U.S. ENVIRONMENTAL PROTECTION AGENCY

SUPERFUND PROPOSED PLAN

CASCADE PARK GASIFICATION PLANT and
CASCADE PARK LANDFILL SITES

Tallahassee, Leon County, Florida **July 2018**

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) seeks public review and comments on the proposed no further action remedy presented in this Proposed Plan for the Cascade Park Gasification Plant and Cascade Landfill Sites (Site). This Proposed Plan is limited to the groundwater at the Site because other contamination was successfully addressed through a previous cleanup action. The EPA manages the Cascade Park Gasification Plant Site and Cascade Landfill Site as one site under the Superfund Program. The EPA is the lead agency on this Site and is supported by the Florida Department of Environmental Protection (FDEP).

The Site is located in downtown Tallahassee, south of Bloxham Street and east of South Monroe Street. The Site includes a former manufactured gas plant (MGP), athletic field and landfill. The City of Tallahassee (City) operated the MGP from 1890 until the mid-1950s. Waste from the MGP processes contaminated the soil, subsurface, creek sediments and groundwater with metals and organic chemical contamination. Construction work by the State of Florida (State) moved MGP contamination onto the adjacent Centennial Field. The City operated Cascade Landfill from 1928 to 1936, which accepted waste from the MGP. Waste at the landfill contaminated soil, subsurface soil, creek sediments and groundwater.

The City, as the current owner and a past owner of the Site, and the State, as a former owner of the Site, are potentially responsible parties. The City and State jointly conducted investigations at the Site until 2002. Afterwards, the City conducted additional investigations and response actions at the Site with oversight from the EPA in accordance with settlement agreements entered into with the EPA.

COMMUNITY INVOLVEMENT OPPORTUNITIES

Public Comment Period:

Dates: July 26, 2018 to August 27, 2018

Purpose: To seek comments on the Proposed Plan for Cascade Park Gasification Plant and Cascade Landfill Sites.

Response to Public Comments

The EPA will provide a written summary of significant comments, criticisms, and new relevant information submitted during the public comment period and will respond to each issue in the Record of Decision.

Public Meeting:

If requested, the EPA shall conduct a public meeting during the public comment period at or near the site.

EPA Contacts:

Please direct questions or comments to:
Erik Spalvins, Remedial Project Manager (404) 562-8938 or via email at spalvins.erik@epa.gov

OR

Ronald Tolliver, Community Involvement Coordinator
Toll-free (800) 435-9234 or via email at tolliver.ronald@epa.gov

By mail: U.S. EPA
Atlanta Federal Center
Superfund Remedial Branch
Attention: Erik Spalvins
61 Forsyth Street, S.W.
Atlanta, Georgia 30303

In May 2003, the EPA issued a Removal Action Memorandum that identified several removal action components to be undertaken for three Areas of Concern (AOCs) as well as remediation of the contaminated groundwater at the Site.

The City conducted a cleanup intended to address soil, sediment and groundwater in a 2006 Removal Action. The City subsequently constructed "Cascades Park" on a portion of the Site. Park construction resulted in additional soil removal and engineering controls from 2010 to 2014.

Groundwater contamination increased from 2006 to 2011. Therefore, the City agreed to conduct a Focused Remedial Investigation and Feasibility Study (RI/FS) of groundwater contamination in accordance with the terms of an Administrative Settlement Agreement and Order on Consent. The ***Superfund Alternative Approach*** (SAA) was used in that agreement. The SAA is an alternative to listing a site on the National Priorities List (NPL) when a site scores high enough to be listed on the NPL. The same processes and standards for investigation, cleanup and community involvement are used as a site on the NPL under the SAA.

From 2010 to 2014, the City built "Cascades Park" and conducted additional cleanup actions which altered the Site conditions. The City removed more sources of groundwater contamination. The City limited the infiltration of surface and groundwater by placing a clay liner in a new pond and by capping residual contamination with clay caps. The construction and additional cleanup resulted in a sharp decline in groundwater contamination after 2014. As of 2017, groundwater contamination has decreased below health-based clean-up levels (as discussed in the section that follows labelled "Clarification of cleanup standards"). This ***Proposed Plan*** provides an overview of information contained in the Administrative Record and presents the basis for proposing no further remedial action at the Site because the 2006 Removal Action and subsequent construction of "Cascades Park" from 2010 to 2014 eliminated the existing and potential unacceptable risks to human health and the environment. When a removal action eliminates existing and potential risks and no further remedial action is necessary under the EPA Superfund program, the EPA documents the decision in a No Further Action ***Record of Decision*** (ROD).

For more information, please see the documents in the Administrative Record for the Site located at the Information Repository and the EPA Region 4 Records Center

The Site Information Repository is located at:

LeRoy Collins Leon County Main Public Library
200 West Park Avenue
Tallahassee, Florida 32301
(850) 606-2665
Hours: Monday to Thursday from 10 am to 9 pm
Friday from 10 am to 6 pm
Saturday 10 am to 6 pm
Sunday 1 to 6 pm

AND is also located at:

EPA Region 4 Superfund Records Center located at:

Atlanta Federal Center
61 Forsyth Street SW
Atlanta, Georgia 30303
(800) 435-9234
Hours: Mon-Fri 8:00 am-4:30 pm

This Proposed Plan was developed in compliance with the requirements of Section 117(a) of the C***omprehensive Environmental Response, Compensation and Liability Act (CERCLA)*** and Section 300.430(f)(2) of the ***National Contingency Plan (NCP).*** The Proposed Plan presents a summary of groundwater investigations, monitoring data and park construction information. These documents and other Site documents which provide support for the proposed no further action remedy are available in the Administrative Record located in the ***Information Repository*** at LeRoy Collins Leon County Main Public Library, 200 West

Park Avenue, Tallahassee, Florida, and the EPA Region 4 Records Center located at 61 Forsyth Street, S.W., Atlanta, Georgia.

The EPA will accept public comments from July 26, 2018 through August 27, 2018, and the EPA will extend the public comment period if requested by the public during that period. Comments may be submitted by mail, email, or by phone. If requested, EPA will conduct a public meeting during the public comment period at or near the site. The EPA, in consultation with the State, may modify the proposed no further action remedy presented in this Plan based on new information or public comments received during the public comment period. Therefore, the public is encouraged to review and comment on the proposed no further action remedy in this Proposed Plan.

SITE BACKGROUND

The Cascade Park Gasification Plant and Cascade Landfill Sites (CERCLIS identification numbers FLD981931959 and FLD984769177) are managed as one Site by the EPA Superfund Program. The Site is a portion of the larger "Cascades Park", which in 1971 was designated by the Florida Governor and Cabinet as a historical landmark that should be restored and developed as a park. A 2014 aerial photograph shows the completed "Cascades Park" in Figure 1. "Cascades Park" consists of several former industrial facilities and residential areas and is divided into six areas of concern (AOCs), shown in Figure 2.

- AOC 1: Former Cascade Landfill,
- AOC 2: Cascade Park Gasification Plant,
- AOC 3: Former Centennial Field,
- AOC 4: Former City Electric Light Plant,
- AOC 5: Former City Incinerator, and
- AOC 6: Former Smoky Hollow Neighborhood (not shown on figure).

Figure 1. Aerial photo of the completed "Cascades Park" in 2014

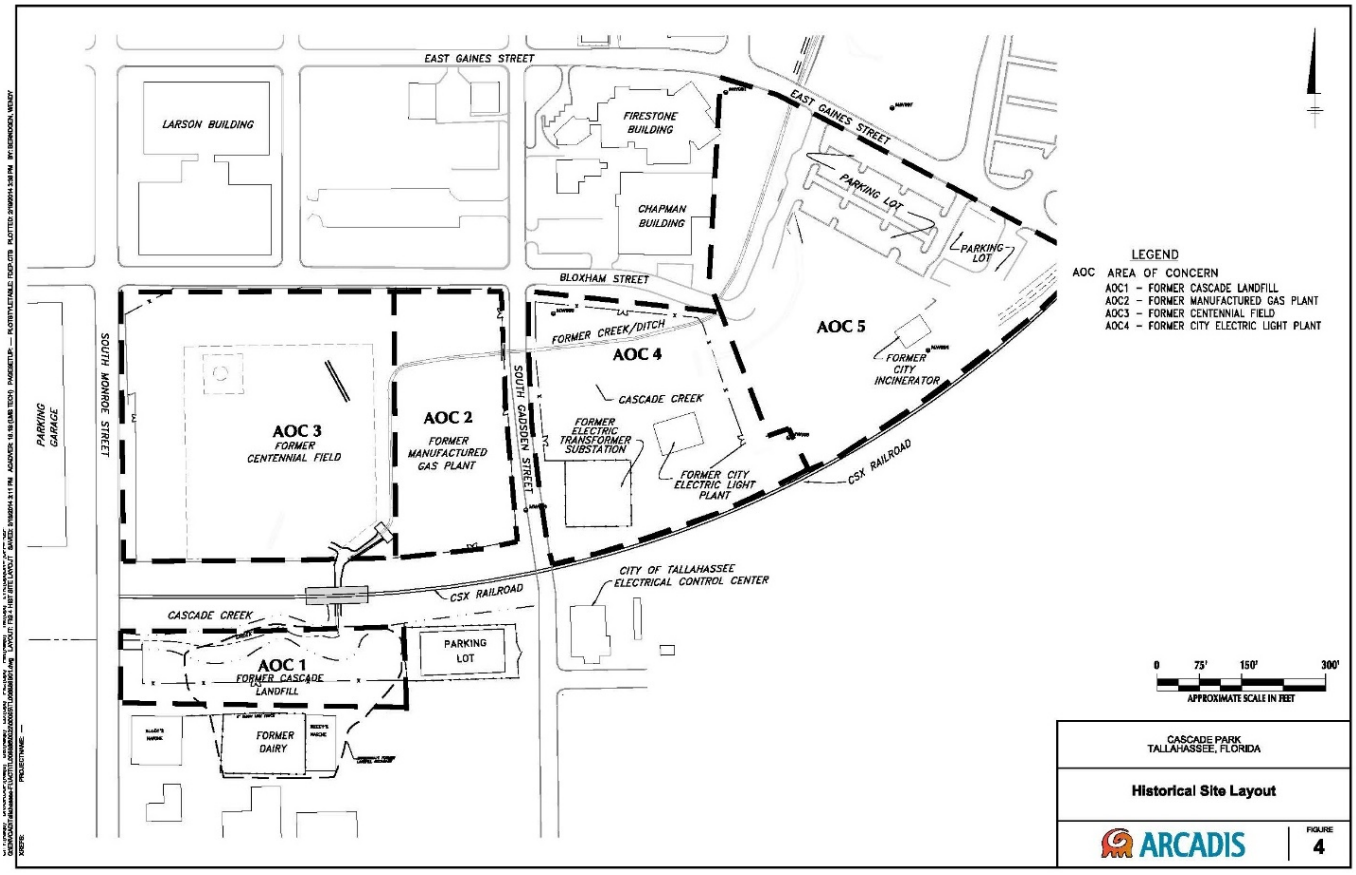


Figure 2. Historical Site features and the location of Area of Contamination (AOC) 1 through 5

The City of Tallahassee is addressing AOCs 4, 5, and 6 under the State of Florida cleanup program. AOCs 1, 2 and 3 are the subject of this Proposed Plan. Figure 2 shows the historical Site features and the location of AOCs 1 through 5.

Cascade Landfill (AOC 1)

The City of Tallahassee operated the former Cascade Landfill from 1928 to 1936. The Landfill received vegetative debris, construction materials, ash from the old City incinerator, and filter materials from the MGP purifiers. The 1 to 2-acre landfill is located south of the CSX Railroad right-of-way.

Cascade Park Gasification Plant (AOC 2)

The former manufactured gas plant (MGP) operated between 1890 and the mid-1950s on a 2.5-acre parcel located west of Gadsden Street. The by-products of the MGP operations included coal tar, light and heavy oils, sludge/ash, and ammonia wastes. The City of Tallahassee owned the coal gasification plant property until 1963.

Centennial Field (AOC 3)

The former Centennial Field was an athletic field located on a 5-acre parcel between the former MGP and South Monroe Street. Centennial Field was used from 1924 to the early 1970s.

In 1963, the City of Tallahassee sold the former MGP property and Centennial Field to the State for the development of “Cascades Park”. The State began Park development activities in the 1970s, when the State re-routed Cascade Creek, stockpiled soil from the MGP, and spread contamination into the former Centennial Field. In 2005, the State conveyed legal title of the former MGP property and Centennial Field back to the City for construction of "Cascades Park”.

REGULATORY AND ENFORCEMENT HISTORY

From the mid-1980s to 2002, the City and the State conducted investigations at the Site. Thereafter to present, the City, with oversight from the EPA, conducted additional investigations, a removal action, and redeveloped the Site as "Cascades Park". Major milestones are summarized below:

- 1987-1989 Florida conducted a Preliminary Assessment and Site Inspection (PA/SI).
- 1990 a Consent Order was executed by the Florida Department of Environmental Regulations and issued to the Florida Department of General Services and the City to assess contamination at the Site.
- 1993 Phase I Site Assessment performed.
- 1994 Site Inspection Prioritization of the landfill was submitted to the EPA by the State.
- 1996 to 1997 Expanded Site Inspection (ESI) performed by the EPA.

In 1997, the EPA selected a removal strategy to address contamination at the Site. Based on findings of the 1997 ESI Report, the City and State entered into an Administrative Order on Consent with the EPA to perform an Engineering Evaluation/Cost Analysis (EE/CA) in November 1998. The EPA conducted community interviews in March 1999, and developed a Community Relations Plan for the Site in May 1999. The EE/CA Report was completed in February 2002. The EPA published a Proposed Plan in March 2002 and sought public comments on the EE/CA Report and the EPA's recommended removal alternative from March 25, 2002, through May 24, 2002. A public meeting to discuss that Proposed Plan was held in Tallahassee on April 2, 2002.

On May 29, 2003, the EPA signed an Action Memorandum selecting a Non-Time Critical Removal Action. Responses to the comments received during the public comment period were included in the Responsiveness Summary and attached to the Action Memorandum. In 2004, the City agreed to perform the Non-Time Critical Removal Action, with EPA oversight, by entering into an Administrative Order on Consent with the EPA. The overall approach of the Non-Time Critical Removal Action was source removal, offsite disposal, capping residual contamination, and Monitored Natural Attenuation (MNA) of groundwater with pump and treat as a contingency. The Action Memorandum selected groundwater "remedial goals" for 29 contaminants of concern, based on Federal maximum contaminant levels, or more stringent State Primary Drinking Water Standards under Florida Administrative Code (F.A.C.) 62-550 that were identified as relevant and appropriate chemical-specific requirements. Under the NCP at 40 CFR 300.415(j), removal actions shall attain applicable or relevant and appropriate requirements (ARARs) to the extent practicable considering the exigencies of the situation. FDEP promulgated Groundwater Cleanup Target Levels (GCTLs) under F.A.C. 62-777 Table I, which incorporate by reference the Florida Primary Drinking Water Standards as well as health-based groundwater cleanup levels. EPA considers the promulgated health-based GCTLs to be more stringent State chemical-specific ARARs but GCTLs based on organoleptic factors (such as taste, odor or coloration) are not considered ARARs.

The 2003 Action Memo required the following Removal Action components for Cascade Landfill (AOC 1):

- Install 24-inch clay cap and sod;
- Require a deed restriction to limit groundwater use, limit well drilling, limit construction, maintain stormwater features, limit land use, maintain on-Site engineering controls, and provide access;
- Install geosynthetic clay liner on landfill;
- Sample groundwater;
- Remove contaminated creek sediments; and
- Construct concrete channel for Cascade Creek.

The Action Memo required the following Removal Action components for Cascade Park Gas Plant (AOC 2) and Centennial Field (AOC 3):

- Excavate the source area, dispose of soil off-Site;
- Leave the excavation to build a stormwater management feature and install an impermeable pond liner;
- Conduct and complete monitored natural attenuation of groundwater within 20 years, with a pump-and-treat contingency;
- Remove creek sediments;
- Dispose soil and sediment off-Site; and
- Require a deed restriction to prevent groundwater use and restrict land use.

PREVIOUS CLEANUP ACTIONS

Removal Action 2006

The City conducted the Removal Action between October 2005 and December 2006, completed most of the components described above and successfully addressed human and ecological exposure to soil and creek sediments. The Removal Action resulted in the excavation and disposal of approximately 85,000 tons of contaminated soil and sediment. In 2007, the City documented the Removal Action in two Removal Action Reports: *Removal Action Report for the Former Cascade Landfill Site (AOC 2 & 3)* and *Removal Action Report for the Former Cascade Landfill Site (AOC 1)* contained in the Administrative Record.

Where residual contamination was not accessible for excavation, a clay cap was placed at the maximum extent of the excavation. The excavations were backfilled with clean soil. A temporary clay pond liner was installed in the bottom of the excavation and was the main engineering control to prevent infiltration of surface water. The City conducted groundwater monitoring starting in 2007. The institutional controls for AOCs 1, 2 and 3 were recorded in Book 4241 of Public Records in Leon County Florida in April 2011 in the form of restrictive covenants enforceable by the State. These restrictive covenants are contained in the Administrative Record. These restrictive covenants are recorded at the County Clerk's office.

The construction of "Cascades Park" (Park) was expected to begin soon after the excavation was complete. However, due to economic conditions, the Park construction was delayed until 2010. From 2006 to 2010, the impermeable pond liner built as the main engineering control failed intermittently due to Park construction and geotechnical instability. The City was not able to make permanent repairs to the pond liner until the construction of "Cascades Park" in 2013 and 2014.

Additional Removal Action during Park Construction 2010-2014

Planning and design of "Cascades Park" began in November 2003 by an intergovernmental (City/County) agency called Blueprint 2000. The design and planning was recognized by EPA with an "Excellence in Site Reuse Award" in 2008. The design of "Cascades Park" incorporates stormwater management functions in a public park. The main stormwater pond is called Boca Chuba pond and is built in the excavation left by the Removal Action. Because the construction of Boca Chuba pond would uncover additional contamination and would partially destroy and expand the 2006 clay liner, Blueprint 2000's contractor (URS Corporation) prepared the Environmental Construction Management Plan (ECMP) in 2009. The ECMP adapted the remediation components to Park construction. The EPA considers the work conducted pursuant to the ECMP from 2010 to 2014 to be a continuation of the Removal Action. The ECMP was modified as needed during construction in January 2011, March 2011 and October 2013.

The Park construction changed the Site conditions through the removal of additional soil, the installation of the permanent Boca Chuba pond liner, and pressure grouting underneath Boca Chuba pond as discussed below:

Figure 3. Pressure Grouting in Boca Chuba Pond 2013

Additional Soil Removal
During Park construction, contractors excavated and disposed of approximately 12,500 tons of additional contaminated soil and source material. Together with the approximate 85,000 tons removed during the 2006 Removal Action, the total amount of contaminated soil and source material was about 97,500 tons. The excavation of additional contaminated soils was documented in a series of *Remediation Progress Reports* prepared by URS and are contained in the Administrative Record.

Permanent Pond Liner Installation
Contractors installed the 96,000 ft^2 Boca Chuba pond liner system from October 2013 to January 2014. The pond liner meets the design and performance standards requirements of the Action Memo and attained an average permeability of $1.33x10^{-7}$ cm/sec. The 18-inch compacted clay liner achieved a minimum field density of 95% by Proctor Test and is covered with a 12-inch sand layer. The basis for design, construction details, and quality assurance/quality control for the pond liner is documented in *Boca Chuba Pond Liner Installation* prepared by URS and dated September 2014.

Pressure Grouting
Blueprint 2000 conducted pressure grouting for geotechnical purposes in the fall of 2013 (Figure 3). The City's contractor, Ardaman and Associates, injected about 500 cubic yards of cement grout into void spaces under the pond. The details of the pressure grouting are in *Progress Report Regarding the Supplemental Subsurface Soil and Limestone Exploration and Remediation of Cavities, Soft Soils and Limestone Conditions in Boca Chuba Pond in the Area of Retaining Wall RW-51, and in the Area of the Former Vortex* contained in the Administrative Record.

Groundwater Sampling 2007-2011
Consistent with the 2003 Action Memo, groundwater sampling was conducted from 2007 to 2011. The *Post Removal Site Control Plan Addendum* dated 2007 documents the sampling plan. From 2007 to 2011, data showed overall decreasing trends, but there were increasing trends in certain wells at the Gas Plant (AOC 3). In 2011, the EPA determined that the groundwater remediation goals may not be met in an appropriate timeframe, and required the City to initiate a Remedial Investigation and Feasibility Study focused on the residual groundwater contamination.

In December 2011, the City entered into an Administrative Order on Consent with the EPA to conduct a Remedial Investigation, Treatability Study, and Feasibility Study to evaluate potential groundwater remedial actions. This Proposed Plan presents an overview of the results of the RI and subsequent groundwater sampling from 2014 to 2017.

Groundwater Remedial Investigation 2012-2014
In 2012 (during park construction), the City began the groundwater Remedial Investigation, installed nine new wells and conducted sampling. In 2012, ten wells contained contaminants above GCTLs and there were five contaminants detected above GCTLs and above background:

- Benzene
- Acenaphthene
- Naphthalene
- 1-Methylnaphthalene
- 2-Methylnaphthalene

In 2013, a total of 11 wells showed exceedances of GCTLs. Table 1 summarizes the number of wells exceeding GCTLs from 2010 to 2017.

Table 1: Number of wells with Exceedances

Year	Number of Wells with Exceedances
2010	4
2011	4
2012	11 (Nine wells added)
2013	11
2014	7
2015	3
2016	4
2017	0

Treatability Study 2013

The City conducted a treatability study in 2012 and 2013 to evaluate in-situ chemical oxidation (ISCO) as a potential remedial approach. The City summarized the results in the *In-Situ Chemical Oxidation Field-Scale Treatability Study Report,* dated September 2013 contained in the Administrative Record. During the review of the treatability study report, the EPA observed that the baseline samples, collected prior to ISCO injection (January 15 and 16, 2013) showed improvements to water quality that could not be attributed to the ISCO injections, suggesting that other changes may be occurring in the groundwater system.

Feasibility Study 2014

The City prepared a *Feasibility Study Report*, submitted in February 2014 that identified six potential remedial alternatives to address the groundwater contamination. The review of the *Feasibility Study Report* coincided with the completion of the Boca Chuba pond liner, the grand opening of "Cascades Park", and with groundwater sampling in March 2014. The March 2014 groundwater data showed a decrease of contamination levels and indicated that there were fundamental changes occurring in the aquifer. The EPA placed the review of the *Feasibility Study Report* on hold until after groundwater conditions stabilized and more data could be collected to prevent the premature selection of a Remedial Action.

Post Park Construction Groundwater Investigation 2014-2017

Park construction was completed in 2014. Additional groundwater data collected in 2015 further changed the understanding of contamination at the Site. In 2015 and 2016, 3 and 4 wells respectively had exceedances of GCTLs. The only contaminants detected above GCTLs in 2015 and 2016 were benzene (maximum 3.5 µg/L) and acenaphthene (maximum 55 µg/L). The other eleven wells sampled in 2015 and 2016 did not contain detections above any GCTL. On March 18, 2016, the EPA formally notified the City that the Feasibility Study would not be reviewed further until additional sampling was conducted.

Clarification of cleanup standards

In 2016, the EPA evaluated the cleanup standards used by the City in the Remedial Investigation and draft Feasibility Study. The EPA found that the City correctly used the benzene GCTL of 1 µg/L, which is a promulgated health-based number (FL Primary Drinking Water Standard) that EPA considers as a chemical-specific ARAR. The EPA also found that the acenaphthene GCTL of 20 µg/L is an organoleptic-based (odor minimizing) value as opposed to a health-based level for consumptive uses of groundwater. As a result, the GCTL for acenaphthene was determined by EPA to be 'relevant' but not an 'appropriate' requirement and thus would not be the basis for the groundwater cleanup level for that contaminant. Instead, the EPA calculated a health-based value of 530 µg/L for acenaphthene, which is based on a Hazard Index of 1. The maximum detection of acenaphthene was 55 µg/L. For reference, the State of Florida calculated a health-based value of 420 µg/L for acenaphthene (see Table 7 of *Technical Report: Development of Cleanup Target Levels (CTLs) For Chapter 62-777, F.A.C.)* contained in the Administrative Record.

Detailed Evaluation of Benzene Data

In 2015 and 2016, there were four wells with exceedances of the health-based GCTL for benzene; IW201, MW102, IW102 and MW056.

Wells IW201 and MW102

The highest detections of benzene in 2015 and 2016 were in wells IW201 (2.6 µg/L) and MW102 (3.5 µg/L). The EPA reviewed the installation of the wells and found that these wells were installed in the footprint of the clay pond liner installed under the Removal Action. Figure 4 shows the extent of the capped area, the well locations, and recent groundwater sampling results. The pond liner was an engineering component of the Removal Action. The EPA does not expect to restore contaminated groundwater located underneath the pond liner, but does expect to restore groundwater at the boundary of the pond liner. Wells IW201 and MW102 are installed underneath the pond liner. EPA does not need additional samples from IW201 and MW102.

Wells IW102 and MW056

The benzene levels in well IW102 were non-detect in 2015 and 1.2 µg/L in 2016. The benzene levels in well MW056 were 1.6 µg/L and 1.1 µg/L in 2015 and 2016, respectively. Both wells also showed a strong decreasing trend from 2013 to 2017. The EPA determined that a minimum of two rounds of sampling taken at least two months apart were needed in wells IW102 and MW056. The EPA sent correspondence to the City on May 19, 2017 explaining the sampling required. In June and July 2017, the City sampled wells IW102 and MW056 and both wells were non-detect for benzene. In September 2017, a second sampling found the same result, both wells were non-detect for benzene. Figure 4 shows the Site, the well locations, the extent of the capped area and the benzene trends for wells IW102 and MW056. Figure 5 shows benzene concentrations over time in well IW102 with notations for the period of Park construction. Figure 6 shows the benzene trends for MW056.

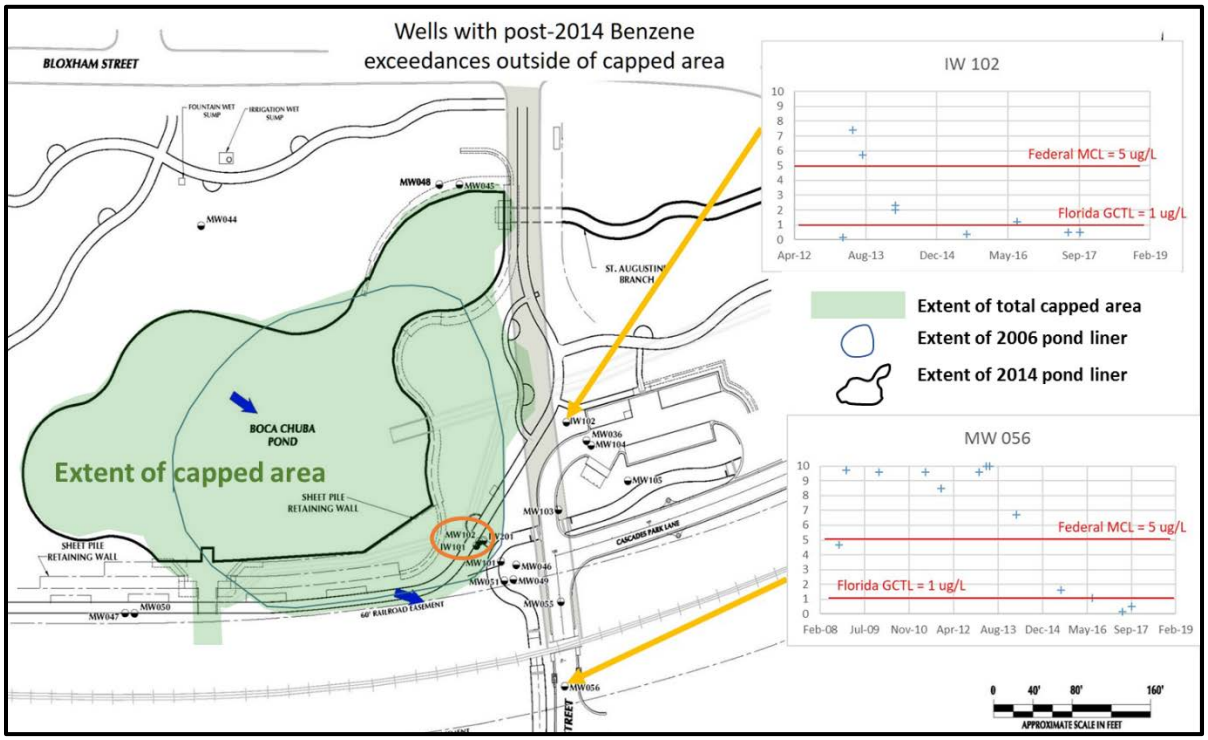


Figure 4. Extent of Capped Area (shaded in green), well locations, and benzene trends for wells IW102 and MW056

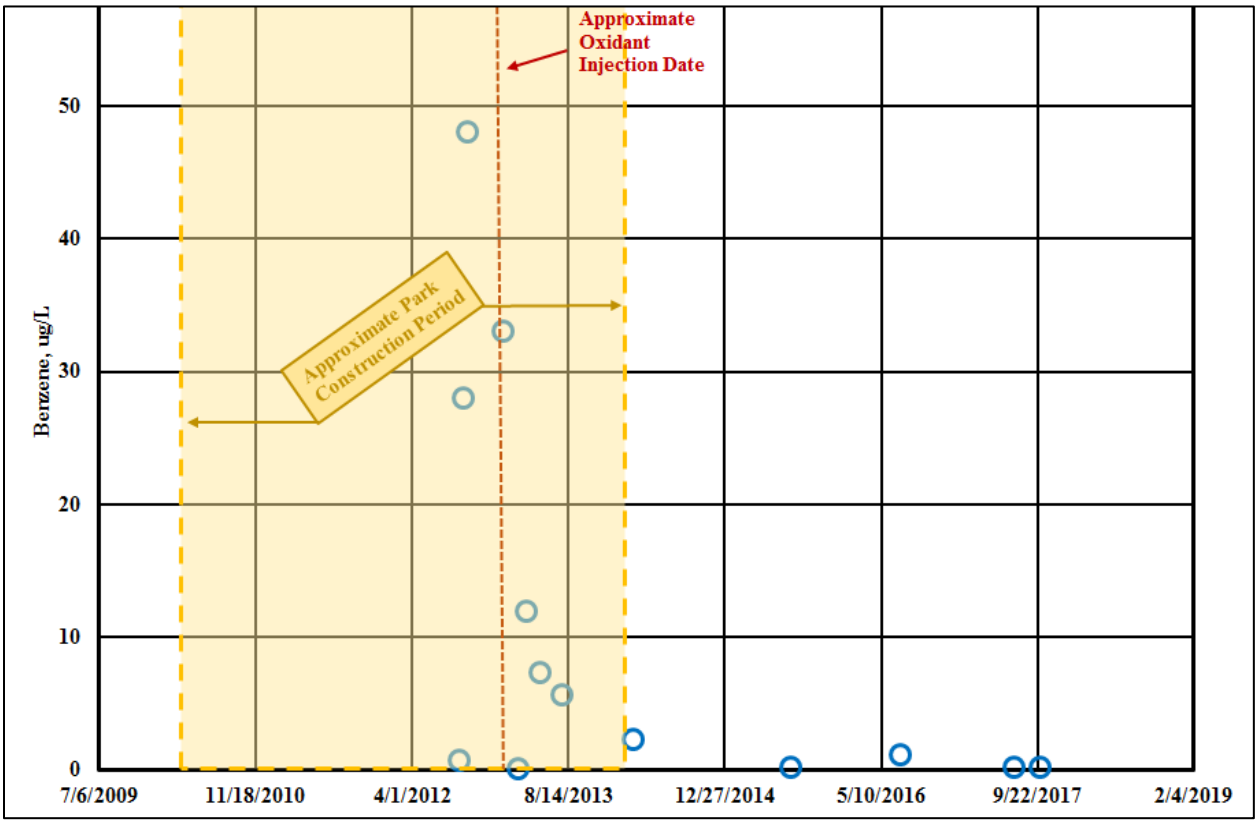


Figure 5. Well IW102 Benzene Concentration Over Time

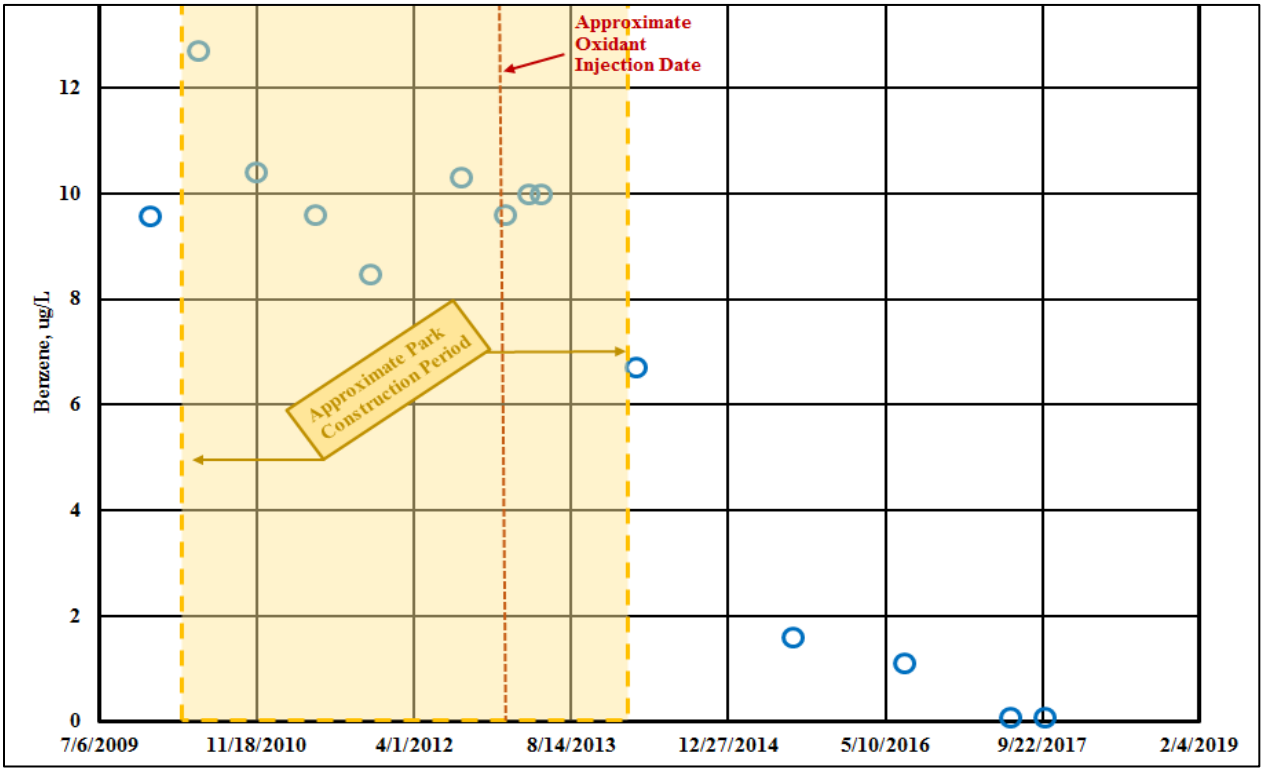


Figure 6. Well MW056 Benzene Concentration Over Time

SITE CHARACTERISTICS

The subsurface lithology at the Site is characterized by an upper overburden and an underlying calcareous unit typical of karstic areas. The overburden consists of fill, silty-sand, and clay layers interbedded with silty-clay lenses. The limestone is typically encountered at depths ranging from 40 to 65 feet below ground surface. The top of the Floridan Aquifer occurs at approximately 65 feet below ground surface at the Site. During the Removal Action, the City's contractors excavated to the top of limestone in some areas of the former MGP parcel, removing the overburden and intermediate aquifer material. The general horizontal direction of groundwater flow at the Site is in a southeasterly direction. There is a significant downward gradient at the Site.

Conceptual Site Model

The Conceptual Site Model (CSM) is summarized below and describes the changes in nature and extent of contamination over time and in response to past cleanup actions. Figure 7 shows aerial photos that document the changes at the Site. The CSM is based on current and future land use of the Site remaining recreational.

Prior to 2006, large amounts of source material were present in the soils and had moved into the intermediate aquifer and the top of the Floridan aquifer. This source material was in contact with infiltrated rainwater, surface water and groundwater and contaminants leached into the groundwater causing significant groundwater exceedances.

The 2006 Removal Action removed large amounts of source material from the Site soils and the aquifer, which eliminated the leaching of contaminants. Because there were physical limitations to the extent of excavations along the CSX railroad and along Gadsden Street, impermeable clay or plastic liners were placed where residual contamination was left in place. Also, the City built a stormwater pond inside the pit left by the excavation. The City placed a clay liner in the bottom of the pond. Figure 7 shows the Site in 2009: a pond is located in the excavated area; a second pond is located to the west; and the creek has been rerouted around the excavation areas.

The increase in groundwater contamination in some wells from 2006 to 2011 is now understood as most likely being the result of the destruction of the pond liner and/or the result of water infiltrating through residual subsurface contamination. The 2011 aerial photo (see Figure 7) shows the damage to the pond and the 2014 aerial shows the final location of the Boca Chuba pond.

Fate and Transport

Prior to the construction of "Cascades Park" and implementation of the ECMP, contaminants continued to leach into groundwater. The mechanisms of the improvements to water quality are likely a combination of source removal and reduced infiltration of surface and groundwater into residual contamination. It is possible that the pressure grouting positively changed conditions. The overall result of the construction was to reduce the contaminant concentrations in groundwater.

As of 2017, the cleanup has removed or capped virtually all of the source materials contributing to groundwater contamination. There is no expectation that the total dissolved mass of contaminants will increase. The EPA expects that the groundwater will continue to remain below health-based cleanup levels in the future. Residual capped contamination and clay liners are engineering controls of the Removal Action. Engineering and institutional controls are subject to restrictive covenants and overseen by the State. Information on the site and its restrictive covenants are entered into the FDEP Institutional Control Registry Database. FDEP conducts audits of the engineering and institutional controls to ensure restrictions remain protective of human health and the environment.

2005 Prior to Removal Action

2009 Between Removal Action and Park Construction

2011 During Park Construction

2014 Park Construction Nearing Completion

Figure 7. Aerial Photos of the Site in 2005, 2009, 2011 and 2014

SCOPE OF PROPOSED PLAN

This Proposed Plan discusses the data obtained during the Remedial Investigation for groundwater started in 2011 and subsequent groundwater sampling from 2014 to 2017. The overall cleanup strategy for the Site was an aggressive Removal Action, followed by MNA for groundwater contamination. The groundwater strategy was ineffective until the 2014 completion of "Cascades Park". In March 2016, the EPA determined that a groundwater remedial decision should be delayed until Site conditions reflected the conditions that can reasonably be expected to persist at the Site for the foreseeable future. Groundwater sampling results conducted after the Park was constructed document that unacceptable risks to human health and the environment have been addressed by the removal action, park construction, and natural attenuation.

SUMMARY OF SITE RISKS

The unacceptable risks posed by the Site have been addressed by the Removal Action and the actions taken under the ECMP during Park construction. While the scope of this Proposed Plan is limited to groundwater, this summary of Site Risks includes the risk information for the Removal Action.

The City presented a Streamlined Human Health Risk Evaluation and a Streamlined Screening-Level Ecological Risk Assessment in the 2002 EE/CA Report.

The steps of a Baseline Risk Assessment are:

- Hazard Identification – Can exposure to a stressor cause adverse health effects?
- Dose-response Assessment – What is the relationship between dose and toxic effect?
- Exposure Assessment – Estimate the human exposure (dose) to a stressor in the environment.
- Risk Characterization – What is the nature of and presence or absence of risks?

Key findings of the EE/CA Human Health Risk Assessment

The Streamlined Human Health Risk Evaluation used the soil cleanup target levels (SCTLs) provided in Chapter 62-777, FAC, as a baseline to identify contaminants for soil. The residential direct exposure to soil and leachability to groundwater criteria were used to screen the surface soil (top 24 inches), subsurface soil, and sediment. The screening levels were adjusted to a target hazard index of 0.1 for non-carcinogens to account for potential additivity from multiple chemicals. The contaminants for groundwater and surface water were determined by comparing the detected compounds with the Groundwater and Surface Water Cleanup Target Levels which resided at the time in Chapters 62-550 and 62-302, FAC, respectively.

In 2002, the human health risk evaluation indicated the following media exceeded the screening levels:

- Surface and subsurface soils at AOC1 (the landfill),
- Surface and subsurface soil, and groundwater at AOC2 (former MGP), and
- Groundwater at AOC3 (former Centennial Field).

Key Findings of the Remedial Investigation Human Health Risk Assessment

The groundwater Remedial Investigation that started in 2011 included a Streamlined Human Health Risk Assessment, using groundwater data from 2006 to 2012. The 2012 RI Report used a Preliminary Risk Evaluation approach, which employs a simplified form of risk characterization making use of conservative default GCTLs identified by FDEP. The 2012 results indicated a lifetime excess cancer risk of 4.80×10^{-5} due to benzene and a non-cancer risk of 73.71 due to non-carcinogenic polyaromatic hydrocarbons. This level of risk exceeds the risk range EPA considers acceptable under CERCLA and EPA would require an action at CERCLA sites where this level of risk is present.

However, the Site conditions and groundwater data changed dramatically between 2012 and 2017 and the EPA considers the risk analysis from the 2012 RI Report to be obsolete.

As of 2017, groundwater COCs are below health-based cleanup levels that are either based upon chemical-specific ARARs (namely the Federal MCLs or more stringent FDEP GCTLs) or in the case of acenaphthene, must be calculated. The EPA did not complete an update to the 2012 Streamlined Human Health Risk Assessment because there are no groundwater constituents above drinking water standards. The health-based levels used for comparison were the FDEP GCTL of 1 µg/L for benzene, the EPA calculated health-based value of 530 µg/L for acenaphthene (based on a Hazard Index of 1) and the FDEP GCTLs for other polyaromatic hydrocarbons. The potential risk to future residents from exposure to groundwater is less than a Hazard Index of 1 and less than one in a million for cancer risk.

Summary of Human Health Site Risks 2018

The unacceptable Site risks posed by soil and sediment were successfully eliminated by the Removal Action. The City implemented restrictive covenants in 2011 to ensure the continued protectiveness of the Removal Action.

The unacceptable Site risks posed by groundwater were successfully eliminated by the Removal Action, the Park construction and natural attenuation. Groundwater contaminants are below the health-based cleanup levels discussed above.

Table 1 summarizes the improvements in groundwater quality. The data from the last two wells with exceedances is summarized in Figures 5 and 6. The pond liner is an engineered component of the Removal Action and the EPA does not expect to restore groundwater located underneath the pond liner.

Conclusions of the Ecological Risk Assessment

The Ecological Risk Assessment is outside the scope of this Proposed Plan, which is limited to the groundwater at the Site. The Removal Action completed in 2006 successfully addressed exposure to ecological receptors. A short summary of the ecological risk assessment findings is added for informational purposes.

The Streamlined Screening-Level Ecological Risk Assessment was conducted for the 2002 EE/CA and found that organic and inorganic constituents in the soil and sediments at the landfill and MGP parcels were higher than ecological soil and sediment constituent benchmarks developed in the 2002 EE/CA. In the 2003 Action Memo, the EPA concluded that Removal Actions at the landfill and MGP parcels were required to control exposure of potential ecological receptors to contaminants. The Removal Action addressed unacceptable exposure to ecological receptors, including aquatic and terrestrial communities by excavating the contaminated sediments and/or capping contaminated sediments. The detailed summary of the Removal Action is documented in the Removal Action Reports; *Removal Action Report for the Former Cascade Landfill Site (AOC 2 & 3)* and *Removal Action Report for the Former Cascade Landfill Site (AOC 1)* contained in the Administrative Record.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives are not needed because all Site risks were addressed by the Removal Action. Removal Action Objectives provided in the 2003 Action Memorandum included:

- Prevent future human and ecological contact with affected media that pose a significant risk.
- Mitigate the potential for chemicals to migrate from soils into groundwater.
- Mitigate the migration of affected groundwater.
- Restore groundwater to levels that meet state

and federal drinking-water standards within a reasonable period.

The Removal Action Objectives have been met as documented by the Removal Action Reports contained in the Administrative Record.

Remedial Alternatives and Evaluation of Alternatives

The City submitted a draft groundwater only Feasibility Study in 2014, which included potential Remedial Alternatives and an Evaluation of Alternatives. However, the groundwater data collected in 2014 and 2015 and summarized in groundwater monitoring reports in the Administrative Record, changed the understanding of contamination at the Site. On March 18, 2016, the EPA notified the City that the Feasibility Study would not be reviewed further until additional sampling was conducted.

In correspondence to the City on May 19, 2017 the EPA presented the data needs to complete the investigation. The City conducted the requested sampling, and the benzene results were below 1 µg/L. The Site now meets the criteria for a No-Action remedy decision and Remedial Alternatives are no longer needed because no unacceptable human health or ecological risks exist at the Site based on the sampling data obtained after completion of construction of the Park.

Summary of the Preferred Alternative

The existing and potential unacceptable risks to human health and the environment have been adequately addressed by the Removal Action in 2006 and the subsequent Park construction removal activities. Those Removal Actions have eliminated the need for additional remedial response action above and beyond the requirements of the 2003 Action Memorandum since unacceptable risks were addressed by such actions. The EPA in consultation with the State may modify the proposed no further action remedy presented in this Plan based on new information or comments received during the public comment period.

State Acceptance

FDEP had been actively involved in the development and review of the removal action, the Focused RI, the draft FS, and removal and subsequent groundwater sampling at the Site and State support of the EPA proposed no further action is anticipated.

Community Acceptance

Community acceptance of the proposed no further action remedy will be evaluated after the public comment period ends. Comments received during the public comment period will be addressed and responses will be presented in the Responsiveness Summary which will be included in the ROD.

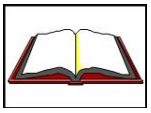
Community Participation

The EPA seeks public review and comments on this Proposed Plan and on EPA's proposed no further action remedy. The Information Repository and Administrative Record for the Cascade Park Gasification Plant and Cascade Landfill Sites are available at the LeRoy Collins Leon County Main Public Library located at 200 West Park Avenue, Tallahassee, Florida 32301. Electronic versions of this document are available from spalvins.erik@epa.gov.

The EPA will accept public comments for at least 30 days and the comment period will be extended if requested by the public during the initial public comment period. Comments may be submitted by mail, email, or phone. EPA will provide a written summary of significant comments, criticisms, and new relevant information submitted during the public comment period and will respond to each issue in the Record of Decision.

If requested, EPA will conduct a public meeting during the public comment period at or near the site.

Please direct comments or questions to: Erik Spalvins, Remedial Project Manager, at spalvins.erik@epa.gov, (404) 562-8938, or to Ronald Tolliver, Community Involvement Coordinator, at tolliver.ronald@epa.gov, or toll free at (800) 435-9234.



GLOSSARY

Administrative Record (AR): Material documenting EPA's selection of cleanup remedies at Superfund Sites, a copy of which is placed in the **Information Repository** near the Site.

Applicable or Relevant and Appropriate Requirements (ARARs): ARARs are any promulgated standards, requirements, criteria, or limitations under federal environmental laws, or any promulgated standards, requirements, criteria, or limitations under state environmental or siting laws that are more stringent than federal requirements, that are either legally 'applicable or relevant and appropriate' under the circumstances.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): A federal law (also known as **Superfund**) passed in 1980 and modified in 1986 by the Superfund Amendment and Reauthorization Act (SARA); the act created a trust fund, to investigate and cleanup abandoned or uncontrolled hazardous waste sites. The law authorizes the federal government to respond directly to releases of hazardous substances that may endanger public health or the environment. EPA is responsible for managing the Superfund.

Conceptual Site Model: A planning tool that organizes information that already is known about a site and identifies the additional information necessary to support decisions that will achieve the goals of the project.

Contaminants of Concern (COCs): Chemical constituents associated with a Superfund Site that have been released into the environment and pose a risk to human health.

Feasibility Study (FS): A study of the applicability or practicability of a proposed action or plan conducted after the Remedial Investigation to determine what alternatives or technologies could be applicable to clean up the site-specific COCs.

Groundwater: The supply of fresh water found beneath the Earth's surface (usually in aquifers) which is often used for drinking water.

Information Repository: A library or other location where documents and data related to a Superfund project are placed to allow public access to the material.

Institutional Controls: Restriction that prevents an owner inappropriately developing a property. The restriction is designed to reduce exposure to hazardous substances to workers or the general public and maintain the integrity of the remedy. Restrictive covenants are a form of institutional controls.

***In Situ*:** In its original place; unmoved unexcavated; remaining at the site or in the subsurface.

Monitored Natural Attenuation (MNA): This term refers to the reliance on natural attenuation processes to achieve site-specific remediation objectives. The natural attenuation processes that are at work in such remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater.

National Contingency Plan (NCP): The Federal Regulation that guides the Superfund program. The NCP was revised in February 1990.

National Priorities List (NPL): List of sites under EPA's Superfund program, which investigates and cleans up hazardous sites nationwide.

Organoleptic: Based on taste or odor.

Proposed Plan: A Superfund public participation fact sheet that summarizes the preferred cleanup strategy for a Superfund Site.

Record of Decision (ROD): A public document that describes the rationale for the selection of a Superfund remedy.

Remedial Investigation / Feasibility Study (RI/FS): A two-part investigation conducted to

fully assess the nature and extent of a release, or threat of release, of hazardous substances, pollutants, or contaminants, and to identify alternatives for cleanup. The Remedial Investigation gathers the necessary data to support the corresponding Feasibility Study.

Responsiveness Summary: A summary of oral and written comments received by EPA during a comment period on key EPA documents, and EPA's responses to those comments. The responsiveness summary is a key part of the ROD, highlighting community concerns for EPA decision-makers.

Superfund: The common name for the program operated under the legislative authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the federal law that mandates cleanup of abandoned hazardous waste sites

Superfund Alternative Approach (SAA): The Superfund Alternative Approach is an alternative to listing a site on the NPL. The SAA uses the same process and standards for investigation, cleanup, and community involvement as sites on the NPL.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan is important in helping EPA select a remedy for the Site. You may use the space below to write your comments, then fold and mail. A response to your comment will be included in the Responsiveness Summary.

Place Stamp Here

Name_____
Address_____
City_____State_____Zip_____

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Cascade Park Gasification Plant and
Cascade Landfill Sites
PUBLIC COMMENT SHEET

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