PETROLEUM CLEANUP & REDEVELOPMENT FUND

GUIDEBOOK

JUNE 2014

COLORADO
DEPARTMENT OF
LABOR AND EMPLOYMENT

REDEVELOPMENT FUND GUIDEBOOK

TABLE OF CONTENTS

1.0 Basis and Purpose 1
2.0 Application Process 2
2.1 Eligibility Criteria 2
- Property Ownership 2
- Potential Eligibility to the Petroleum Storage Tank Fund 2
- Existence of Petroleum Storage Tanks on Property 2
- Property Redevelopment or Reuse Plan 3
Description of Redevelopment or Reuse 3
Property Zoning and Prioritized Land Use 4
Assessing the Value-Added Components 4
Community Involvement 9
3.0 Redevelopment Fund Eligible Activities 10
3.1 Petroleum Storage Tank Removal 10
3.2 Level I Site Assessment 10
3.3 Level II Site Characterization 12
3.4 Level III Cleanup 14
4.0 Developing a Work Plan 14
5.0 Eligible Costs and Reimbursement 15
5.1 Applying for Reimbursement 15
- Tank Removal 15
- Level I and II 15
- Level III 15
- Ineligible Costs 16
6.0 Redevelopment Fund Applications and Documents 16
Appendices
Appendix A—Resources/Links A-1
Appendix B—Glossary of Acronyms B-1
Appendix C—Definitions C-1
Appendix D—Frequently Asked Questions (FAQs) D-1
Appendix E—Case Studies E-1

1.0 BASIS AND PURPOSE

The Petroleum Cleanup and Redevelopment Fund (Redevelopment Fund), created within the Division of Oil and Public Safety (OPS), is designed to catalyze the investigation and cleanup of contamination at abandoned and former gas stations and other petroleum storage tank properties. Many of these properties have been unaddressed for decades. These former storage tank sites were generally not eligible for reimbursement from the Petroleum Storage Tank Fund (PSTF).

Abandoned or underutilized petroleum contaminated properties, including abandoned auto service and gas stations, abandoned auto sales lots, bulk petroleum facilities, and non-retail underground storage tanks (USTs), are common in almost every community throughout the State of Colorado. These contaminated sites can range in size from several acres to less than a quarter acre. These sites are located on community Main Streets, on neighborhood corners, and in local commercial districts. Although the sites are often small parcels, they are numerous in the State of Colorado.

Redevelopment or reuse of this type of site will reduce the threat of environmental impacts from petroleum contamination and enhance the property's value for the community.

❖ ***The mission of the Redevelopment Fund is to promote environmental protection, provide economic and social community enhancements, and support community revitalization through the assessment, cleanup, and sustainable reuse of abandoned and underutilized petroleum storage tank sites in the State of Colorado.***

Petroleum contamination is known to present a risk to human health and the environment. Reducing the potential for exposure to contaminants for people who are in proximity to petroleum releases is the Redevelopment Fund's primary objective. In addition, the opportunity also exists to reduce the significant blighting influence and other negative economic impacts on the communities where these sites are located. The value of these parcels and adjacent properties are generally depressed and do not realize their full potential for generating tax revenue and creating much-needed employment opportunities. Economic and community development also depends on non-economic assets, such as parks, meeting places, and open space. By considering each community's unique vision and planning process, we can preserve, create, or restore such assets.

❖ ***This guidebook is designed to assist <u>property owners</u> with their applications to the Redevelopment Fund. The information provided will help property owners understand how the Redevelopment Fund can assist in reducing the risk and uncertainty that has complicated the ability to sell, reuse, or redevelop former petroleum storage tank properties. To view the Redevelopment Fund process flow diagram, <u>click here</u>.***

Removing a petroleum storage tank during a property redevelopment.

2.0 APPLICATION PROCESS

The application process is designed to provide OPS with:

- Information pertaining to the current and historic property utilization related to the operation of petroleum storage tanks;
- The potential or known risk the site poses to the environment; and
- The redevelopment/reuse plan for the property. OPS will use the application to prioritize funding of projects.

2.1 ELIGIBILITY CRITERIA

♦ PROPERTY OWNERSHIP

The applicant must be the property owner. The property owner is not restricted from developing partnerships with other entities as part of a private sector arrangement or public-private partnership. The transfer of the Redevelopment Fund eligibility can take place at any time to subsequent property owners, provided that the subsequent property owner agrees to the Terms and Conditions and cleanup objectives.

♦ POTENTIAL ELIGIBILITY TO THE PSTF (*APPLICATION QUESTION NO. 1*)

The eligibility to the PSTF is described in the Storage Tank Regulations 7 C.C.R. 1101-14, Article 8, Section 8-1. The property will be eligible to the Redevelopment Fund if the criteria for PSTF eligibility cannot be met.

♦ EXISTENCE OF PETROLEUM STORAGE TANKS ON THE PROPERTY (*APPLICATION QUESTION NO. 2*)

There are several methods for determining the petroleum storage tank history at the property:

1) Physical inspection is a direct determination. Tank filling ports and other manways, footprints of former dispensing island areas, vent pipes attached to the building, and surface cover that has been modified and patched are the most common indications that storage tanks are or were present on the property.

2) Phase I Environmental Site Assessments and real estate screenings are effective in describing the property history and the petroleum storage tank utilization.

3) Sanborn Fire Insurance Maps can show the existence of petroleum storage tanks. The largest collection of Sanborn maps in Colorado is located at the University of Colorado (UC) at Boulder library.

4) Historic city address directories compiled by companies like Coles or Polk are available in many public libraries. These directories give a listing of properties by name and address. Names can indicate tank usage (i.e., service station, gas station).

5) Official property transaction records, environmental database searches, and historic pictures can also provide information pertaining to petroleum storage tank use.

UC Boulder Sanborn map link

(left-click)

♦ PROPERTY REDEVELOPMENT OR REUSE PLAN (*APPLICATION QUESTION NO. 5–8*)

Information should include a description of the current and future use of the property, and how the redevelopment/reuse of the property will enhance the welfare of the community. Conducting the environmental assessment and cleanup creates a mechanism to reduce the threat that contamination poses to human health and the environment. Additional project outcomes tied to economic, social, and other environmental enhancements will strengthen the eligibility application.

The Source, located in Denver, Colorado, before redevelopment.

This 19th century steel refinery building was repurposed to house a group of local brewers, eateries, and specialty grocers.

The Source redevelopment applied sustainable building practices.

♦ DESCRIPTION OF REDEVELOPMENT OR REUSE (*APPLICATION QUESTION NO. 5*)

Provide a discussion of current property land use and describe the conceptual plan for the future property use. The comparison between the current and future use is fundamental to obtaining eligibility to the Redevelopment Fund.

❖ *WHAT IS THE DIFFERENCE BETWEEN REDEVELOPMENT AND REUSE?*

Redevelopment and reuse of existing property promotes sustainable development practices. Redevelopment is the process of rebuilding or restoring a property or area that is in a measurable state of decline, disinvestment, or abandonment. The process ensures that the quality of life and environment is improved in a community as a result of sound land use practices. Reuse is repurposing existing buildings for viable new uses and modern functions, allowing for the continued use of the building and keeping it as a viable community asset.

The Town of Milliken, Colorado, successfully completed the Milliken Police Station project that redeveloped a former gas station property. The building design specifically enhanced the community's policing efforts, which is a socially sustainable service delivery model.

Former petroleum dispensing facility located on the main street in Milliken, Colorado.

Redeveloped site for the Milliken Police Station.

♦ PROPERTY ZONING & PRIORITIZED LAND USE AREAS (*APPLICATION QUESTION NO. 6*)

❖ ***Meeting with municipal and county planning personnel is beneficial to ensuring that a successful redevelopment process is implemented. Planners are aware of local issues that could impact the success of the project. Projects within established planning zones may be eligible for tax credits and other financial leveraging opportunities. There may also be a building or zoning code requirement for various phases of the redevelopment process.***

The property may be located in a prioritized land use area. In Colorado, there are several long-term planning zones that have been established to support the community vision of revitalization. Many communities also have established planning areas, business improvement districts, development and improvement districts, Urban Renewal Authorities, and Downtown Development Authorities.

Colorado Enterprise Zones

Colorado Blueprint Counties

Colorado Urban Renewal Zones exist in the communities of: Alamosa, Aspen, Aurora, Avon, Beaver Creek, Boulder, Breckenridge, Broomfield, Canon City, Colorado Springs, Cortez, Craig, Denver, Durango, Englewood, Erie, Estes Park, Fort Collins, Fort Morgan, Fountain, Frisco, Glenwood Springs, Golden, Grand Junction, Greeley, Keystone, La Junta, Lakewood, Littleton, Longmont, Louisville, Manitou Springs, Montrose, Pagosa Springs, Pueblo, Salida, Silverthorne, Snowmass Village, Telluride, Thornton, Wheat Ridge, Winter Park, and Vail.

Colorado Enhanced Rural Enterprise Zones: Archuleta, Baca, Bent, Cheyenne, Conejos, Costilla, Crowley, Custer, Delta, Dolores, Hinsdale, Huerfano, Jackson, Kiowa, Lake, Las Animas, Lincoln, Logan, Mineral, Otero, Ouray, Phillips, Prowers, Rio Grande, Saguache, San Juan, and Sedgwick counties.

Colorado Main Street Program Communities: Brush, Granby, Lake City, Lamar, Lyons, Montrose, Ridgway, Rifle, Steamboat Springs, Trinidad, Victor, and Westcliffe/Silver Cliff.

Left-click on underlined long-term planning zones for connection to the hyperlink.

www.isustainable.org

♦ ASSESSING VALUE-ADDED COMPONENTS (*APPLICATION QUESTION NO. 7*)

The application review process will prioritize funding to applicants based on the level of environmental, economic, and social value elements that the project will attain and provide to the property and surrounding community.

The Redevelopment/Reuse Outcomes Worksheet lists different components for the applicant to consider. Although these outcomes are listed in different categories, they are all interconnected. If the value-added component applies to the project, the box should be checked off and a detailed explanation should be provided in the answer box of the eligibility application question number seven.

ENVIRONMENTAL VALUE-ADDED COMPONENTS

❖ ***The removal of USTs eliminates a risk to public safety and is the first step to improving the environmental quality of a neighborhood.***

Underground storage tank removal and the start of redevelopment.

St. Mary's Hospital in Grand Junction is a LEED-Certified Silver building.

Buildings that are LEED-certified reduce the use of energy, water, and other resources and create less waste. The applicant should discuss the proposed standard the project will achieve and summarize the certification points that are planned to be achieved throughout the project.

Stormwater management is the implementation of structural or non-structural best management practices (BMPs) to reduce the volume and peak rate of runoff from a site into the stormwater system and waterways. When redevelopment takes place, the potential for applying design criteria to increase water infiltration and reduce runoff can be incorporated into the project plan. A list of stormwater BMPs can be found on the EPA website.

The rain garden is an example of a stormwater BMP.

The pocket park in Boulder, Colorado is a prime example of creating a sustainable greenspace.

Greenspace is land that is partly or completely covered with grass, trees, shrubs, or other vegetation and is accessible to the public. Parks and community gardens are types of greenspace. The environmental benefits of greenspace include:

- Improvement in air quality;
- Preservation of indigenous ecosystems;
- Reduction of the urban heat island effect; and
- Stormwater management.

ENVIRONMENTAL VALUE–ADDED COMPONENTS (CONTINUED)

Renewable energy is constantly replenished and can provide a long-term source of energy for the property. Although former petroleum storage tank sites are relatively small, there are opportunities to incorporate renewables into the property redevelopment.

Different types of renewable energy applications can be found at the Department of Energy website.

Electric charging station at First and Main Town Center in Colorado Springs.

	Green Best Management Practices The following list should be considered, when appropriate, during all phases of work for OPS projects. For more information, please visit out website at www.colorado.gov/cdle/remediation/green	Applicable?	Implemented?
Assessment	Utilize real-time measurement tools [Membrane Interface Probe (MIP), Electrical Resistivity Imaging (ERI), Laser-Induced Fluorescence (LIF), Cone Penetration Testing (CPT), mobile labs] for high resolution data collection for source area and plume delineation. These technologies can cost effectively identify contamination and aid in the		
	Utilize direct push instead of auger drilling when technically feasible.		
	Collect data necessary for site specific risk assessment and/or remedial alternative evaluations [hydrogeologic parameters, Monitored Natural Attenuation (MNA) parameters, bioremediation parameters, In-situ Chemical		
	Utilize local subcontractors when appropriate.		
	Dispose of Investigation-Derived Waste (IDW) at the nearest permitted facility.		
	Identify reuse/recycling options for IDW. This includes not only soil, asphalt, or concrete, but also used bailers, boxes, etc.		
	Use fate and transport modeling to help determine monitoring well placement if release characteristics are known.		
	Develop a Conceptual Site Model (CSM) for the project. An accurate CSM supports project decisions about exposure to contaminants, site cleanup and monitoring.		
Design	Complete pilot testing likely or probable remedial alternative.		
	Complete Life Cycle Analysis (to estimate the carbon footprint) of considered remedial approaches.		
	Identify cleanup goals, including milestones to evaluate the performance (i.e., update the CSM).		
	Verify power requirement calculations and performance curves to ensure properly sized blowers, compressors, etc. are being used.		
	Incorporate individual flow control to each system well for adjustments to improve efficiency.		
	Cycle the mechanical system components to increase removal efficiency and decrease energy usage.		
	Review emissions calculations to evaluate the need for thermox or catox inclusion.		
	Utilize carbon vessels or regenerative Optipore adsorbent for emissions capture. Emissions capture should particularly be considered during the initial purge of vapors.		
	Utilize carbon emissions capture on mobile vacuum events (Enhanced Fluid Recovery (EFR), mobile air sparge/soil vapor extraction (AS/SVE)].		
	Utilize renewable energy when available. Most often, this may be in the form of wind energy credits from the utility provider.		
	Consider stand alone renewable energy systems for electrical needs when power drops and electrical supply upgrades are costly and/or when feasible (i.e., solar sipper).		
	Develop a materials management plan. Identify reuse/recycle opportunities (e.g., process concrete onsite for fill, reuse clean soil for fill or local reuse, avoid dry runs for hauling trucks)		
Construction and Startup	Obtain the full specifications and serial numbers of all durable equipment (blowers, compressors, product pumps, control panels, sheds, etc.) for future reuse.		
	Utilize local subcontractors when appropriate.		
	Implement materials management plan.		
	Review the CSM and cleanup milestones following system startup and modify as necessary.		
O&M	Review the CSM and cleanup milestones throughout system operation and maintenance (O&M). Modify the system (remediation process optimization) as necessary and document decisions/analysis.		
	Use telemetric system operation when feasible.		
	Assess surface seals and accessible piping joints quarterly to ensure efficiency.		
Monitoring	Utilize local subcontractors when appropriate.		
	Conduct periodic measurements and interpretation of MNA parameters (Monitoring and Remediation Report Table 2 info) for ongoing assessment of biodegradation.		
	Review and modify the sampling plan on an annual basis during system O&M. If the plume is stable, are there point of compliance (POC) wells that could be sampled annually?		

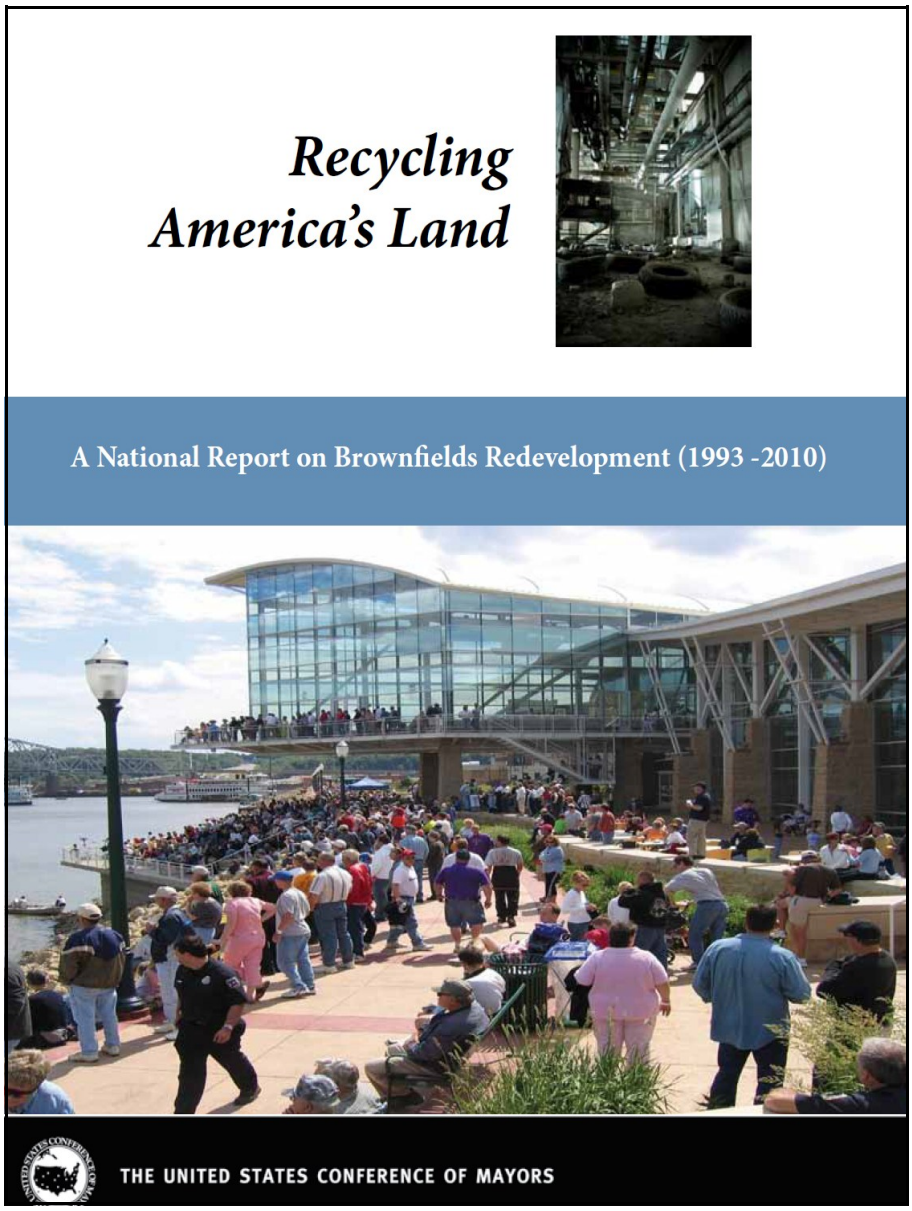
Click here for the document

OPS has published Green BMPs to implement throughout the site assessment, characterization, and cleanup process. The purpose of these BMPs is to reduce the carbon footprint, conserve natural resources, and improve operational efficiency. ***The applicant should attach the checklist to the eligibility application to demonstrate support of this particular component.***

Using a solar-powered remediation system is an example of a Green BMP.

$$ ECONOMIC VALUE–ADDED COMPONENTS

These components provide benefits before, during, and after the project for local governments, land developers, and the community. Redevelopment /reuse can improve local economic growth, increase tax revenue, create temporary and permanent jobs, and serve as a catalyst for surrounding development within the neighborhood. Aside from these tangible aspects of the redevelopment/reuse, property improvements can enhance surrounding land values and reduce the pressure to develop greenfields by optimizing the use of the existing infrastructure.



Click here for the report.

In 2010, the U.S. Conference of Mayors published a report entitled Recycling America's Land: A National Report on Brownfields Redevelopment (1993-2010). The report presents a survey of 99 cities concerning the positive outcomes from brownfields redevelopment that were generated over a 17-year period. The highlights from the report show that redevelopment has a substantial positive impact on adding tax revenue and creating temporary and permanent jobs.

SOCIAL VALUE–ADDED COMPONENTS

These components provide benefits throughout the life cycle of a project. The redevelopment/ reuse of the property can reduce neighborhood blight, reduce risks to human health, and become a focal point in the community. Depending on the type of end use, the community may be provided with space to hold special events and recreational activities, improved landscape and street views, and a reduction in crime. These types of enhancements lead to overall improvement in the quality of life.

Blighted property in need of redevelopment.

Removal of blight has a positive impact on a neighborhood. Blighted property is explained on the Denver Urban Renewal Authority website. An application that contains blight removal carries significant weight during the Redevelopment Fund's eligibility approval process.

Rural and urban areas have unique neighborhood characteristics that create a sense of place. Within these towns and cities, effective redevelopment can revolve around the basic needs of the community, such as food, fuel, household goods, and needed services. In addition, stronger social ties can be created through the retention of historic community heritage by the reuse or restoration of existing buildings.

The redeveloped Dahlia Square in the Park Hill neighborhood, Denver, Colorado, provides affordable housing and medical facilities.

Expanding the RTD FasTracks light rail system has created numerous TOD opportunities.

Investment in affordable housing has always been a desired outcome. Projects located within a transit-oriented development (TOD) area provide a variety of live/work/play opportunities that are especially attractive. Bringing in a new group of residents can also stimulate the development of adjacent properties.

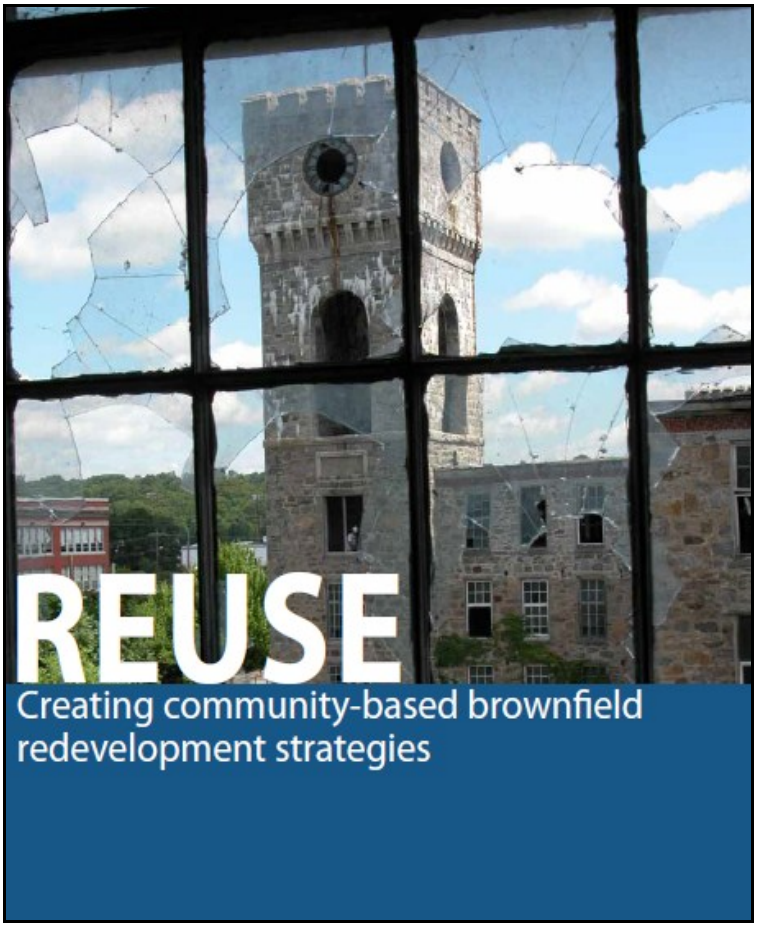
♦ COMMUNITY INVOLVEMENT (*APPLICATION QUESTION NO. 8*)

It is widely recognized that local community involvement has become an integral part of the redevelopment process. Engaging the community will help build public trust and credibility in the redevelopment/reuse project. Generally, communities create a vision of how their neighborhood should look and feel and successful projects reflect that vision.

Although petroleum storage tank sites are relatively small, there can be many stakeholders directly affected by land use issues and redevelopment outcomes. The property owner's recognition and interaction with stakeholders, local government, and business improvement districts is essential in successful redevelopment of these former storage tank properties.

Some types of redevelopment activities may require the submittal of preliminary site plans to local government, public notices, and/or public meetings. Evaluating what is needed to promote the project is the responsibility of the property owner to address in the application.

In 2010, the American Planning Association published a report entitled Reuse: Creating community-based brownfield redevelopment strategies. The report discusses six steps of the redevelopment process, which include: developing a community vision; identifying sites; addressing contamination; determining reuse options; evaluating cleanup options; and implementing a redevelopment plan. The community visioning chapter discusses stakeholder types and common public participation techniques. Several case studies are presented and a section of the report is devoted to financing.



***Click here* to view the report.**

3.0 REDEVELOPMENT FUND ELIGIBLE ACTIVITIES

❖ ***Eligible activities correspond to accepted industry practices that are employed to meet the objectives of the various project levels. The activities must be conducted by qualified professionals and begin after the Redevelopment Fund eligibility has been approved.***

3.1 PETROLEUM STORAGE TANK REMOVAL

Eligible activities are those actions associated with the removal of an underground storage tank. A summary of eligible activities is provided below:

- Permit payments
- Site safety and control measures (i.e., fencing, utility locating, etc.)
- Pumping out and disposal of the tank contents
- Cleaning and inerting the tank
- Excavating and tank removal
- Tank disposal
- Backfill and compaction of the excavation

Tank Yank - Approved applicants receive reimbursement up to a maximum of $2,000 per underground storage tank removed.

3.2 LEVEL I SITE ASSESSMENT

❖ ***The process of measuring for the presence of a petroleum release begins with identifying the location or former location of the tanks, lines, and dispensers. This action can be straightforward based upon the research that was conducted during the preparation of the application or it may require shallow remote sensing applications, such as electromagnetic and/or ground penetrating radar surveys. A review of existing aerial photography is also an effective tool to establish the location of the former storage tank system. Approved applicants receive up to $20,000 reimbursement for Level I work with a 10% match.***

Tank removal excavation showing product piping that can be traced to former dispensing areas.

When tanks are removed from the property, product lines can be traced from the tanks and they generally terminate at a dispenser area. It is important to know where these areas are located because they are the areas where leaks tend to occur. OPS requires that an assessment of the tank area, product lines, and dispensers be conducted beneath these potential sources of contamination. The initial assessment must indicate that an environmental impact above state action levels was not observed in order to obtain a letter of No Further Action (NFA).

Left-click underlined link to view state action levels.

3.2 LEVEL I SITE ASSESSMENT (CONTINUED)

Once the tank system is located, soil sampling must be conducted in the native soil below the tanks, lines, and dispensers. When tanks are removed, two soil samples are required for tank capacities less than 1,000 gallons and three samples are required for tank capacities of 1,000 gallons or greater. Product lines should be sampled below any known couplings where the product changes flow direction (i.e., ninety degree turns and tee sections). Dispenser islands must be sampled below each pump location.

In instances where the tank(s), lines, and dispensers have been removed, a grid of soil sampling locations should be laid out to reflect the size of the tank basin excavation. Three sample locations will be required for a former tank basin with one tank, five locations for tank basins with two or three former tanks, and eight locations for tank basins with more than three former tanks. Soil borings in a former tank basin must be advanced and screened for petroleum impacts to a minimum of twenty feet below the ground surface. The soil borings associated with former product lines and dispensers must be advanced and screened to a depth of ten feet below ground surface. If groundwater is encountered during the site assessment, a sample must be collected and analyzed.

Grab soil sampling from beneath the tanks.

Direct-push soil sampling in the area of a former tank basin.

LEVEL I ELIGIBLE ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO:

- Review of available information (historic records and/or aerial photography) to refine the location of the tanks, lines, and dispensers
- Work plan preparation
- Obtaining permits and right-of-way access
- Utility locating
- Shallow geophysical investigation
- Drilling and/or direct push sample collection
- Groundwater monitoring well installation
- Sampling and laboratory analysis of soil and groundwater samples
- Investigative-derived waste characterization and management
- Limited soil excavation
- Project reporting
- Site reclamation

811 Know what's below. Call before you dig.

Colorado 811 website

3.3 LEVEL II SITE CHARACTERIZATION

❖ *The Level II Site Characterization is designed to establish where the contamination is located and evaluate the exposure pathways by creating a conceptual site model that leads to the development of a cleanup plan.* ***Approved applicants receive up to $30,000 reimbursement for Level II work with a 10% match.***

When soil contamination above the state standard is detected during the Level I Site Assessment, the horizontal and vertical extent of the contamination must be defined to the Tier I RBSLs and the total petroleum hydrocarbon (TPH) threshold concentration value of 500 mg/kg during the Level II Site Characterization.

Soil probing is an effective way to gather soil and groundwater samples.

Groundwater sampling using disposable bailers.

If there is evidence that the soil is impacted and groundwater is encountered during characterization of the vertical extent of soil contamination, a groundwater monitoring well must be installed and the groundwater sampled and analyzed.

If a petroleum impact to groundwater is observed that exceeds the Tier I RBSLs for benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tert butyl ether (MTBE), the extent of a groundwater contaminant plume must be established through the installation of a monitoring well network indicating that the upgradient, crossgradient, and downgradient limits of the contamination are below the Tier I RBSLs for the groundwater ingestion exposure pathway.

When the extent of the contamination has been determined, a receptor survey needs to be completed. Basically, this step is to identify the points of exposure that are associated with this site that could be impacted by the release. These points of exposure include utility corridors, adjacent structures, downgradient water wells, surface water, and sensitive environments.

Where can you find a listing of the water wells in the State?

The Colorado Division of Water Resources Well Permitting Page

3.3 LEVEL II SITE CHARACTERIZATION (CONTINUED)

At this point, the extent of contamination is known and a receptor survey has been completed to assist in determining the risk to potential receptors (people and sensitive environments). The remedial goals and timeline should be estimated. This can be accomplished by evaluating a soil and/or groundwater fate and transport model. The results will indicate what points of exposure have the potential to be impacted by contamination in the future as well as determining the remedial cleanup goals. When models are utilized, a site-specific hydraulic conductivity must be obtained.

Hollow-stem auger drilling is an industry standard technique used to install groundwater monitoring wells.

Pilot testing of cleanup technologies can be conducted during Level II site characterization.

The final step in the Level II process is to develop a technically feasible approach to clean up the site. This step will require a pilot test of the chosen cleanup method. If sufficient budget remains from the $50,000 allocated toward the Level I and II activities, an addendum to the original Level II work plan can be submitted for OPS approval to accommodate this additional work.

❖ ***Please note that when the original $50,000 is expended, all additional costs will roll over into Level III and will require a 50% matching contribution by the property owner.***

LEVEL II ELIGIBLE ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO:

- Work plan preparation
- Obtaining permits and right-of-way access
- Utility locating
- Drilling and/or direct push sample collection
- Groundwater monitoring well installation
- Vapor point installation
- Sampling and laboratory analysis of soil, soil vapor, and groundwater samples
- Investigative-derived waste characterization and management
- Limited soil excavation
- Development of a receptor survey and conceptual site model
- Remedial action pilot testing
- Project reporting

Soil vapor sampling is an eligible Level II activity.

3.4 LEVEL III CLEANUP

The Level III Cleanup eligible activities are those actions performed to remediate the petroleum contamination to an acceptable level. When choosing a cleanup method, whether it is done during the Level II or III phase of work, the technical and economic feasibility of several alternatives should be considered. This evaluation will help determine the most effective cleanup plan and the associated cost that will be integrated into the work plan. **Approved applicants receive up to $500,000 reimbursement for Level III work with a 50% match.**

EPA lists the main remedial methods on their website.

Supplying oxygen to contaminated groundwater accelerates remediation.

4.0 DEVELOPING A WORK PLAN

❖ ***The work plan is a summary of eligible activities that will be performed at the site and must be submitted to OPS for approval prior to beginning the Level I site assessment, Level II site characterization, and Level III cleanup.***

THE BASIC ELEMENTS OF THE PROJECT WORK PLAN INCLUDE:

- Scope of work and conceptual site model.
- Site map(s).
- Budget estimate of direct costs. The Reasonable Cost Guideline (RCG) unit rates and general guidelines must apply when developing the project budget.
- Timeline for completion of work and project reporting plan.
- Qualifications of the primary consultant/contractor.
- Contingencies can be addressed to provide flexibility in the scope of work.
- Amendments to the work plan can be submitted for approval when changes to the scope of work are required based upon unexpected site conditions.

Level III cleanup work plans must also include a discussion of the technical and economic feasibility of the cleanup technology to be implemented. In addition, the applicant must demonstrate the ability to provide the necessary financial resources required to participate at this level.

Upon approval of the work plan, OPS will issue a Notice to Proceed (NTP) to the applicant that serves as authorization to start work and will affirm the Redevelopment Fund's commitment to a certain amount of money to conduct the scope of work.

5.0 ELIGIBLE COSTS AND REIMBURSEMENT

The eligible costs associated with activities that adhere to the Level I & II work plans will be reimbursed upon completion. Level III work will be reimbursed upon completion of agreed-upon milestones developed during the work plan approval process. Eligible costs are direct costs that are properly and reasonably incurred and are paid by the property owner.

5.1 APPLYING FOR REIMBURSEMENT OF ELIGIBLE COSTS

❖ ***The Redevelopment Fund is a reimbursement program that requires an application be submitted with supporting documentation of the approved tasks completed and proof of payment for the incurred costs. Reimbursement applications must be submitted within six months after tank removal, completion of Level I or Level II activities, or Level III milestones are met.***

♦ TANK REMOVAL REIMBURSEMENT

Approved applicants receive reimbursement for tank removal ($2,000 per tank). The tank removal reimbursement application must be submitted with documentation of the physical removal and payment of the direct costs.

Tank removal is a separate program within the Redevelopment Fund

♦ LEVEL I & II REIMBURSEMENT

Applicants are able to receive up to $20,000 reimbursement for Level I work with a 10% match and up to $30,000 reimbursement for Level II work with a 10% match. The reimbursement application for Levels I and II must reflect the costs associated with the tasks identified in the work plan. When the Level I site assessment work meets the objective of determining if contamination exists at the site, any remaining balance can be applied toward the Level II site characterization budget.

The activities that can be conducted with the remaining budget include, but are not limited to:

- Excavation of petroleum-impacted soils;
- Additional groundwater/soil vapor sampling;
- Pilot testing of a proposed cleanup technology; and
- Development of a cleanup work plan.

♦ LEVEL III REIMBURSEMENT

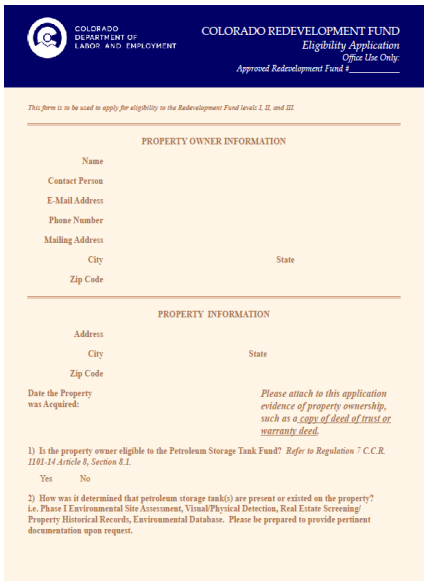
Applicants are able to receive up to $500,000 reimbursement for Level III work with a 50% match. The reimbursement of Level III is tied to project milestones that are established in the work plan. Upon completion of a milestone, a reimbursement application can be submitted for the eligible costs incurred. For example, a milestone may represent the installation of an active remedial system or completion of an in-situ bioremedial injection into the contaminant plume. Additional milestones may be related to the operation and maintenance of a remedial system, monitoring of the groundwater plume, or achieving a percentage of the total cost of the cleanup.

INELIGIBLE COSTS

Reimbursement applications that contain requests for costs not previously identified in a work plan and mutually agreed upon may be considered as ineligible. All undocumented work activities will be considered ineligible until the applicant provides project reports confirming the completion of the work. Reimbursement requests that do not provide the proof of payment of invoices are also considered to be ineligible.

Costs incurred before the start date, administrative overhead charges, and the unapproved cost of the property owner's employee or equipment are not eligible costs.

6.0 REDEVELOPMENT FUND APPLICATIONS AND DOCUMENTS



COLORADO DEPARTMENT OF LABOR AND EMPLOYMENT

COLORADO REDEVELOPMENT FUND
Eligibility Application
Office Use Only:
Approved Redevelopment Fund #_____

This form is to be used to apply for eligibility to the Redevelopment Fund levels I, II, and III.

PROPERTY OWNER INFORMATION

Name
Contact Person
E-Mail Address
Phone Number
Mailing Address
City State
Zip Code

PROPERTY INFORMATION

Address
City State
Zip Code

Date the Property was Acquired:

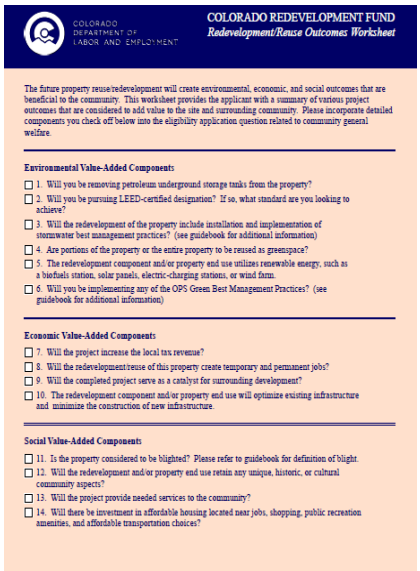
Please attach to this application evidence of property ownership, such as a copy of deed of trust or warranty deed.

1) Is the property owner eligible to the Petroleum Storage Tank Fund? *Refer to Regulation 7 C.C.R. 1101-14 Article 8, Section 8.1.*

Yes No

2) How was it determined that petroleum storage tank(s) are present or existed on the property? i.e. Phase I Environmental Site Assessment, Visual/Physical Detection, Real Estate Screening/ Property Historical Records, Environmental Database. Please be prepared to provide pertinent documentation upon request.

Eligibility Application



COLORADO DEPARTMENT OF LABOR AND EMPLOYMENT

COLORADO REDEVELOPMENT FUND
Redevelopment/Reuse Outcomes Worksheet

The future property reuse/redevelopment will create environmental, economic, and social outcomes that are beneficial to the community. This worksheet provides the applicant with a summary of various project outcomes that are considered to add value to the site and surrounding community. Please incorporate detailed components you check off below into the eligibility application question related to community general welfare.

Environmental Value-Added Components

- ☐ 1. Will you be removing petroleum underground storage tanks from the property?
- ☐ 2. Will you be pursuing LEED-certified designation? If so, what standard are you looking to achieve?
- ☐ 3. Will the redevelopment of the property include installation and implementation of stormwater best management practices? (see guidebook for additional information)
- ☐ 4. Are portions of the property or the entire property to be reused as greenspace?
- ☐ 5. The redevelopment component and/or property end use utilizes renewable energy, such as a biofuels station, solar panels, electric-charging stations, or wind farm.
- ☐ 6. Will you be implementing any of the OPS Green Best Management Practices? (see guidebook for additional information)

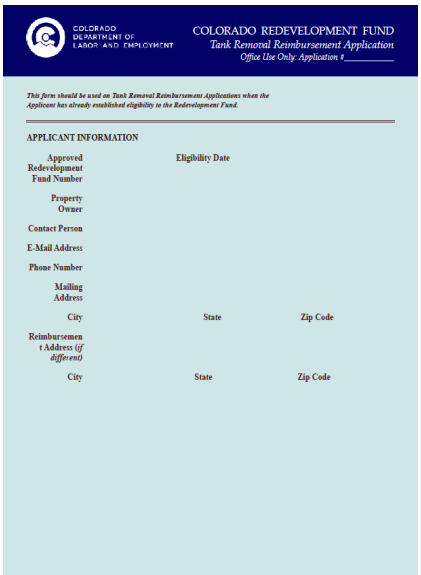
Economic Value-Added Components

- ☐ 7. Will the project increase the local tax revenue?
- ☐ 8. Will the redevelopment/reuse of this property create temporary and permanent jobs?
- ☐ 9. Will the completed project serve as a catalyst for surrounding development?
- ☐ 10. The redevelopment component and/or property end use will optimize existing infrastructure and minimize the construction of new infrastructure.

Social Value-Added Components

- ☐ 11. Is the property considered to be blighted? Please refer to guidebook for definition of blight.
- ☐ 12. Will the redevelopment and/or property end use retain any unique, historic, or cultural community aspects?
- ☐ 13. Will the project provide needed services to the community?
- ☐ 14. Will there be investment in affordable housing located near jobs, shopping, public recreation amenities, and affordable transportation choices?

Redevelopment/Reuse Outcomes Worksheet



COLORADO DEPARTMENT OF LABOR AND EMPLOYMENT

COLORADO REDEVELOPMENT FUND
Tank Removal Reimbursement Application
Office Use Only: Application #_____

This form should be used on Tank Removal Reimbursement Applications when the Applicant has already established eligibility to the Redevelopment Fund.

APPLICANT INFORMATION

Approved Redevelopment Fund Number — Eligibility Date

Property Owner

Contact Person

E-Mail Address

Phone Number

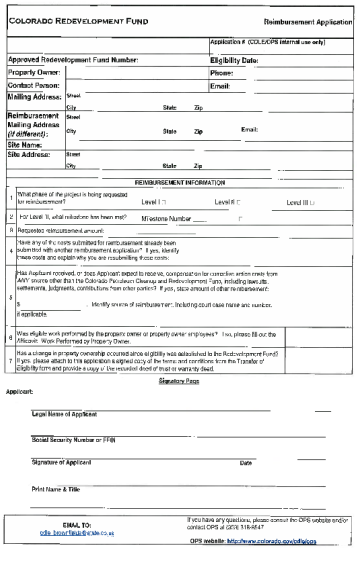
Mailing Address

City State Zip Code

Reimbursement Address (*if different*)

City State Zip Code

Tank Removal Application



COLORADO REDEVELOPMENT FUND — Reimbursement Application

Application # (COLEDPS internal use only)

Approved Redevelopment Fund Number: — Eligibility Date:

Property Owner: — Phone:

Contact Person: — Email:

Mailing Address: Street, City, State, Zip

Reimbursement Mailing Address (*if different*): Street, City, State, Zip, Email:

Site Name:

Site Address: Street, City, State, Zip

REIMBURSEMENT INFORMATION

1 What phase of the project is being requested for reimbursement? Level I ☐ Level II ☐ Level III ☐

2 For Level II, what milestone has been met? Milestone Number ____

3 Requested reimbursement amount:

4 Have any of the costs submitted for reimbursement already been submitted with another reimbursement application? If yes, identify these costs and explain why you are resubmitting those costs:

5 Has Applicant received, or does Applicant expect to receive, compensation for corrective action costs from ANY source other than the Colorado Petroleum Cleanup and Redevelopment Fund, including laws, settlements, judgments, contributions from other parties? If yes, state amount of other reimbursement: $____ Identify source of reimbursement, including court case name and number, if applicable.

6 Was eligible work performed by the property owner or property owner employees? Yes, please fill out the Affidavit: Work Performed by Property Owner.

7 Has a change in property ownership occurred since eligibility was established to the Redevelopment Fund? If yes, please attach to this application a signed copy of the terms and conditions from the Transfer of Eligibility form and provide a copy of the recorded deed of trust or warranty deed.

Signature Page

Applicant:

Legal Name of Applicant

Social Security Number or FEIN

Signature of Applicant — Date

Print Name & Title:

EMAIL TO: cdle_tanrefund@state.co.us

If you have any questions, please contact the OPS website and/or contact OPS at (303) 318-8647

OPS website: http://www.colorado.gov/cdle/ops

Reimbursement Application

APPENDIX A—RESOURCES & LINKS

2010 Colorado Urban Area Maps by Colorado Department of Public Health and Environment

2010 Urban and Rural Classification and Urban Area Criteria by Census Bureau

American Society for Testing and Materials E1527-13—Standard Practice for Environmental Site Assessments: Phase I Environment Site Assessment Process

American Society for Testing and Materials E1903-11—Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process

Assessment, Cleanup, and Redevelopment Exchange System (ACRES) by Environmental Protection Agency

Brownfields Definition by Environmental Protection Agency

Catalyzing Redevelopment: Innovative Approaches and Emerging Best Practices in State Petroleum Brownfield Initiatives by Environmental Law Institute

Colfax Mainstreet Coalition

Colorado Department of Local Affairs Sustainability Principles

Colorado Department of Public Health & Environment Voluntary Cleanup Program

Colorado Rural Health Center

Denver Urban Renewal Authority Redevelopment

Denver Urban Renewal Authority Urban Renewal Process

Department of Energy Solar Powering Your Community: A Guide for Local Governments

Implementing Stormwater Infiltration Practices at Vacant Parcels and Brownfield Sites by Environmental Protection Agency

Petroleum Brownfields: Developing Inventories by Environmental Protection Agency

Petroleum Brownfields: Selecting a Reuse Option by Environmental Protection Agency

Smart Growth America Livability Principles

Smart Growth America Options: A Community Engagement Workbook

Urban Land Conservancy Conceptual Green Infrastructure Design for the Blake Street Transit-Oriented Development Site, City of Denver

APPENDIX B—GLOSSARY OF ACRONYMS

ASTM	American Society for Testing and Materials	NFA	No Further Action
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes	NTP	Notice to Proceed
BMP	Best Management Practice	OPS	Division of Oil and Public Safety
CDLE	Colorado Department of Labor and Employment	PCRF	Petroleum Cleanup and Redevelopment Fund
CCR	Colorado Code of Regulations	PSTF	Petroleum Storage Tank Fund
COC	Chemical of Concern	RBSL	Risk-Based Screening Level
CSM	Conceptual Site Model	RCG	Reasonable Cost Guideline
DOLA	Colorado Department of Local Affairs	Redevelopment Fund	Petroleum Cleanup and Redevelopment Fund
DURA	Denver Urban Renewal Authority	RTD	Regional Transportation District
EPA	Environmental Protection Agency	TPH	Total Petroleum Hydrocarbons
FAQ	Frequently Asked Questions	US	United States
LEED	Leadership in Energy and Environmental Design	UST	Underground Storage Tank
MTBE	Methyl tert butyl ether	UC	University of Colorado

APPENDIX C—DEFINITIONS

"Abandoned Property" is a property that can be presumed to be deserted, or an intent to relinquish possession or control can be inferred from the general disrepair or lack of activity thereon such that a reasonable person could believe that there was an intent on the part of the current owner to surrender rights to the property.

"Adaptive Reuse" is changing the use of a property than what it was initially intended.

"Blighted Property" is an area that, in its present condition and use, substantially impairs the sound growth of the municipality, constitutes an economic or social liability. A blighted property and meets four of the following eleven factors:

1) Slum, deteriorated, or deteriorating structures.
2) Predominance of defective or inadequate street layout.
3) Faulty lot layout in relation to size, adequacy, accessibility, or usefulness.
4) Unsanitary or unsafe conditions.
5) Deterioration of site or other improvements.
6) Unusual topography or inadequate public improvements or utilities.
7) Defective or unusual conditions of title rendering the title unmarketable.
8) The existence of conditions that endanger life or property by fire or other causes.
9) Buildings that are unsafe or unhealthy for persons to live or work in because of building code violations, dilapidation, deterioration, defective design, physical construction, or faulty or inadequate facilities.
10) Environmental contamination of buildings or property.
11) The existence of health, safety, or welfare factors requiring high levels of municipal services or substantial physical underutilization or vacancy of sites, buildings, or other improvements.

"Brownfield Site" is real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

"Chemicals of concern" are chemical compounds that have been identified for evaluation due to specific risks to human health and/or the environment.

"Complete Application" is an application that provides all information necessary for processing, including attachments, demonstrating quantifiable benefits to the environment, economy, and community.

"Conceptual Site Model" is the current understanding of the site, helping to identify data gaps, summarize the risk associated with a release, and determine the next steps needed to characterize and remediate a release event. The conceptual site model narrative should summarize the release details, all existing site information, environmental data, and corrective action efforts as they lead toward exposure pathway elimination and ultimately release event closure. A conceptual site model should be developed as soon as a release is identified and should be updated continuously as new information is gathered.

"Downgradient" is in the direction of maximum decreasing static head.

APPENDIX C—DEFINITIONS (CONTINUED)

"Environmental Professional/Environmental Scientist" is a person who has at least 5 years of qualifying experience (experience that is pertinent or related to site assessments, remedial investigations, and corrective actions necessary to remediate water or soil contaminated with petroleum), such as:

- A recognized professional license or certification (e.g., professional engineer/geologist/ geological scientist); or
- A degree from an accredited college/university with at least 30 semester (45 quarter) hours of undergraduate work in engineering; biological, chemical, environmental, or physical science; or industrial hygiene.

"Exposure Pathway" is the course that a chemical of concern takes from a source area to a point of exposure. An exposure pathway describes a unique mechanism by which a person or sensitive environment is assumed to be exposed to a chemical of concern. Each exposure pathway includes a source, an exposure route, and a point of exposure. If the exposure point differs from the source, transport or exposure media (e.g., air, water, dust) are also included. All exposure pathways are assumed to be completed unless exposure pathway is eliminated. Exposure pathway elimination criteria are listed in the Owner/Operator Guidance Document.

"Fuel products" are all gasoline, aviation gasoline, diesel, aviation turbine fuel, jet fuel, fuel oil, biodiesel, biodiesel blends, all alcohol blended fuels, gas or gaseous compounds, and other volatile, flammable, or combustible liquids produced, compounded, and offered for sale or used for the purpose of generating heat, light, or power in internal combustion engines or fuel cells, for cleaning or for similar usage.

"Gap financing" is the initial funding received for a project that is repaid when a cost share or permanent funding source becomes available.

"Level I Assessment" is the preliminary assessment of the property to determine if petroleum contamination is present.

"Level II Characterization" is the full delineation of contamination on a site. The conceptual site model is completed during this level in order to determine risk to any potential receptors via exposure pathways.

"Level III Cleanup" is the cleanup of the contamination that has been fully characterized.

"Point of Exposure" is the location at which a person or sensitive environment is assumed to be exposed to a chemical of concern. POEs for benzene, toluene, ethylbenzene, and xylenes are: property boundaries, surficial soils, subsurface utilities, structures, groundwater wells, surface water, and sensitive environments. POEs for MTBE are: water supply wells that are used for human consumption and surface water features that are used for human consumption.

"Property Owner" is an individual or entity in possession of the title to real property.

"Receptor Survey" is the identification of potential points of exposure that may be at risk from the petroleum release through the transport of soil, soil vapor, or groundwater media.

"Redevelopment Plan" is a plan to change the use of the land.

APPENDIX C—DEFINITIONS (CONTINUED)

"Redevelopment Fund Eligible Costs" are associated with activities that adhere to the Level I, II, and III work plans.

"Rural" is territory, housing, and population not included in an urban area. Colorado rural counties have 50,000 or less people in the entire county. Frontier counties have a population density of six or fewer people per square mile.

"Site-specific target levels" are the risked-based remedial action target levels for chemicals of concern developed for a particular site using site-specific geological and hydrogeological data in a predictive model. Acceptable models for the unsaturated zone will be analytical, transient, capable of modeling one dimensional dispersion and degradation, and calculating effective solubility for individual constituents in a mixture. Acceptable models for the saturated zone will be analytical or semi-analytical, transient, and simulate retardation, degradation, one dimensional flow, and three dimensional dispersion. The completed exposure pathway with the lowest SSTLs for a given media will determine the cleanup goals for the site.

"Tier I risk-based screening levels" are the default maximum concentrations for chemicals of concern used to determine whether remediation (cleanup) is required.

"Urban" is territory that encompasses a minimum of 2,500 people, at least 1,500 people of which reside outside of institutional group quarters. Examples of institutional group quarters are college campuses or correctional facilities. Urban clusters are territories that encompass a population of 2,500 to 49,999 people. Urbanized areas are territories that encompass a population of 50,000 people or more.

"Work plan" is the summary of eligible activities that will be performed at the site. The basic elements of a project work plan are explained in Section 4.0 of this guidebook.

APPENDIX D—FREQUENTLY ASKED QUESTIONS

Why are communities being impacted by a seemingly large number of former petroleum sites? Economic forces in recent years, including the cost of complying with federal UST regulations and the transition of gasoline sales moving from the local neighborhood "Mom and Pop" service stations to high-volume retail chain outlets, are at the forefront of this issue. This trend has left many abandoned petroleum contaminated sites in the true sense of the word - abandoned. These highly visible usually abandoned or underutilized sites can stigmatize a community. Along with possible environmental impacts, it is often difficult or impossible to stimulate development of these sites.

Why is it important that petroleum-impacted properties are investigated and cleaned up? Petroleum contamination is known to present a risk to human health and the environment through a variety of points of exposure. The exposure risk to benzene, a Class A carcinogen, to people living in proximity to petroleum releases and workers exposed to contamination is the primary concern. Releases from petroleum brownfields sites have the potential to impact potable and agricultural water sources, including surface water and water wells, utility corridors that include drinking water supplies, surficial and subsurface soils, and indoor air due to vapor intrusion.

Who is eligible to the Redevelopment Fund? Property owners are eligible to the Redevelopment Fund. Partnerships between the current property owner and a third party (e.g., new property owner, developer, non-profit organization, or former tank owner/operator with a pre-88 release) will also be eligible to the Redevelopment Fund.

Will the Redevelopment Fund reimburse for petroleum storage tanks closed in place? OPS encourages approved applicants to remove petroleum storage tanks and will not reimburse for tanks closed in place.

How many properties can I apply for Redevelopment Fund eligibility? One per year.

When are the applications reviewed? A minimum of once per quarter.

What activities can I perform as a property owner? Property owners are encouraged to participate in the administration of the project and any eligible activities that they are suitably qualified to perform.

How can the applicant demonstrate the ability to finance the Level III cleanup costs? The appropriate ways to confirm secured funding include: bank account statements, bank drafts, legally verified funds held in trust, audited financial reports and confirmation statements showing that other leveraged funding is available.

What types of petroleum storage tanks are covered by the Redevelopment Fund? In general, tanks that held fuel products.

APPENDIX E—CASE STUDIES

FORMER RELIABLE CONOCOPHILLIPS

100 Steele Street, Denver, Colorado

Remediation Status: Site Cleaned Up

Current Land Use: Development Ready

Site Summary:

Located in the heart of the Cherry Creek retail area, this former gas station is currently undergoing remedial cleanup. Site has achieved No Further Action status and is development ready. Previous redevelopment interest in this site included a retail/hotel complex.

Remediation System Installed

Development Ready Site

FORMER CONOCO/1ST BANK

275 S. Federal Boulevard, Denver, Colorado

Remediation Status: Site Cleaned Up
Current Land Use: Redeveloped

Storage Tank Removal

Site Summary:

This former gas station was redeveloped by 1st Bank and is the site of a branch bank. The property is prime example of redevelopment and site cleanup proceeding at the same time.

Development Ready Site

Redeveloped

HIGHLAND MARKET APARTMENTS

3001 Zuni Street, Denver, Colorado

Remediation Status: Site Cleaned Up

Remediation Method: Hydrogen peroxide injections

Current Land Use: Mixed retail/residential

Jobs Created: 115

Underground Storage Tank Removal

Redevelopment Process

The Highland Park Apartments were constructed at this former gas station property. Located in the historic Highland neighborhood district, this infill redevelopment contains a mixed-use building that attained Leadership in Energy and Environmental Design (LEED) Platinum certified status and includes 126 rental units.

Construction Underway

Redeveloped Site

FORMER CITY VIEW MOBILE PARK

3800 W. Alameda Avenue, Denver, Colorado

Remediation Status: Site Cleaned Up

Current Land Use: Greenspace in progress

Storage Tank Removal/Impacted Soil Excavation

Site Summary:

This Westwood neighborhood property was acquired by the Trust for Public Land. The on-site structures have been removed and the parcel is currently being redeveloped for open space reuse by the Denver Parks Department. This new park will help stabilize property values and removed a blighted community eyesore.

Development Ready Site

FORMER DIAMOND SHAMROCK

5307 E. Yale Avenue, Denver, Colorado

Remediation Status: Site Cleaned Up

Remediation Method: Oxygen Diffusion, Contaminated Soil Excavation, & Passive Vent System with Vapor Barrier

Current Land Use: Mixed retail/residential

Redevelopment Process

Former gas station site that has been redeveloped into a mixed use retail/residential building. This structure is located next to the RTD Light Rail Station and is a transit-oriented development (TOD) project. The redevelopment of this parcel also reflects Colorado's sustainability principles. This new construction project is the first multifamily affordable TOD development to be built on an existing/operating light rail station (in Denver) that has received an allocation of low-income housing tax credits.

Demolition Begins

Petroleum-Impacted Soil Excavated

Construction Underway

Finished Building

COLORADO
DEPARTMENT OF
LABOR AND EMPLOYMENT

DIVISION OF OIL AND PUBLIC SAFETY

Petroleum Brownfields Program
633 17th Street
Suite 500
Denver, CO 80202

Phone: 303-318-8500
Fax: 303-318-8546
Email: cdle_brownfields@state.co.us

We're on the web!
www.colorado.gov/cdle/brownfields