



Cleanup, Continued Use and Redevelopment in a Thriving Business Park

THE DEL AMO SUPERFUND SITE IN LOS ANGELES, CALIFORNIA

www.epa.gov

Introduction

In the Harbor Gateway area of Los Angeles, a former synthetic rubber manufacturing facility is now a busy commercial and industrial business park. More than 250 businesses employ nearly 6,000 workers on site. Collaboration among federal and state agencies, city departments, the site's lead responsible parties and developers have made possible the integrated cleanup, continued use and redevelopment of the Del Amo Superfund site.

With most of the area already developed by the time of site investigations, regulators and the responsible parties faced challenges tackling the cleanup without significantly disturbing active land uses on site. Contamination also delayed new building development and expansion plans, frustrating property owners and developers. To help address these issues:

- EPA, the California Department of Toxic Substances Control (DTSC) and responsible party representatives formed the Del Amo Environmental Review Team (Del Amo ERT) to address additional site characterization and cleanup on an as-needed basis (in addition to the main site-wide investigation), during planned excavation or construction activities at commercial and industrial properties.
- The Del Amo ERT collaborated with the City of Los Angeles to add notification flags to all properties within the site boundary on the City's online system. The flags notify owners that the property is part of a Superfund site and instructs owners to contact the Del Amo ERT before any excavation or construction work.
- The Del Amo ERT designed an environmental review pilot program to identify all excavation and construction projects that involved soil disturbance at least 18 inches below ground surface or a change in existing industrial or commercial land use to a residential use, a hospital, a school or a day care center.
- EPA included the program as one of four institutional control layers in the site's final remedy.



The Del Amo site is located in the Harbor Gateway neighborhood in southern Los Angeles, California.

This case study explores the strategies and innovative approaches that contributed to the successful continued use of the Del Amo Superfund site. The following pages trace the evolution of cleanup efforts, highlighting the environmental review pilot program, institutional controls and site activities through 2015. The case study provides information and lessons learned to parties interested in the commercial and industrial reuse and continued use of Superfund sites and how to integrate remedy and reuse considerations during the Superfund process.



Various properties on the Del Amo Superfund site have undergone environmental review as part of the site's institutional control program.

Site History, Contamination and Remediation

From 1942 to 1972, a 280-acre synthetic rubber manufacturing facility operated at the site. Manufacturing activities led to releases of chemicals into soil and groundwater beneath the facility. Plant operators disposed of wastes in unlined pits and evaporation ponds. Other releases included leaks from pipelines, storage tanks and processing units.

Subsidiaries of the United States government initially owned the facility, and private companies operated it under lease. In 1955, the Shell Chemical Company (Shell) purchased the facility and operated it until 1972 when it sold the property to a developer. The developer dismantled the facility and sold off property parcels to other landowners and developers. By 1992, most of the area had been redeveloped.



The chemical manufacturing facility on site before redevelopment.

The California Department of Health Services (DHS) excavated some of the waste pits in 1982. EPA also began a series of inspections around this time. As a result of the inspections, EPA placed the site on the Superfund program's National Priorities List (NPL) in 1997. Following this, the Harbor Gateway Commercial Property Owners' Association sued to have the site taken off the NPL. The court sided with the association in 1999, stating that because EPA did not obtain written approval from the governor, the listing was invalid. EPA then re-proposed the site for listing on the NPL and received the governor's approval to list it on the NPL in 2002.

EPA split the site into three areas, or operable units (OUs), to better manage the cleanup – the Site Soils and Nonaqueous Phase Liquid (NAPL) OU, the Waste Pits Area OU, and the Dual Site Groundwater OU. The Dual Site Groundwater OU refers to the co-mingled contaminants in the groundwater from the Del Amo site and the nearby Montrose Chemical Corporation Superfund site.

Some initial response actions – excavation and off-site disposal of some waste material and soil – took place at the Waste Pits OU before EPA selected the area's final remedy in 1997. In the final remedy, EPA required that Shell and the U.S. General Services Administration (GSA), the primary responsible parties for Del Amo (references hereafter to Shell pertain to work on behalf of the responsible parties), secure the waste pits by placing a Resource Conservation and Recovery Act (RCRA)-equivalent cap over the sludge and contaminated sediments at the waste pits area, install and operate a soil vapor extraction system beneath the waste pits area, and perform routine inspections. Additionally, the remedy included deed restrictions to prohibit future residential use of the waste pits area and prohibit any use of the area that could threaten the integrity of the cap. By 2000, Shell had placed the cap and installed the soil vapor extraction and soil vapor monitoring wells. EPA placed restrictive covenants on the waste pits area properties in 2000 and 2005, and installed the soil vapor extraction and treatment system in 2006.

For the Dual Site Groundwater OU, EPA selected the final remedy in 1999. Design for the groundwater extraction and treatment system was completed in September 2012 and construction finished in December 2014. EPA is overseeing the start-up and commissioning of the treatment system to ensure that all installed equipment is functioning correctly. Groundwater treatment and monitoring is expected to continue over the next several decades.

EPA selected the final remedy for the Soil and NAPL OU in 2011 and updated it in 2013. The remedy includes institutional controls to minimize potential future exposures to residual contamination, capping of some shallow contaminated soils, soil vapor extraction to remove some soil contamination, building engineering controls to prevent unacceptable indoor air exposures, chemical oxidation to reduce contamination affecting groundwater, and addressing any areas of contamination exceeding action levels found during future development or construction. EPA, Shell and the GSA have established an agreement to implement these remedy components.

Throughout investigation and cleanup activities, businesses have remained open and commercial and industrial redevelopment has continued. Property owners and tenants participated in an environmental review pilot program to test an environmental review process. Based on the success of this review process, EPA formalized it as part of the site's four layers of institutional controls.

1992 to Early 2000s

Recognizing Site Conditions, Building Relationships

Redevelopment of the area began in the 1970s after Shell sold the site property to a developer. By the time of the site's remedial investigation in 1992, much of the area had already been redeveloped. Industrial and commercial uses, including many light manufacturing facilities, warehouses and office buildings, spanned across most of the site.

As a result, site characterization proved challenging. Erich Weaver, project manager for Shell contractor AECOM (formerly URS prior to 2015), recalled that disturbance of business owners was a major concern. "Existing businesses emphasized the importance of not disrupting their activities," Weaver explained.

Fortunately, despite these complexities, there was underlying good news. As EPA remedial project manager Dante Rodriguez described, "based on the early studies, EPA concluded that there were no immediate health risks, and there was not any potential for exposure under normal circumstances for people working in the commercial and industrial business park." With continual development and redevelopment at the site, the site team recognized the potential of exposure during subsurface construction work, but also saw this as an opportunity. The site team decided to approach the situation as a way to address additional site characterization and, if necessary, remedial action on an as-needed basis, timing the work with developers' excavation and construction projects. This was in addition to the main site investigation and remedial action process.

Early 2000s to 2008

Designing a Notification System

To align the additional site characterization and remedial action with construction and excavation activities, the team needed a way to know when developers were going to dig into the subsurface. This would not only help the site team gain additional characterization, but also ensure that workers were not being exposed to contamination as a result of the excavation activities.

Developing a system to identify all construction and excavation activities was an evolving process. One particular redevelopment project for a larger property on site made it clear that ongoing communication between developers, the Superfund team and responsible parties would be crucial. "During the project's early stages, they encountered some soil contamination and the project slowed down," recalled Weaver. Based on the characteristics of the contamination at the property, the team went over and excavated impacted soils.

Weaver added, "From that interaction, we realized that we needed communication between the developers and property owners and the Superfund team and responsible parties on an ongoing basis."

While that property owner had known the area was a Superfund site, and the site team was able to investigate and remove the contamination, EPA was concerned about scenarios where property owners were not aware of the area's Superfund status. EPA led the site team in developing a system to make sure that all projects with significant construction and excavation activities were notified and that the site team would be contacted regarding any upcoming activity.

EPA talked with the Los Angeles city attorney and worked with the City's Building and Safety and City Planning departments to develop a notification document for properties on site with building permit applications. The notification document provided clear indication that it did not require the permit to be withheld and included general information about the Superfund site and instructions to contact the Del Amo Environmental Review Team, which was formed to review upcoming building or excavation permit requests that came through as a result of the notification system. The Del Amo ERT consists of staff from EPA, DTSC and Shell.

The notification document also included Del Amo ERT criteria used to determine the need for environmental review as well as a map of properties designated for environmental review under the pilot program. Shell and its contractors also managed a website – www.delamosuperfund.com – with information regarding the program. The website includes contact information for the Del Amo ERT, site information and a printable form to initiate a review process with the Del Amo ERT.

EPA pursued this pilot effort – designing a notification system and implementing an environmental review – as part of the site's feasibility study. During the Superfund process, the feasibility study evaluates cleanup options for a site's remedy. The pilot program enabled EPA to interact effectively with the City and permit applicants, adjust processes as needed, and evaluate whether the notification and environmental review system could serve as an institutional control to protect human health and the environment over the long term.

Fae Tsukamoto, a specialist in the City Planning Department, worked with EPA's Dante Rodriguez to create and add notification flags in the Zone Information Map Access System (ZIMAS), the city's detailed online property information database. A geographic information system (GIS) layer of the Del Amo site's boundaries was added to capture all site properties, and then flags that the public would see for identified parcels on site were added. Each flag then linked to EPA's notification document.

The City thus played a key role in setting up the notification system and making sure the start of the pilot program went smoothly. Today, the City maintains ZIMAS and the Del Amo flags and continues to refer permit applicants to the Del Amo ERT, which is responsible for the environmental review and assessment of all construction and excavation projects.

Below and Right: Information and map included in the notification document linked to flagged properties on ZIMAS within the Del Amo Superfund site.

ATTACHMENT 1

NOTIFICATION REGARDING THE DEL AMO SUPERFUND SITE

GENERAL INFORMATION

This parcel is located within the Del Amo Superfund site. The U.S. Environmental Protection Agency (USEPA) has determined that additional environmental controls or sampling may need to be implemented during construction activities. Depending on sampling results, further mitigation measures may be necessary. A permit applicant seeking a Building Permit or Excavation/Grading Permit for work on this parcel that involves soil-invasive activities, such as grading, excavation, trenching, soil boring, or ground-level demolition work, deeper than 18 inches below ground surface, needs to work with USEPA to conduct an environmental review of their proposed project.

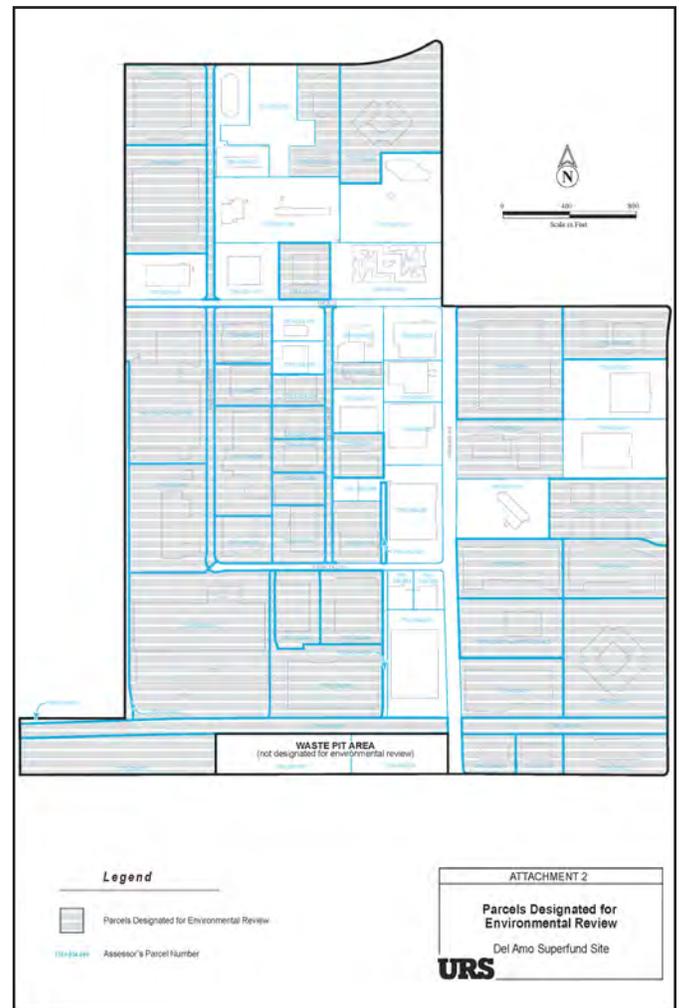
SPECIFIC INSTRUCTION FOR ENVIRONMENTAL REVIEW

When a permit application for this parcel is received, the City of Los Angeles Department of Building and Safety (DBS) is instructed to provide the Applicant with this notification. The Applicant is instructed to contact the U.S. EPA's Environmental Review Team for the Del Amo Superfund Site (Del Amo ERT) to conduct an environmental review. The contact information for the Del Amo ERT is provided below:

Environmental Review Team
for the Del Amo Superfund Site
Toll-free phone number: (866) 565-4950
Website: www.delamosuperfund.com
Email address: info@delamosuperfund.com

Criteria to be applied by U.S. EPA to determine if an environmental review is needed:

1. The project involves excavation of subsurface soils deeper than 18 inches below the ground surface; and/or
2. The project involves demolition of existing structures; and/or
3. The project involves changing current uses to include residential use, hospital for humans, school for persons under 21 years of age, or day care center for children.



Institutional Controls (ICs): A Brief Overview*

- ICs are legal and administrative tools used to maintain protection of human health and the environment at sites. They do not involve construction or physical changes to a site.
- ICs play an important role when a cleanup is conducted and when it is too difficult or too costly to remove all contamination from a site.
- ICs are designed to lower the potential for people and the environment to be exposed to contamination.
- There are four types of ICs: government controls (local laws or permits), proprietary controls (private property use restrictions), enforcement tools (consent decrees; unilateral orders), and informational devices (deed notices; public advisories).
- ICs are usually most effective when layered (i.e., multiple ICs of different types working together) to improve protectiveness.
- Seeking community input and involvement can maximize the effectiveness of ICs.
- Most cleanups will need to use a combination of engineered remedies and ICs. ICs provide an additional level of safety and help to make sure a site's remedy remains securely in place.

* Information adapted from EPA's *Citizen's Guide to Understanding Institutional Controls at Superfund, Brownfields, Federal Facilities, and Underground Storage Tanks and Resource Conservation and Recovery Act Cleanups*, OSWER 9255.0-98.



ZIMAS Public

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- ▶ Address/Legal
- ▶ Jurisdictional
- ▼ Planning and Zoning

Special Notes	None
Zoning	M3-1
Zoning Information (ZI)	ZI-2354 Del Amo Superfund Site
Zoning Information (ZI)	ZI-2130 HARBOR GATEWAY STATE ENTERPRISE ZONE
General Plan Land Use	Heavy Manufacturing
General Plan Footnote(s)	Yes
Hillside Area (Zoning Code)	No
Baseline Hillside Ordinance	No
Baseline Mansionization Ordinance	No
Specific Plan Area	None
Historic Preservation Review	No
HistoricPlacesLA	View
POD - Pedestrian Oriented Districts	None

▼ Planning and Zoning

Special Notes	None
Zoning	M3-1
Zoning Information (ZI)	ZI-2354 Del Amo Superfund Site

Above: ZIMAS website showing site parcel 19600 Magellan Drive (outlined in dark blue).

Left: Zoning information flag added to the parcel data, which links to EPA's notification document.

2008 - 2011

Trial Run: Implementing the Pilot Program

After the notification system was in place, the next phase was to implement the pilot program. Pilot program activities were organized into three steps: initial pre-screening, supplemental environmental review and recommended follow-ups.

For the initial pre-screening, URS fielded the calls that came in and assessed projects to determine the need for environmental review. URS screened each project to determine if there would be any excavation in excess of 18 inches or any change in land use to a residential use, hospital, school or day care center. "The idea was to identify properties where construction projects or redevelopment was going to occur and identify ones with the potential for exposure," he noted. If the assessment identified any potential for exposure, the Del Amo ERT started a supplemental environmental review.

During the supplemental review, URS personnel talked with permit applicants about their projects in greater detail, learning about specific proposed excavation locations and depths. They also discussed construction plans and the projects' planned uses. This information was then reviewed by Shell and its contractors with EPA oversight. Each review took into account data on contaminants in the area, the proximity of the

excavation to any contaminants and the site's risk assessment to evaluate the exposure risk.

After this review, Shell and its contractors prepared a Screening Evaluation Summary Report (SESR). Each SESR included a description of the proposed project with construction drawings and a summary of existing environmental information, a parcel map showing planned excavations and improvements as well as former plant facilities and environmental data sampling locations, data from those sampling locations, a summary of applicable institutional and engineering controls, and preliminary recommendations for any follow-up actions. Erich Weaver noted that recommendations could range from no further action to monitoring an excavation and sampling. "We prepared the SESRs with our recommendations and sent them to EPA," he said. "EPA reviewed them and talked with us. EPA finalized the SESRs, added a cover letter with recommendations and shared them with the property owners."

If EPA recommended follow-up actions, the next step was implementation. For example, if the recommendation was for sampling and analysis, the team would design and execute sampling and analysis activities, present the new data, assess risk based on the new data, and make recommendations for any adjustments or modifications to the construction plans. EPA and DTSC would review any plans, and EPA was responsible for approving them.

“If further work was involved,” noted Weaver, “monitoring could be an outcome. We would conduct the monitoring, and if needed, conduct sampling and share a technical memorandum. The results of any sampling would then drive the need for any further action, which sometimes included soil removal.” Once any issues were addressed by follow-up actions, Shell submitted the results and any further recommendations for EPA and DTSC review. EPA then issued a letter specifying either no further action or the need for any additional follow ups.

In 2008, EPA shared a fact sheet with site property owners to explain the pilot program and the environmental review process. From 2008 to 2011, environmental reviews associated with development activities took place at six different properties. Some of the projects that underwent environmental

review resulted in remedial actions to excavate, transport and dispose of contaminated soil. One project involved excavation and construction of a loading dock. Following characterization, soil sampling by Shell identified volatile organic compounds (VOCs) above cleanup standards. Shell and its contractors worked with the property owner to remove the VOC-impacted soils and backfill the excavated area with clean soil prior to construction.

From the start, the proactive nature of the pilot program – providing information to permit applicants early in the process – worked well. As AECOM’s Erich Weaver noted, “development projects were known to us before they moved forward.”

2011 - 2015

Finalizing the Environmental Review Process

The pilot program notification system and environmental review process went smoothly, such that the Del Amo ERT did not need to make any substantial changes. Thus, when EPA selected the final remedy for the Soil and NAPL OU in 2011, the Agency incorporated the environmental review process as one of the site’s four layers of institutional controls. “In many cases, a property can be screened out and a project can move forward.” Aside from officially expanding the review process to include all parcels on site, EPA did not make any other modifications to the pilot program before finalizing it.

The selected remedy included four layers of institutional controls to create multiple layers of reinforcing controls. If one layer fails, remaining layers will prevent potential exposure. The goals of the institutional controls are to minimize the potential for future exposure to residual contamination at the site and to protect the remedy.

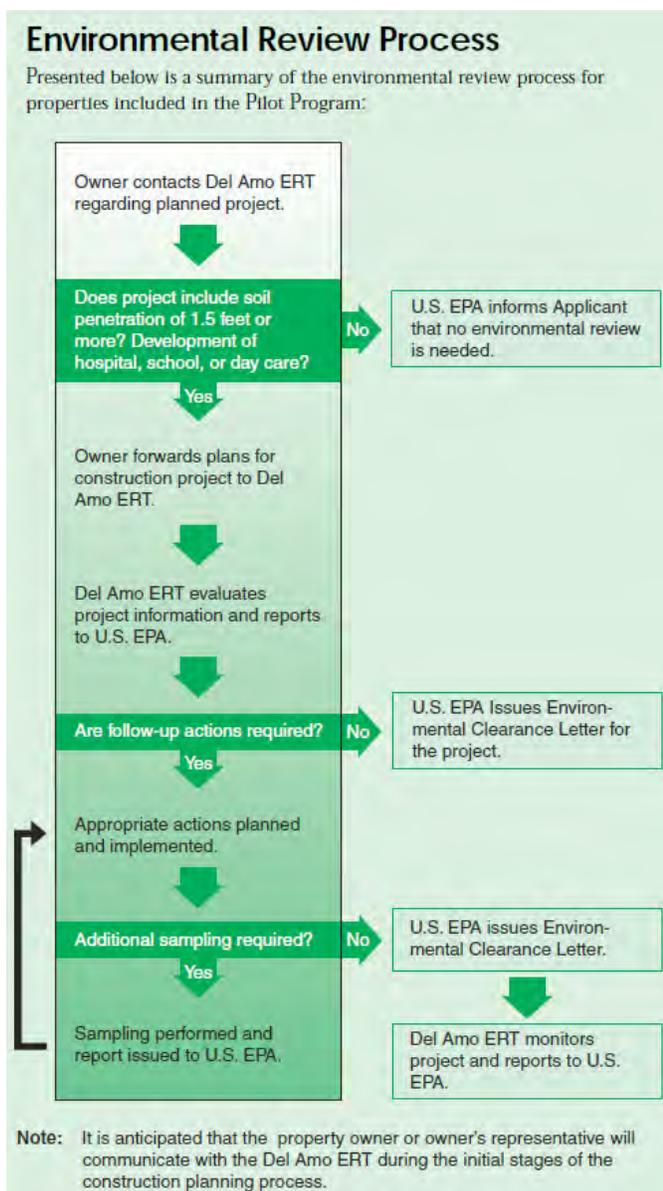


Diagram from EPA’s 2008 Pilot Program fact sheet for site property owners detailing the steps of the environmental review process.



The property at 20101 Hamilton Avenue participated in the pilot program in 2008. During the installation of freight elevators and utility trenches, Shell and its contractors conducted soil and soil vapor sampling.

The four layers in the selected remedy include:

- 1) *Informational Outreach*: Current and prospective owners and tenants, developers, and their project teams receive available information on their property's environmental status and any applicable use restrictions.
- 2) *Environmental Review*: Identification of areas needing further cleanup, helping to ensure that EPA has an opportunity to review construction plans for projects that may involve soil disturbance.
- 3) *General Plan Footnote*: EPA and responsible parties will work with the City of Los Angeles to include language in the locality's comprehensive long-term planning report for site areas exceeding action levels for residential use. The footnote will state that these areas are part of the Del Amo Superfund site and are not appropriate for residential use.
- 4) *Restrictive Covenants*: These land use restrictions, which will run with the land, will apply to site properties with contamination exceeding residential use standards. The covenants will prohibit residential use and state that any construction or redevelopment plans must receive EPA review and approval prior to work proceeding. Some covenants may restrict interference with remedial activities, systems or components, or drilling into or using groundwater.

The site's institutional controls also include a land watch component. As EPA's Dante Rodriguez described it, "the Underground Service Alert entity entered parcels of the Superfund site into their database as if we were a utility – so we receive alerts every time someone goes in to dig in the area." AECOM's Erich Weaver added, "we also have a contractor who monitors building/grading permits, Underground Service Alerts, ownership changes, permits for water uses, and any changes in land use. When they see changes, they give us email alerts about the property, contacts and any other information they have. We review the information and follow up as necessary." The land watch helps ensure that all projects – even small ones, such as the digging of an irrigation line – are monitored, tracked and evaluated by the Del Amo ERT. As Weaver noted, "it provides redundancy and an independent check. It will hopefully catch any smaller projects that may not go through the City."

Project Highlight: 19310 South Pacific Gateway Drive

Marc Selznick, property manager at the Unire Real Estate Group for an institutional owner in the park, shared his experience with the environmental review process and the Del Amo ERT at several properties on site. Selznick noted that "there are challenges working within this business park due to the Del Amo study area but we found them to be manageable." At South Pacific Gateway Drive, for example, they ran into over

2,000 feet of transite pipes as well as contaminated soil during foundation excavations. They brought in Shell contractor URS, who took responsibility for off-siting the soil and removing the asbestos-contaminated pipe. Once URS removed the contaminated material, the project continued, and the building was leased and ultimately sold to its current owner.

"Buying real estate on a known Superfund site was an aggressive investment," Selznick said of his client's activities on site. He noted that it would be difficult to attract institutional property owners without open dialogue between the potential property owners and the Del Amo ERT. In particular, Selznick's client's concerns were addressed contractually and with an environmental insurance policy.

Selznick added that working directly with AECOM and URS over the past decade has made a big difference. "It has been helpful to have an experienced environmental consultant involved," he said. "They understand that delays have financial impacts for property owners. AECOM/URS staff get that. There are businesses and livelihoods at stake and they respect that. They realize they need to be aware of that during their activities."

The client now involves AECOM before making any development-related submittal to the City. For a \$7 million project to reconfigure and reposition a building at 19500 South Vermont Avenue, for example, they were in contact from the outset of project planning and design. "It has been so important to have a group that works well with the owner of the properties, the responsible parties and EPA," noted Selznick. "They play a really critical role. It is in everyone's interest – government, public, private – to facilitate a cleanup and put that property back to productive use."

Project Highlight: 19600 Magellan Drive

Mr. Kazuaki Mitsuda of TsuKuRu USA Corporation, a contractor for Toyoshima International America, shared his development experiences at this commercial property. The company first became aware of the property's Superfund status following submittal of project information to the City. The company was seeking to partially demolish an old, 51,000-square-foot office/warehouse building, and then add on to the facility.

After Mitsuda and his colleagues contacted the Del Amo ERT, EPA and Shell contractors conducted soil sampling. Shell contractors later removed contaminated soil from the property. "For me, it wasn't a big deal. It was just removing the contaminated soil. That was it," Mitsuda recalled. Although it resulted in a two-to-three-week construction delay, Mitsuda was pleased that the review process was straightforward and completed at no cost to his client.

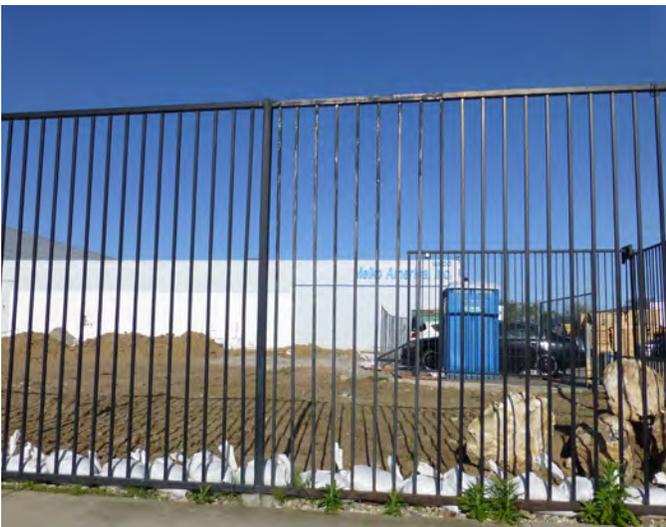
Project Highlights

19310 South Pacific Gateway Drive

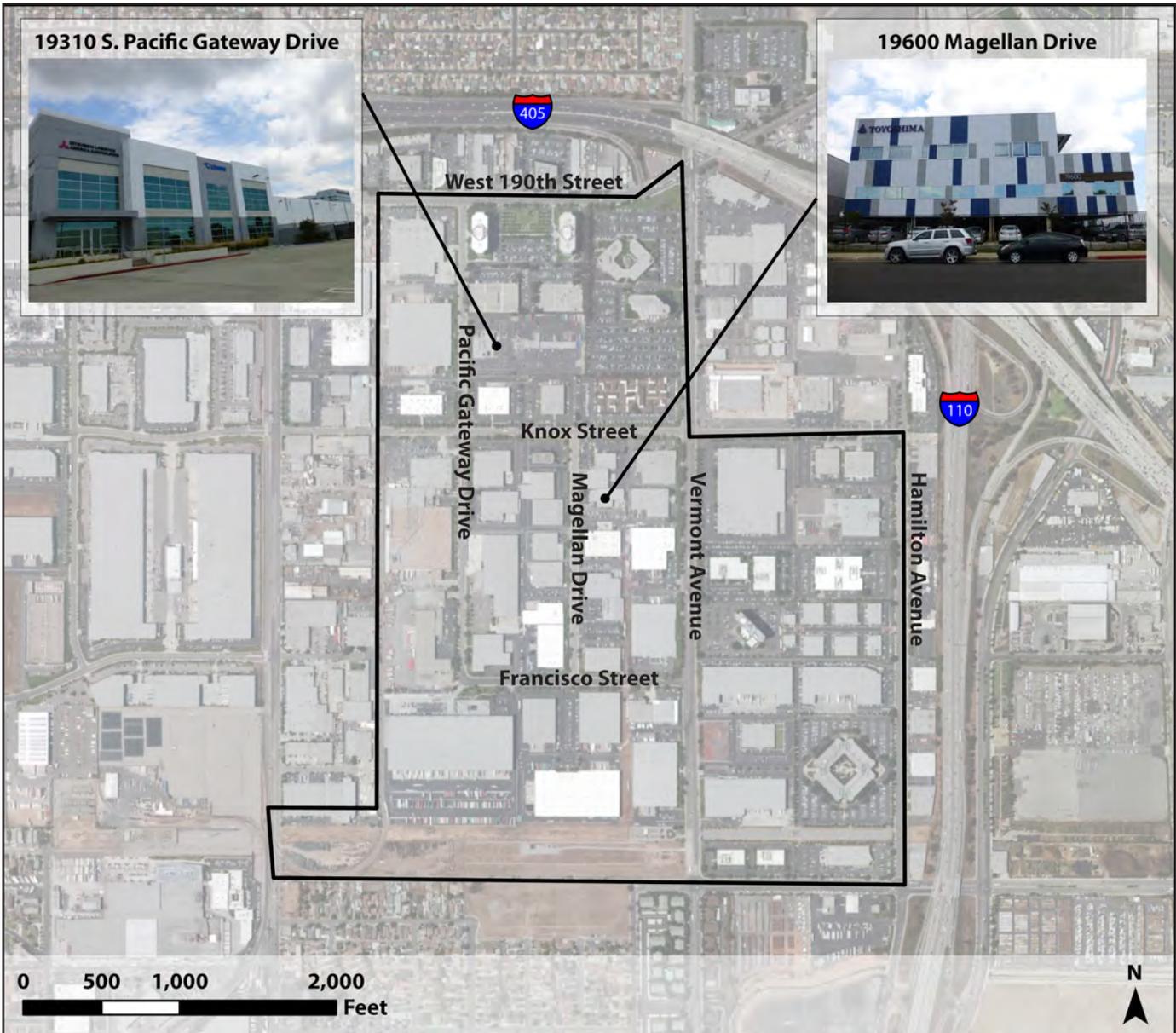


19310 South Pacific Gateway Drive, during and after construction. Excavation work for the foundation unearthed underground pipes and contaminated soil. The development manager notified the Del Amo ERT to remove the contaminated soil and piping.

19600 Magellan Drive



19600 Magellan Drive, during and after the partial demolition of a 51,000-square-foot office and warehouse building and construction of a new building addition. Excavations encountered an area of contaminated soil. The Del Amo ERT removed the soil and monitored additional excavation activities.



Detailed site map showing highlighted projects.

2015+

Reflecting on the Process, Looking Ahead

Today the Del Amo Superfund site is abuzz with commercial activity. “It’s a very active business area. A booming economy these days,” noted EPA’s Dante Rodriguez. “There’s always new development and redevelopment going on.”

Marc Selznick, property manager at Unire Real Estate Group, pointed out that “we’re doing everything simultaneously, and that’s been the best way to do it. The cleanup process can take a long time – we are talking decades here. It would be a real

shame if nothing was done during the time it takes to clean sites like this up. Having remedial action take place on an as-needed basis allowed for commercial activity to continue. Without this approach, a lot of economic activity would never have happened.”

DTSC project manager Safouh Sayed emphasized the importance of the project’s flagging and notification systems. “This type of process is very, very helpful,” he noted. “Without this type of mechanism, the state would not be able to monitor so many properties. The City’s collaboration was instrumental in making this system a success.”

The importance of collaboration among Del Amo ERT members emerged as a key theme in interviews with project stakeholders. Patrick Gobb, one of Shell's technical consultants, noted that "when issues come up, we talk with EPA ahead of time. There is rarely any disagreement. By the time the SESR gets to EPA, we have already talked about it. EPA generally knows what's coming. There are no surprises. The property owner gets consistent messages from the responsible parties and EPA about what is going on, so they can make their plans knowing that everyone is on the same page. The last thing they want is delays in their projects. They recognize that it's to their advantage to work with us to take care of issues before excavation starts. All together, we make a good team." EPA's Dante Rodriguez agreed. "The Del Amo ERT has worked really well together over the years to tackle these challenges," he said. Shell program manager Carol Campagna noted that when she works on other projects without similar systems in place, she uses Del Amo as an example. "At other sites, without this communication, everything turns into a mini emergency response," she said. "In almost every case, we should be using a process similar to what we have at Del Amo."

Looking forward, much work remains for the Del Amo ERT at the site. EPA, DTSC and Shell continue to work together to ensure that potential exposures to contaminants are closely monitored and addressed while working closely with property owners and tenants to minimize business disruptions. These parties and the City will also continue working together to put remaining institutional controls in place, including the City of Los Angeles General Plan footnote and restrictive covenants for 26 property parcels on site.



At 1011 Francisco Street, Shell removed and disposed of impacted soil during the tenant's planned construction activities.

Lessons Learned

A combination of factors has contributed to the project's successful outcomes.

- Performing additional site characterization and remedial action on an as-needed basis minimizes disruption of existing commercial activity.
- Incorporation of an environmental review process early on, before construction projects begin, helps avoid construction delays and addresses owner/developer concerns.
- Building a notification process into an existing system helps EPA reach all building permit applicants.
- The Del Amo ERT's understanding of property owners' interests makes the environmental review process a win-win – it minimizes delays and lost revenue for property owners and makes sure remedial action can address contamination issues and limit potential exposures.
- Open dialogue between the owner/develop and the Del Amo ERT minimizes issues for all parties.
- The cooperation between the Del Amo ERT and property owners helps make the process smoother and meet everyone's goals.

The Bigger Picture

While these site-specific conditions create an ideal climate for successful reuse outcomes, there are also a range of broader lessons learned that can help guide similar projects at contaminated lands across the country.

EPA and state agencies work closely with communities, site owners and other stakeholders to support reuse outcomes that are compatible with site cleanups.

EPA and state agencies place a high priority on supporting the return of contaminated sites to productive and beneficial uses. At Del Amo, much of the site was already in reuse when the cleanup process started, but there were no exposure risks under normal circumstances. Although the site-wide investigation was able to assess all the properties, the innovative approach to obtain additional site characterization (and remedial actions) on an as-needed basis helped fill in gaps. This approach also supported the area's continued commercial and industrial use and allowed for new building construction and expansion.



Timeline of Events

1940s	Chemical manufacturing facility built to produce synthetic rubber during World War II
1955	Shell purchases facility
1972	Shell sells site property to developer; facility dismantled and parcels sold to other landowners and developers
1982	California Department of Health Services (DHS) excavates part of the waste pits; EPA begins series of site inspections
1992	Site largely redeveloped
May 1992	EPA and DHS Administrative Order on Consent with responsible parties for remedial investigation and feasibility study (RI/FS) for 280-acre former plant site and accelerated RI/FS for waste pits area
1994-1999	Removal of occasional surface seeps of waste pits sludge material by Shell
1996-1997	NAPL in groundwater monitoring well near western edge of former plant property removed by Shell
1997	Site's initial NPL listing; Final remedy for Waste Pits Area OU selected by EPA
1999	Resource Conservation and Recovery Act (RCRA)-equivalent cap placed over sludge and contaminated sediments at waste pits area; soil vapor extraction wells and soil vapor monitoring wells installed
1999	Final remedy for Dual Site Groundwater OU selected by EPA
1999-2006	Soil and NAPL OU risk assessment
2000	Restrictive covenant placed on western parcel of the Waste Pits Area OU
Sept. 2002	NPL site listing finalized
2005	Restrictive covenant placed on eastern parcel of the Waste Pits Area OU
2005-2006	Shell removes contaminated soil from properties in site's western and southern areas
2006	Shell installs waste pits area's soil vapor extraction and treatment system
2008	Environmental review institutional control pilot program put in place by EPA
Feb. 2009	Subslab sampling effort for five buildings as part of additional field investigations
Jul. 2009-May 2010	EPA investigation of NAPL extent in four areas as part of additional field investigations
2010	EPA-monitored removal of contaminated soil by owner during tenant changeover in southwest part of former plant property
2011	Final remedy selected for Site Soils and NAPL OU, includes four layers of institutional controls as well as capping, soil vapor extraction and in-situ chemical oxidation in select locations across site
2012-2013	Groundwater cleanup system design completed and construction began
2015+	Site properties remain open for business; environmental review process for new projects ongoing

Communicate, collaborate and build relationships.

The Del Amo ERT has worked together for several years, and they have learned to communicate effectively and work as a team. They discuss issues ahead of time so there are no surprises down the line. This collaboration helps make sure project reviews are effective and comprehensive, and run smoothly.

Recognize the leadership role and resources of local governments.

As the organizations responsible for their communities' general welfare, local governments may already have tools or processes in place that can be expanded to help address Superfund cleanup. At the Del Amo site, the City's online zoning and mapping system had flags that were used to call attention to special requirements for properties. Taking advantage of this tool was a straightforward and effective way to monitor all site parcels and connect permit applicants with the Del Amo ERT.

Constructive engagement with critical stakeholders can enable simultaneous cleanup and redevelopment.

In the Del Amo environmental review process, the responsible parties and property owners work together to make sure all needs are met. Responsible parties work hard to support reuse and redevelopment by preventing project delays, and property owners cooperate with the Del Amo ERT to make sure workers are protected from exposures and any necessary sampling and monitoring takes place to help protect public health and the environment.

Institutional controls can be tested in pilot programs before finalization as part of site remedies.

By implementing the notification system and environmental review process first as a pilot program, the Del Amo ERT was able to evaluate the feasibility of the institutional control. Additionally, the initial phase of the program enabled EPA to quickly begin interacting with the City and permit applicants and make sure necessary sampling and cleanup actions were taken. The early implementation of the pilot program provided time for the Del Amo ERT and property owners to explore the process, strengthening its implementation when EPA selected the final remedy.

Multiple layers of institutional controls can reinforce each other to make the remedy more protective.

Redundancy in institutional controls can help strengthen protectiveness. At the Del Amo site, if one institutional control layer does not flag an excavation project for review, another layer will.

Conclusion

Activities at the Del Amo Superfund site illustrate how site characterization and remedial action can take place alongside continued commercial and industrial use and redevelopment. Without a system in place to involve the Del Amo ERT during planning for new development and expansion projects, addressing site characterization and remedial action activities would have presented significant uncertainties and challenges. The site's innovative environmental review process shortens construction delays and ensures and streamlines communication among key parties.

Thanks to the collaboration of site agencies, the local government, the site's responsible parties, and property owners, developers and tenants, the Del Amo Superfund site continues to be a busy commercial and industrial business park, a welcoming place for long-time tenants as well as vibrant new development projects. Today, the site has become a leading example of continued use at Superfund sites and how to integrate remedy and reuse considerations effectively over time, ensuring the protection of public health and the environment as well as economic growth.



During construction of the new building on 1000 West 190th Street, sampling identified impacted soil, which the owner later removed.

A large, modern glass skyscraper with palm trees in the foreground. The building's facade is composed of many rectangular glass panels, reflecting the sky and surrounding environment. Several tall palm trees are visible in the foreground, some partially obscuring the building. The sky is a pale, overcast blue.

“The Del Amo ERT has worked really well together over the years to tackle these challenges.”

***- Dante Rodriguez,
EPA Remedial Project Manager***

“The City’s collaboration was instrumental in making this system a success.”

***- Safouh Sayed,
DTSC Project Manager***

“In almost every case, we should be using a process similar to what we have at Del Amo.”

***- Carol Campagna,
Shell Program Manager***

“It is in everyone’s interest – government, public, private – to facilitate a cleanup and put that property back to productive use.”

***- Marc Selznick,
Property Manager at Unire Real Estate Group***

Cleanup, Continued Use and Redevelopment in a Thriving Business Park

THE DEL AMO SUPERFUND SITE IN LOS ANGELES, CALIFORNIA

Sources and Resources

Sources

Images for this case study are from EPA Region 9 and site visits.

Map Sources

Maps for this case study were created with data from Esri, DeLorme, AND, Tele Atlas, First American, UNEP-WCMC, USGS, DigitalGlobe, GeoEye, i-cubed, USDA, AEX, Getmapping, Aerogrid, IGN, IGP and the GIS User Community.

Resources

Los Angeles Zoning Information and Map Access System:

<http://zimas.lacity.org>

Del Amo Environmental Review Team:

<http://www.delamosuperfund.com>

Del Amo Data Report:

<http://www.delamo.info>

EPA Superfund site page, including site decision documents:

<http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0901293>

EPA Superfund Redevelopment Initiative:

<http://www.epa.gov/superfund-redevelopment-initiative>

California Department of Toxic Substances Control:

<http://www.dtsc.ca.gov>



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