methods was conducted, additional private wells were tested, and Oregon Health Authority completed a formaldehyde health assessment. Results showed that formaldehyde is not present at unsafe levels in the private wells, and DEQ considers the formaldehyde investigation of the private wells to be complete. No further investigation of the northwest neighborhood well water is required at this time, and the provision of bottled water has been discontinued. Meanwhile, DEQ continues to work with Willamette Industries on the cleanup of their facility to ensure future use of groundwater remains protective.

Armstrong World Industries in St. Helens

The Armstrong World Industries site is a former fiberboard manufacturing plant in St. Helens, Oregon. The site includes about 38 acres of developed land and over 100 acres of adjacent wetlands in Scappoose Bay that were contaminated by historic industrial activities.

In June 2018, DEQ issued its final cleanup plan—or Record of Decision—to address contaminated surface soils in the upland portion of the site. DEQ is working with the current property owner, Armstrong World Industries, to complete cleanup of the upland. Phase I of the cleanup includes soil excavation and disposal, and was completed in October 2018. Phase II includes installation of a gravel and asphalt cap, and is expected to be completed in 2019.

In September 2016, one of the former property owners, Kaiser Gypsum Company, filed for bankruptcy, delaying work on the wetland portion of the site. As part of the bankruptcy, DEQ filed a claim against Kaiser for remedial action costs for both the upland and wetland areas. The wetland cleanup remains on hold while DEQ works to resolve its claim.

Former Bend Construction 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 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 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 and Oregon State University entered into a prospective purchaser agreement in March 2018. Under this agreement, OSU plans to remove and reuse a significant portion of the solid waste at the site. The priority is to remove decomposing wood waste that has generated a considerable amount of heat and has caused sinking along the east side of the landfill.

Astoria Marine Construction Company

DEQ has reached an agreement to settle liability and clean up historic contamination at Astoria Marine Construction Company, or AMCCO. The site has been a ship manufacturing and repair facility on the Lewis and Clark River near the mouth of the Columbia since 1924, providing services to both the U.S. military and west coast fishing vessels.

The EPA initiated efforts in 2011 to list the site in its Superfund program. In 2012, an agreement between EPA and the State of Oregon deferred the site listing, and EPA transferred site management to DEQ. Construction of the cleanup remedy and restoration plan is expected to occur in 2019.

Under the settlement agreement, AMCCO will implement the cleanup remedy identified in DEQ's 2017 Record of Decision and will be released from further liability. DEQ will perform ongoing monitoring and maintenance of the riverbed sediment remedy, using DEQ orphan program funds, of the in-water area after the cleanup remedy is implemented. AMCCO retains responsibility for upland maintenance. The agreement also includes a natural resource damages assessment and restoration plan agreed upon by project trustees, including tribal governments, two federal natural resource agencies and the Oregon Department of Fish and Wildlife.

DEQ has worked closely with local community leaders, several tribal governments, and other government agencies throughout this process.

River St. Warehouse Fire in Portland

On May 14, 2017, during a strong storm, a fire broke out at an abandoned 1.8-acre warehouse overlooking the Willamette River in a densely populated, mixed commercial/residential area of Northwest Portland. The warehouse contained asbestos containing material within the roofing paper and layer of the flooring. A significant amount of asbestos materials became airborne during the intense fire, and the

winds from the storm carried the materials in a plume over much of downtown Portland, Residual asbestos-containing material also remained on-site after the fire.

EPA and DEQ formed a unified command and conducted an emergency action that also including other partners spanning several weeks to find, collect, and properly dispose of the wind-dispersed asbestos, including the areas across the river in downtown Portland. This action was completed shortly before the annual Portland Rose Festival – allowing those activities to proceed without interruption.

In the fall 2017, EPA initiated a time critical removal action of the asbestos-containing material from the former building's debris pile, having determined that the site owner was unable to pay for this cleanup work. Approximately 20,000 cubic yards of fire debris containing asbestos materials were removed over the course of several months. Final work on the site was completed on March 6, 2018. EPA's total costs for the response and removal action came to approximately \$5.2 million. DEQ's total costs for the response was approximately \$750,000. DEQ is working with EPA and other state agencies to recover response costs from the responsible party.

Cleanup Program Improvements

DEQ's Environmental Cleanup Program strives to continually improve its operations in response to feedback from the business community, environmental consulting firms, and other cleanup program participants and stakeholders.

Institutional and Engineering Controls Site Review Process

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 met current standards, while a few need additional attention. In 2018, DEQ began updating procedural guidance on periodic review of a subset of sites annually to verify that sites with significant contamination remaining in place are being properly maintained.

Building Surface Hazards Guidance

DEQ initiated this guidance project in February 2018 to help DEQ project managers address building surface contamination issues identified at several sites in recent years. The guidance provides recommendations for consideration of possible building contamination as they evaluate the history of facility operations and potential sources of contamination related to those operations. The guidance clarifies that OSHA standards apply to building workplaces at cleanup sites where manufacturing operations are ongoing. The guidance further clarifies that the cleanup law applies to the building interiors where future use of the building involves general public occupancy. Examples of public occupancy include daycare facilities, recreational activities, or schools. The guidance provides procedures on how to assess building surfaces during brownfield redevelopment projects or projects involving redevelopment that were not assessed prior to changing building uses involving public occupancy.

DEQ guidance includes precautionary language for no further action letters for completed cleanups at operating facilities indicating indoor building conditions should be evaluated prior to future site redevelopment. DEQ is also developing a fact sheet titled *DEQ Hazardous Building Considerations in Property Transactions* to remind property owners, environmental consultants and contractors that evaluating the presence of chemical residues on interior building surfaces is necessary for satisfying due diligence requirements under the environmental cleanup law. Liability protection under state law requires prospective purchasers of property to conduct all appropriate inquiries and due diligence in investigating previous ownership and use of a property.

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.

In 2018, DEQ determined that key workgroup recommendations could be implemented consistent with Oregon's environmental cleanup laws, and began drafting revisions to the ecological risk assessment guidance. A draft of the guidance is under DEQ management review.

Voluntary Cleanups

The 1991 Oregon Legislature authorized the 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 a 90-day 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, including 205 sites following the traditional pathway and 45 in independent cleanup. Since 1991, the Voluntary Cleanup Program has issued no further action 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 use or reuse of the site. These are often highly visible locations where uncertainty about potential cleanup liability has interfered with opportunities to bring new or expanded uses to the site. Nearly every community has brownfields. Cleanup and reuse of these properties can alleviate blight, increase local property tax bases, provide jobs, help meet Oregon's land-use goals, and enhance public health and the environmental quality.

DEQ works with EPA and other partners to assist communities throughout Oregon to support cleanup and reuse of brownfields. DEQ secures federal funding from EPA to perform assessments of brownfield sites and to provide technical assistance to communities on their efforts to seek additional funding to complete necessary cleanups. In fiscal year 2018, DEQ provided significant technical assistance and advice to 15 local governments that received EPA brownfield planning, site assessment, or cleanup grants. DEQ used about \$423,000 in EPA grant funds at nine brownfields to conduct site investigations and develop further-action recommendations (or make no further action decisions). The paragraphs below are examples of important brownfield activities and outcomes DEQ was involved in during the fiscal year.

Cully Park Redevelopment

Cully Park is a 24-acre closed landfill located in the Northeast Portland neighborhood of Cully. In 2000, Multnomah County took possession of the property through tax foreclosure. The City of Portland's

Bureau of Parks and Recreation subsequently took over ownership of the property under an agreement with Metro, who operated the landfill infrastructure (leachate collection, methane collection system, etc.). In 2008, Portland Parks developed a master plan with Cully community members to develop the site into a public park. Although Cully is one of the largest neighborhoods in Portland, it was also one of most park deficient.

In 2011, Verde, a neighborhood nonprofit organization, requested assistance from DEQ to determine if the former landfill was safe to redevelop into a public park. Verde also wanted to involve community members in the site investigation and park redevelopment process. Using funds received from EPA's 128(a) State Response Grant, DEQ collaborated with the Oregon Health Authority to conduct a site investigation. OHA used funds received from the Agency for Toxic Substances and Disease Registry to support the project.

Throughout the various phases of this project, DEQ provided technical assistance, performed a site investigation, provided regulatory oversight, prepared a no further action determination, and participated in numerous outreach events to inform the public about the redevelopment of the former landfill. In June 2018, the park opened to the public, with Governor Brown in attendance, and has been used for numerous festivals, sporting events, and community gatherings.

City of Beaverton

Beaverton applied for and received a \$200,000 Brownfields Assessment grant from the U.S. EPA. to support site investigations and community planning for productive reuse of more than a dozen contaminated or potentially contaminated properties. Beaverton supports the cleanup and revitalization of brownfield properties in the downtown, Round and Creekside District areas, to foster growth of key manufacturing and technology-based businesses in new state-designated Enterprise Zones.

Metro (partners Clackamas County and Oregon City), Coalition Community-Wide Assessment Grant

Metro Coalition received a \$600,000 EPA Brownfields Assessment grant for community engagement and brownfields assessment along the McLoughlin Blvd/Hwy 99 Corridor. The grant allocation is \$300,000 for hazardous substance assessment and \$300,000 for petroleum contamination assessment. With this funding, the coalition will support the cleanup and revitalization of Willamette Falls as well as contaminated or potentially contaminated properties on McLoughlin Boulevard.

Cascade West Council of Governments (partners include the cities of Newport and Toledo, the Confederated Tribes of the Siletz Indians, and Lincoln County), Coalition Community-Wide Assessment Grant

Cascade West Council of Governments received a \$600,000 EPA Brownfields Assessment grant for community engagement and brownfields assessment for the developed areas within the Yaquina River watershed in Newport and Toledo, and unincorporated areas of Lincoln County. The grant allocation is \$300,000 for hazardous substance assessment and \$300,000 for petroleum contamination assessment. Affordable housing has been identified as a high community priority and will be a focus area for the grant funding project.

Rogue Valley Council of Governments (partners include Jackson County and the cities of Medford, Central Point and Grants Pass), Coalition Community-Wide Assessment Grant

Rogue Valley Council of Governments received a \$600,000 EPA Brownfields Assessment grant for community engagement and brownfields assessment will be used to create a brownfields inventory, prioritize brownfields, prepare two area-wide plans, and conduct community involvement activities. The

grant allocation is \$300,000 for hazardous substance assessment and \$300,000 for petroleum contamination assessment. Assessment activities will focus on the Medford and Grants Pass Metropolitan Areas, including the City of Central Point and the unincorporated community of White City.

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 2015 and 2016, the legislature passed bills that the coalition supported, including 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.

DEQ continues to participate in the Oregon Brownfield Coalition providing advice and guidance as needed on brownfields initiatives developed by external organizations. DEQ is also participating with the Clackamas County Brownfields Land Bank Authority Task Force, formed to take advantage of the land bank legislation passed in 2016.

Oregon House Bill 2968 Legislative Report

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 explored ways to enhance brownfield cleanup and redevelopment in Oregon, with a focus on building affordable housing where possible. DEQ also surveyed brownfields stakeholders, and met with EPA to begin collaborating on remedial decision-making and liability considerations. The report titled *Environmental Cleanup Program: Coordinated Approaches to Addressing Environmental Liability in Oregon* was submitted to the Oregon Legislature in September 2018. The full report is available online at <https://www.oregon.gov/deq/Data-and-Reports/Pages/Reports-to-Legislature.aspx>.

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 2018, DEQ completed a record number of 18 PPAs throughout the state, with 10 in the Northwest Region, four in the Western Region, and four in the Eastern Region. Several PPAs support industrial and commercial redevelopment, including sites in North Portland, Fairview, and the Central Eastside Industrial District, as well as properties in Coos Bay and Astoria. Two PPAs are crucial to community and economic redevelopment efforts carried out by the Urban Renewal Areas in Troutdale and Eugene; in addition, the City of Sweet Home has acquired property central to future plans for tourism and economic development. The successful Columbia Slough Settlement Framework has been extended

to development of former mill properties along the shore of Lake Ewauna in Klamath Falls, initiated by entering a PPA.

Some PPAs were important components of assuring cleanup and reuse of some of the most difficult and costly cleanup sites in the state program, including the NuWay Oil site in North Portland, a portion of the NW Aluminum Superfund Site in The Dalles, and residential subdivision lots at the site of the former Frontier Leather property in Sherwood. Yet another PPA is supporting creation of affordable housing in North Portland. Three noteworthy projects are underway in the Eastern Region: Expansion of the Oregon State University campus in Bend; acquisition of property by the Baker School District to further a national award winning program on education and job training related to cleanup and resale of contaminated sites; and a PPA making it possible for the Pendleton Roundup to complete much needed expansion of their operational facilities for their iconic annual event. There were about 15 PPAs in process as the new fiscal year began, and DEQ has also continued to assist with PPA amendments, notices of transfer, and certificates of completion related to the PPA portfolio, which now includes more than 200 agreements entered over the past two decades.

Orphan Sites

Industrial orphan sites¹ 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 as a Superfund Site and use the orphan site account to pay the state's required 10 percent share of remedial action costs. Since 1992, DEQ has declared 111 sites as industrial orphans. It is important to note that 39 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 2018, orphan funds were expended on 46 sites.

The 2017 Oregon 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 for \$5.0 million is scheduled for spring 2019. Based on ongoing and projected future orphan cleanup work, DEQ estimates 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. Based on historic trends and current estimates of future expenditures, DEQ anticipates requesting Legislative approval to issue approximately \$10 million in general fund-financed bonds in fiscal year 2021 to pay for orphan site expenditures in the 2021-2023 and 2023-2025 biennium.

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.

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.

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 Superfund Sites with no viable responsible parties. Subject in part to the cost and timing of EPA's remedial activities at Superfund 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 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 Superfund Sites.

3. Cleanup Milestones and Projections

Cleanup Phases Initiated and Completed for Fiscal Year 2018; Forecast for Fiscal Year 2019

Site actions	FY 2018 (Actual)		FY 2019 (Forecast)
	Initiated	Completed	
Suspected Release Sites Added to Database		72	80
Added to Confirmed Release List		2	3
Added to Inventory		2	3
Site Screenings	15	4	10
Preliminary Assessments	9	7	6
Removal Actions	11	12	9
Remedial Investigations	5	3	6
Feasibility Studies	1	1	7
Records of Decision	0	5	5
Remedial Actions	9	9	12
No Further Action Determinations		67	80

Fiscal year 2019 forecasts are based on estimates developed as part of the four-year plan shown below.7. One-time actions show data in the “complete” columns only.

Four-Year Plan: Projected Cleanup Actions, 7/1/19 – 6/30/23

Site actions	2019-21 Biennium	2021-23 Biennium
Suspected Release Sites Added to Database	155	150
Added to Confirmed Release List	5	5
Added to Inventory	5	5
Site Screenings	20	18
Preliminary Assessments	12	10
Removal Actions	18	16
Remedial Investigations	12	12
Feasibility Studies	14	12
Records of Decision	10	9
Remedial Actions	22	22
No Further Action Determinations	164	160

This four-year plan was created for the 2019 Environmental Cleanup Annual Report.