# Fourth Five-Year Review Report
# For
# American Crossarm and Conduit Superfund Site
# EPA ID: WAD057311094
# Lewis County, Washington

PREPARED BY
United States Army Corps of Engineers
Seattle District
Seattle, Washington

PREPARED FOR:
United States Environmental Protection Agency
Region 10
Seattle, Washington

Approved by: Cami Grandinetti

Cami Grandinetti, Program Manager
Remedial Cleanup Program

Date: 9/30/14

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# Executive Summary

This reports the findings of the Fourth Five-Year Review (FYR) performed for the American Crossarm and Conduit (ACC) Superfund Site located in Chehalis, Lewis County, Washington (ACC Site). The Fourth FYR was conducted to determine whether human health and the environment are being protected by implementation of the remedial action at the Site.

ACC was a wood treating facility contaminated by polycyclic aromatic hydrocarbons (PAHs) and pentachlorophenol (PCP) through its day-to-day operations and by chlorinated dioxins and furans that were present as contaminants in PCP. On-site contaminants were spread to nearby residences by natural flooding. The ACC Site was remediated in 1996 by the United States Environmental Protection Agency (EPA) in accordance with the Record of Decision (ROD), purchased by a private entity in 1997, redeveloped with new land owners and business structures, and is presently being used for commercial purposes. The Fourth FYR was conducted in accordance with the *Comprehensive Five Year Review Guidance* (U.S. EPA 2001) and includes the following:

- Review of ACC Site data to evaluate compliance with the performance standard specified by the ROD.
- A site inspection to confirm the remedial action remains protective of human health and the environment consistent with the ROD.
- Review of federal and state regulations promulgated since the Third FYR Report that could affect the overall protectiveness of the remedial action.
- Interviews of current ACC Site landowners and regulatory authorities.

A review of the geologic conditions and historical groundwater data indicate that migration of residual soil contaminants is limited by the geology/hydrostratigraphy at the ACC Site. As part of the remedial action, the most highly contaminated soils were removed from the treatment area where there was the highest potential for migration to groundwater; the remaining soils were capped. Historic off-site ground water contaminant concentrations have been below the Washington State Model Toxic Control Act (MTCA) Method B cleanup standards, based on sampling conducted between 1997 and 2001. Groundwater monitoring has not been performed since 2001.

The remedial action removed the most highly contaminated soil from the Site and relied on institutional controls to manage waste remaining at depth. Protective covenants and use restrictions are currently in place for the ACC Site properties and property owners are managing their parcels in accordance with the protective covenants and use restrictions. However, no operation and maintenance inspections have occurred since 2001, except for the visual inspections of the stormwater lagoon by the City of Chehalis and vegetation maintenance of the landfill cap by the land owner.

No new analytical data was collected as part of this Fourth FYR. However, a review of past data collection analyses in combination with the ACC Site inspection and information obtained from interviews has led EPA to reassess the protectiveness determination provided in the Third FYR Report. As a result of the investigations completed for this Fourth FYR, EPA no longer finds that the recommendations pertaining to Dillenbaugh Creek from the Third FYR Report are warranted. EPA notes that the dioxin contamination found in Dillenbaugh Creek remains below commercial/industrial screening levels, and there continues

to be no evidence that humans access Dillenbaugh Creek or that Dillenbaugh Creek supports a viable fishery. However, no O&M has been conducted by Ecology since 2001. Although the remedy constructed at the Site is currently intact and currently maintains protectiveness, O&M activities must be resumed to protect the remedy and assure continued protectiveness into the future.

This Fourth FYR process has concluded with a determination that the remedial action at the ACC Site is protective of human health and the environment in the short-term.

# Five-Year Review Summary Form

| SITE IDENTIFICATION | | |
|---|---|---|
| **Site Name:** American Crossarm and Conduit Superfund Site | | |
| **EPA ID:** WAD057311094 | | |
| **Region:** 10 | **State:** WA | **City/County:** Chehalis/ Lewis County |

| SITE STATUS | |
|---|---|
| **NPL Status:** Final | |
| **Multiple OUs?** No | **Has the site achieved construction completion?** Yes |

| REVIEW STATUS |
|---|
| **Lead agency:** EPA<br>**If "Other Federal Agency" was selected above, enter Agency name:** |
| **Author name (Federal or State Project Manager):** Joe Wallace |
| **Author affiliation:** EPA |
| **Review period:** December 2013 – September 2014 |
| **Date of site inspection:** February 4, 2014 |
| **Type of review:** Statutory |
| **Review number:** 4 |
| **Triggering action date:** September 2009 |
| **Due date *(five years after triggering action date)*:** 30 September 2014 |

**Issues/Recommendations**

| Issues and Recommendations Identified in the Five-Year Review: | | | | |
|---|---|---|---|---|
| **OU(s):** Click here to enter text. | **Issue Category: Monitoring** | | | |
| | **Issue:** O&M inspections were discontinued by Ecology in 2001. | | | |
| | **Recommendation:** Update the O&M plan to ensure the remedy remains protective and ensure that O&M inspections are resumed in accordance with the O&M Plan. | | | |
| **Affect Current Protectiveness** | **Affect Future Protectiveness** | **Implementing Party** | **Oversight Party** | **Milestone Date** |
| No | Yes | State | EPA | 2015 |

Protectiveness Statement(s)

| *Operable Unit:* | *Protectiveness Determination:* | *Addendum Due Date (if applicable):* |
|---|---|---|
| Click here to enter text. | **Short-term Protective** | Click here to enter date. |

*Protectiveness Statement:*

The remedy at the ACC is protective of human health and the environment in the short-term.

The remedy at the ACC Site currently protects human health and the environment because all contamination which has been left in place remains contained either beneath a landfill cap or contained under 10 additional feet of fill material constructed over the remedy-placed fill to house the buildings and asphalt parking lots associated with the commercial redevelopment of the ACC Site. Dioxin concentrations detected are below commercial/industrial screening levels, and their source(s) is unknown. Institutional controls remain in place and remain protective in the long term by eliminating risk pathways. Although O&M inspections have not been conducted since 2001, no evidence has been uncovered to controvert the results of the first five years of monitoring data obtained following remedy implementation which indicate that the remedy was fully functional. However, in order to protect the remedy and assure continued protectiveness into the future, O&M inspections must be resumed.

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# List of Abbreviations

| | |
|---|---|
| ACC | American Crossarm and Conduit Superfund Site |
| AOC | Areas of Contamination |
| ARAR | Applicable or Relevant and Appropriate Requirement |
| AWQC | Ambient Water Quality Criteria |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| COC | Contaminants of Concern |
| Dioxins | polychlorinated dioxins and furans (PCDD/F) |
| Ecology | Washington Department of Ecology |
| EPA | U.S. Environmental Protection Agency |
| FYR | Five-Year Review |
| HHRA | Human Health Risk Assessment |
| HQ | Hazard Quotient |
| ICs | Institutional Controls |
| LNAPL | Light non-Aqueous Phase Liquid |
| MTCA | Washington State Model Toxics Control Act |
| MCL | Maximum Contaminant Level |
| mg/kg | milligrams per kilograms |
| MSL | Mean sea level |
| NCP | National Contingency Plan |
| ng/L | nanograms per liter |
| ng/kg | nanograms per kilogram (= pg/g) |
| O&M | Operation and Maintenance |
| cPAHs | carcinogenic polycyclic aromatic hydrocarbons |
| PCBs | polychlorinated biphenyls |
| PCP | pentachlorophenol |
| pg/g | picograms per gram (= ng/kg) |
| RA | Remedial Actions |
| RAOs | Remedial Action Objectives |
| RCRA | Resource Conservation and Recovery Act |
| RI/FS | Remedial Investigation/Feasibility Study |
| ROD | Record of Decision |
| SDWA | Safe Drinking Water Act |
| SMS | Washington Department of Ecology Sediment Management Standards |
| USACE | U.S. Army Corps of Engineers |
| ug/L | microgram per liter |
| mg/kg | milligram per kilogram |
| VOC | volatile organic compound |
| WAC | Washington Administrative Code |
| WDFW | Washington Department of Fish and Wildlife |

# 1. Introduction

This is the Fourth Five Year Review (FYR) for the American Crossarm and Conduit Superfund Site (EPA ID WAD057311094).

## 1.1. Purpose

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and actions to address them.

## 1.2. Authority

The Environmental Protection Agency (EPA) is preparing this Fourth FYR Report pursuant to Comprehensive Environmental Response Compensation and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

With oversight from the EPA Region 10 Remedial Project Manager, the United States Army Corps of Engineers (USACE) Seattle District conducted the Fourth FYR of the remedy implemented at the American Crossarm and Conduit (ACC) Superfund Site in Chehalis, Washington (ACC Site). This Fourth FYR Report documents the results of the assessment conducted from December 2013 through July 2014; the entire period under current consideration runs from October 2009 through September 2014.

This is the Fourth FYR for the ACC Site. This Fourth FYR comes five years from completion of the Third FYR Report, signed September 30, 2009. The five year reviews are required due to the fact that hazardous substances, pollutants, or contaminants remain at the ACC Site at levels above those that would allow for unlimited use and unrestricted exposure.

# 2. Site Chronology

Table 1 summarizes, in chronological order, the major milestones or notable events for the ACC Site.

**Table 1. Chronology of Site Events**

| Event | Date |
|---|---|
| Ecology conducted a compliance inspection of ACC; a violation was found | February 1983 |
| ACC stopped wood treating operations | October 1983 |
| ACC abandoned the Site | Early 1986 |
| Chehalis River flooded. PCP left in tanks was spread throughout the neighborhood | Nov 1986 |
| An emergency removal action was taken to cleanup PCP from the flood | Nov 1986 |
| ACC office fire left some kilns exposed | December 1986 |
| ACC Site flooded | Dec 29-30, 1986 |
| ACC Site fire kilns and platform | Jan 1988 |
| Site used as salvage yard | 1988-1989 |
| An incinerator was brought on-site and used to burn contaminated debris from the removal action (900 tons of PCP contaminated material) | 1988-1989 |
| The ACC Site was listed on the National Priority List | Oct 4, 1989 |
| A Remedial Investigation and Feasibility Study was conducted | 1989 – 1992 |
| ACC Site floods | April 5, 1991 |
| Tanks, piping, and asbestos were removed from the treatment works | June 1992 |
| EPA removed stored ash and sludge from incinerator actions | 1992 |
| Record of Decision signed | June 1993 |
| Cleanup construction began | Sept 1994 |
| Remedial construction completed | May 1996 |

| | |
|---|---|
| Site redevelopment began | Nov 1998 |
| First FYR Report signed | Sept 30, 1999 |
| Second FYR Report signed | Sept 30, 2004 |
| Washington Department of Ecology conducted sediment sampling | April 2004 |
| Third FYR Report signed | Sept 30, 2009 |
| Fourth Five Year Review Site Inspection with Ecology | Feb 4, 2014 |

# 3. Background

## 3.1. Physical Characteristics

The ACC Site (Figure 1 and 3) is located at 100 Chehalis Avenue SW, Chehalis, Lewis County, Washington in Section 32, Township 14 North, Range 2 West of the Centralia Quadrangle. The 14-acre former wood treating site is located on the southern edge of the town of Chehalis within the 100-year flood plain of the Chehalis and Newaukam rivers. Most of the ACC Site was located in a marshy lowland on the eastern margin of a two- to three-mile-wide alluvial valley, and is lower (168' MSL) than the 100-year flood plain (182'MSL) which resulted in the site being flooded numerous times (1986, 1995, 1996, etc.). The 1993 Record of Decision (ROD) describes the Site as the ACC Site and adjacent areas of contamination (AOC). The AOC adjacent to the ACC Site area include the Chehalis Avenue area (a commercial/residential section of the city which includes a play field), wetland south and west of the ACC Site, a section of Dillenbaugh Creek, a 200-foot buffer west of Dillenbaugh Creek, and a stormwater discharge lagoon (Figure 2).

For discussion purposes in this Fourth FYR, the ACC Site is divided into the three areas where contamination remains in place: the treatment area, the mill area, and the landfill area (Figure 2). The treatment area, which contained underground tanks, a surface impoundment, and a control room, was used to treat wood with a mixture of diesel and pentachlorophenol (PCP). This area included an elevated crane-way and eight kilns used to dry timber prior to treatment. The mill was a large wooden structure that housed wood crossarms and conduit manufacturing equipment constructed in a low-lying area on posts/pilings to elevate it to the height of the kilns. The landfill was used to dispose of wood waste and other debris from operation of the mill and treatment works.

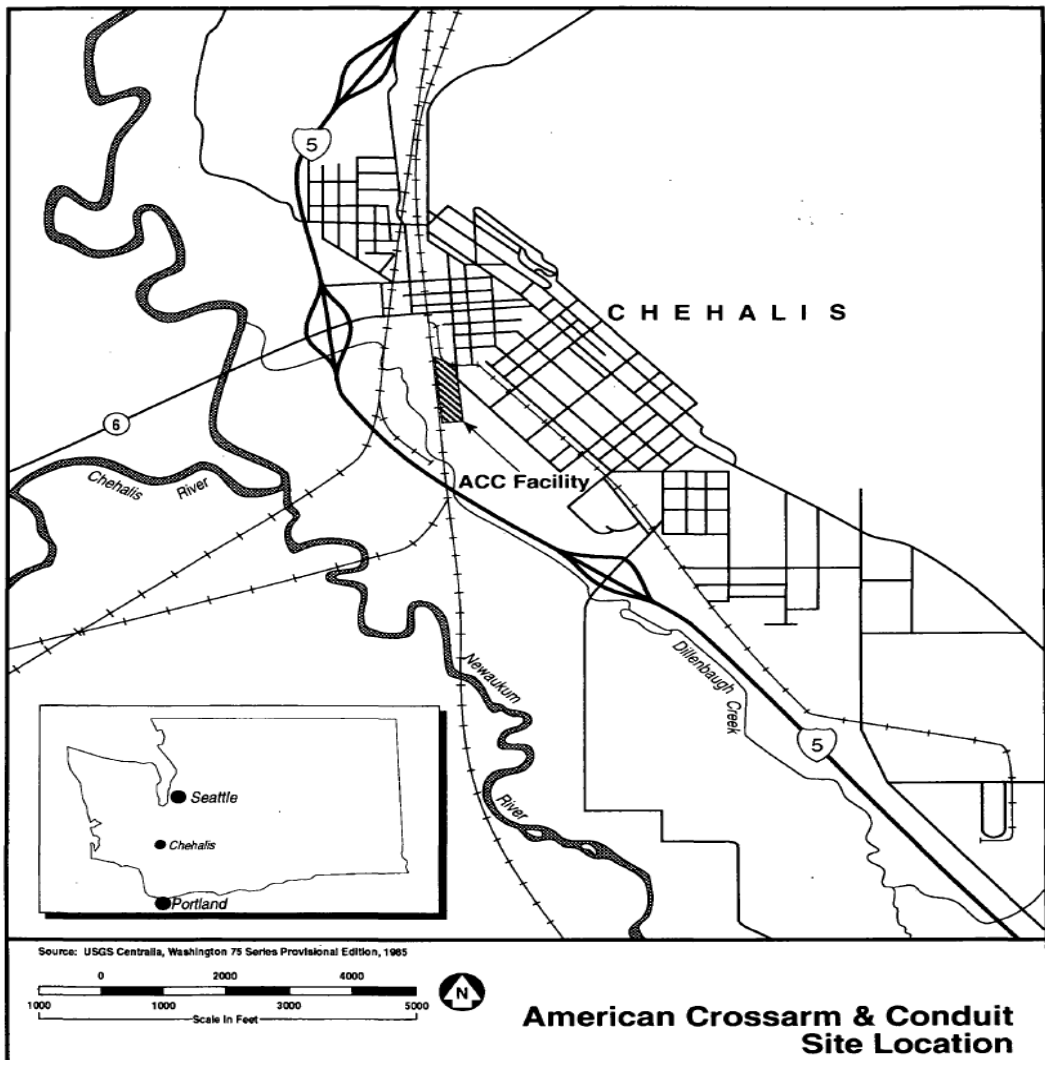



**Figure 1. American Crossarm & Conduit Superfund Site Location (ROD 1993)**

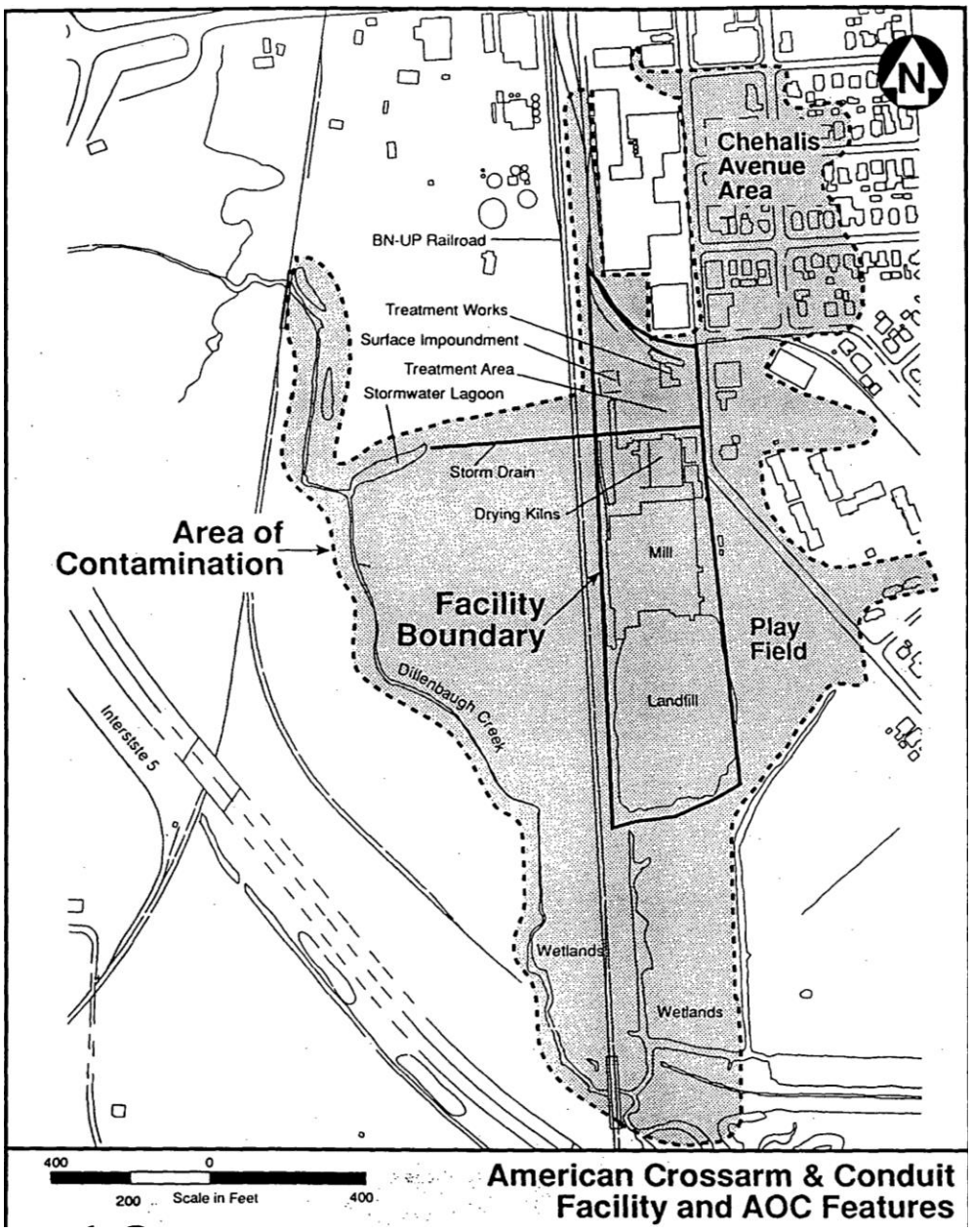



**Figure 2. Former Site Building Locations and AOC (ROD 1993) area**

## 3.2. Land and Resource Use

From 1948 to 1983, wood cutting, milling, and treating operations were conducted at the ACC Site. Wood waste, a waste stream from the milling operation, was placed in a wetland, creating the landfill. Crossarms and conduits for electrical utility poles were treated in open dip tanks with hot or cold creosote and PCP. Tank sludge is suspected to have been disposed of in the landfill. Solvents, paints, paint thinners, lubricating oils, petroleum products, and other miscellaneous wastes may have been disposed of in the landfill. The landfill, used from 1952 to 1983, was located south of the former mill. Immediately south of the landfill is a wetland (Figure 3).

The three parcels comprising the ACC Site were purchased at a tax auction in September1996. The two northern parcels were subsequently sold in 2000 and 2002 and one parcel was resold in 2006.

After approval from EPA and Washington Department of Ecology (Ecology), two large pad style metal buildings were built on the two northern parcels (The most contaminated areas were excavated to a depth of 10 feet, backfilled and a soil cap with a geomembrane placed above these areas and additional fill was placed on top of the cap prior to construction of the buildings). Both buildings were built on an additional 6 to 8 feet of fill over the ACC Site soil cover for the purpose of raising the building pads above the 100 year flood level. Both buildings were constructed in conformance with the Institutional Controls (ICs), have paved parking lots, and have landscaping normally found in business parking lots. No development has occurred on the landfill area in the southernmost parcel.

The current land use for the Site is commercial. One building currently houses a repair and machine shop and the second building a fitness center and a Headstart children's facility. The Head Start children's facility is attended by 80 to 85 pre-school children between the ages of 3 and 5 years old. They recreate outside the building in the concrete playground area abutting the south end of the fitness center building or the playfield to the east of the ACC Site landfill cap. The current land use for the surrounding area is residential and commercial. To the southeast of the Site are residential neighborhoods (apartments are located directly east of the Site). To the west of the Site is undeveloped land, the Burlington Northern rail line, Dillenbaugh Creek, and the Chehalis River.

Dillenbaugh Creek is an 8.4 mile-long tributary to the Chehalis River and was straightened in its alignment to its mouth with the Chehalis River when the Interstate 5 freeway was constructed. The stormwater lagoon configuration was the result of post-1960 and pre-1974 land modifications to a meander bend in the creek as it also was straightened between the Burlington Northern railroad and Interstate 5 freeway. The modifications consisted of placing bark and wood chip fill to confine the lagoon.


**Figure 3. Current Site Layout**

**Geology.** Geology at the ACC Site consists of unconsolidated fine to coarse grained fluvial (river) deposits and lacustrine (lake) deposits up to 40 feet thick resting on siltstone bedrock. Locally manmade fill has been placed on the river and lake deposits. The stratigraphic units, from bottom to top, are as follows:

- Marine siltstone bedrock
- Coarse Grained Subunit of Newaukum Terrace - composed of silty sand to poorly graded sand and gravel with clay
- Fine Grained Subunit of Newaukum Terrace - composed of clay to sandy silt
- Undifferentiated alluvial/lacustrine silt - composed of silty clay to sandy silt
- Dillenbaugh Creek sediments
- Anthropogenic fill - composed of granular, fine grained, bark and woodchip, landfill debris, or storm drain sediments

**Hydrogeology.** A City of Chehalis storm drain runs from Chehalis Avenue across the site and discharges into a stormwater discharge lagoon which discharges into Dillenbaugh Creek. The groundwater underlying the ACC Site is not currently used as a drinking water source. The primary drinking water intake is located in the Newaukum River approximately 17 miles upstream from its confluence with the Chehalis River. A secondary drinking water intake is located in the Chehalis River eight miles upstream from its confluence with Dillenbaugh

Creek due west of the landfill. The secondary water supply line passes beneath the landfill on the southern portion of the Site (see photo 7 for location of the water main passing under the Site).

The hydrostratigraphic units at the Site, from bottom to top, are described below.

- Lower Hydrologic Boundary Unit. Comprised of siltstone bedrock; laterally continuous across the Site at approximately 45 feet below ground surface. Serves as a lower boundary for the groundwater system that restricts flow direction.
- Principal Water-Bearing Unit. Comprised of the coarse-grained Newaukum Terrace unit and directly overlies the siltstone bedrock. This unit is approximately 5 to 15 feet thick beneath most of the ACC Site. Within the treatment area, the unit extends from near ground surface to bedrock for a total thickness of 35 to 45 feet. Isolated stringers of more permeable material are likely present within the low-permeability unit of the Newaukum Terrace.
- Low-Permeability Unit. Comprised of the fine-grained Newaukum subunit and undifferentiated silt. Occurs as a thick massive stratum or laterally discontinuous lenses within the principal water-bearing unit. The thick massive stratum overlies the water-bearing unit beneath most of the Site including the landfill, former mill, west of the railroad tracks, and serves as a semi-confining layer where present. In the treatment area, where the principal water-bearing unit extends to nearly the surface, the low permeability unit consists of laterally discontinuous lenses causing unconfined aquifer conditions. The margin between the massive portion of the low-permeability unit and discontinuous lenses is likely complex with interfingering layers of high- and low-permeability material.
- Anthropogenic Fill. Variable in thickness, texture, and grain size. Granular fill in the treatment area is 4 to 6 feet thick and consists of clayey gravelly sand. The landfill contents range from cobble-size gravel to sawdust, wood chips, timbers, metal fragments, and tires. Fill accumulated in the stormwater discharge lagoon consists of very soft, fine sediment and organic matter. Hydraulic properties vary widely.

The top of the water-bearing unit is at least 10 feet below the Dillenbaugh Creek bed. Given the low conductivity of the water-bearing unit, and the flow rate from the aquifer to the creek is likely very low, the geologic conditions likely prevent the groundwater from discharging into the creek. No continuous saturated zone was found within the landfill and therefore groundwater does not move laterally in response to a pressure gradient and would not be expected to flow to Dillenbaugh Creek.

## 3.3. History of Contamination

From 1948 to 1983, ACC conducted wood treatment, wood cutting, and milling operations. Wood wastes, a waste stream from the milling operation, were placed in an adjacent wetland establishing a landfill from approximately 1952 through 1983 when the wood treatment activities ended. Non-contact cooling water and boiler blowdown from the mill operation were drained to a wetland. Tank sludge is suspected to have been disposed of in the landfill. Solvents, paints, paint thinners, lubricating oils, petroleum products, and other miscellaneous wastes may have been disposed of in the landfill. The landfill was not designed, constructed, or operated in accordance with current landfill practices.

ACC changed its treatment operation to a pressure-treating process. The pressure treatment area was constructed north of the kilns. The operation included a chemical makeup area, two pressure retorts, a vapor recovery system, a separation tank, two sumps, a surface impoundment, and a drag out area for drying treated lumber. The chemical makeup consisted of an operation in which solid PCP was mixed with diesel to make a five percent PCP solution. Contamination during plant operations resulted from the wood treatment process through:

- Discharge of liquids from the vapor recovery system to the city stormwater system which subsequently discharged to the stormwater discharge lagoon west of the ACC Site
- Discharge of wastewater from the process-building sumps to the surface impoundment
- Removal and disposal of sludge from the bottom of the surface impoundment to the landfill south of the mill
- Dispersion of contaminants in the treatment works tanks, pipes and sumps around the ACC Site due to flooding
- Miscellaneous leaks and spills around the ACC Site

Wood from the mill was dried in kilns until 1983. Discharges from the kilns may have contained wood lignin, tannic acids, and other naturally occurring wood constituents. The kilns are believed to have been heated by burning scrap wood and other combustible material (although auxiliary diesel fuel was available). Asbestos containing materials and electrical equipment containing polychlorinated biphenyls (PCBs) were present in the mill, but were removed in 1992. The landfill exhibits contents ranging from gravel to sawdust and woodchips, timbers, metal fragments, and tires. Properties to the east of the Site previously housed milling operations. Historical aerial photographs indicate that these facilities were torn down between 1960 and 1974. The demolition debris was placed in the landfill south of the mill.

## 3.4. Initial response

In early 1983, Ecology conducted a compliance inspection of the ACC Site. Ecology determined the ACC Site was not in compliance with state waste handling requirements. Ecology required ACC to eliminate discharges of wastewater to the stormwater system, to prepare a wastewater treatment and disposal plan, and to redirect all boiler blowdown to the sanitary sewer collection system. In late 1983, ACC stopped the wood milling and treatment operations.

In 1986, the Chehalis River flooded ACC spreading approximately 3,000 gallons of PCP-diesel solution from an underground storage tank over an area of approximately 2 square miles to the northeast. The contaminated area included 15 homes and four businesses (Figure 2). An emergency CERCLA removal action was taken during late 1986 to clean up the contamination as a result of the flood in the Chehalis Avenue area. Contaminated soil, debris, furniture, sludge, and other material generated from the cleanup, considered the principal threat to human health and the environment, were stored at the ACC Site. In 1988, an incinerator was brought to the ACC Site to incinerate the contaminated soils, debris, and sludge (removed from the surface impoundment), generating approximately 207 tons of ash. Incinerator ash from incineration of contaminated soil in 1988 and 1989 was consolidated

with the Chehalis Avenue residential soil consistent with Ecology's determination of the non-hazardous nature of the ash. The consolidated soil and ash was used to backfill excavation under the treatment works and surface impoundment.

In 1991 and 1992, EPA undertook another removal action to further reduce the potential for spread of contaminants. In 1991, clean imported gravel was spread over the former wood treatment area to keep fugitive dust containing wood treating chemicals from becoming airborne. Above ground tanks and piping in the treatment works were decontaminated and the steel was taken to a recycler in 1992. Laboratory chemicals and PCB-containing electrical equipment were collected from various buildings and secured by placing them in an overpack (ROD 1993). Asbestos was removed from exposed pipes and placed in sealed drums.

## 3.5. Basis for Taking Remedial Action

### *3.5.1. Contaminated Media and Structures*

In 1989 EPA initiated a remedial investigation and feasibility study (RI/FS), which was completed in 1992. The RI/FS identified several contamination sources, types of contamination, and affected media. Flooding and past operations at the ACC Site contaminated surface soils, subsurface soils, and groundwater. In addition, PCP floating product (at 1.2% - 12,000,000 ug/L) was observed in the groundwater at MW-16 (in the treatment area) but no plume was identified. Surface water and sediments in Dillenbaugh Creek and the stormwater lagoon were contaminated.

**Soils.** PCPs, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and dioxins (a collective term for polychlorinated dioxins and furans) were found in surface soil (0 to 6 inches deep) in the majority of the areas sampled during the RI. Subsurface soil at the treatment area, mill area, landfill area, and stormwater discharge lagoon were found to contain PCPs, cPAHs, and dioxins.

**Groundwater**. During the RI, groundwater contamination was discovered at three discrete areas within the treatment area: under the treatment works (PCP was present in a dissolved phase and as a constituent in a diesel light non-aqueous phase liquid [LNAPL]), near the surface impoundment (contaminated with PCP), and southwest of the kilns (contaminated with PAHs and benzene, toluene, ethylbenzene, and xylene). Groundwater contamination was identified in isolated portions of the landfill, likely a result of percolation through the landfill deposits.

**Surface water and Sediments**. During the RI, surface water, surface soil, subsurface soil, and sediment samples were collected from the Chehalis River, Dillenbaugh Creek, and the stormwater discharge lagoon. PCP and PAHs were detected in Dillenbaugh Creek downstream from the stormwater discharge lagoon. The stormwater discharge lagoon (designed as a settling basin) sediments were contaminated with volatile organic compounds, dioxin, PCP, PAHs, and lead to depths of about six feet. All three chemicals of concern (COC) were found in the surface water and sediment samples collected from the stormwater discharge lagoon, Dillenbaugh Creek and Chehalis River.

### *3.5.2. Resources*

To determine effects on resources, the RI/FS, conducted between 1989 and 1992, included a human health risk assessment and an ecological risk assessment. The human populations

potentially exposed to contamination, by dermal exposure or incidental ingestion or during recreational activities in Dillenbaugh Creek, include children and adults exposed to surface soil, trespassers on the Site, and future workers on the Site.

#### 3.5.2.1 Risk Assessment

##### *3.5.2.1.1 Human Health Risk Assessment (HHRA)*

The HHRA determined that the greatest risk for adverse health effects to humans was through incidental ingestion of dioxins and PAHs in soils onsite and in selected residential areas. The exposure pathways considered during the assessment were:

- Incidental ingestion of soil for future on-site residents (risk for ages 1 to 6, $1x10^{-2}$).
- Incidental ingestion of soil for future on-site workers (risk for workers, $2x10^{-3}$).
- Incidental ingestion of water and sediment while swimming in Dillenbaugh Creek —risk calculated to be greater than $2x10^{-5}$
- Inhalation of particulate matter (both residential and future industrial scenarios) was less than $10^{-6}$.
- Groundwater was not evaluated because it is not used for drinking water and no groundwater wells are used for drinking water within the vicinity of the ACC Site.
- Human consumption of fish or invertebrates in Dillenbaugh Creek was not evaluated because Dillenbaugh Creek is not fished by the local community and is not considered to be a viable fishery by Washington Department of Fish & Wildlife (WDFW). It was further eliminated as a pathway because of the limited number of fish, limited accessibility and other significant fishing areas are nearby in the Chehalis and Newakam Rivers.
- Consumption of waterfowl that feed in the area was not evaluated since they would only be present seasonally.
- Dermal absorption of contaminants in soil and ingestion of fruits and vegetables grown in the area was only evaluated in the uncertainty analysis.

The ACC HHRA residential scenario included an assessment of the exposures and risks for 6 to 18 year olds who were considered to be the group most likely to recreate in Dillenbaugh Creek (exposure was calculated as recreating in the Creek seven times between June and August). The total lifetime excess cancer risk for this age group from ingestion of Dillenbaugh sediment and water was $2 \times 10^{-5}$. Dermal exposure was not considered.

On September 17, 2009, EPA issued a memo summarizing a review of the 1992 American Crossarm and Conduit HHRA which reevaluated the ROD soil cleanup levels and Applicable or Relevant and Appropriate Requirement (ARARs) and which included an evaluation of risks associated with a residential future pathway on the ACC Site. That analysis found "the recalculated ACC residential risks, taking into account new guidance and toxicity/exposure values and adding the dermal pathway, are only about two-fold higher than those risks calculated in the ACC HHRA (ingestion and dermal only)." The non-cancer recalculated pre-remedy soil concentration value of $3.7 \text{ X } 10^{-4}$ mg/kg for dioxins resulted in a Hazard Quotient (HQ) of approximately 5 using the new parameters, in comparison with

the HQ less than 1 previously calculated. EPA found that this result would not impact the protectiveness of the remedy in the residential areas nor on site where contamination is contained beneath a soil cover since all lifetime excess cancer risks above $1 \times 10^{-6}$ were remediated. The pathway for ingestion of vegetables was found to include additional risks when recalculated but they found that the remedy was likely to be protective because remediation was done to achieve the $10^{-6}$ cancer risk cleanup values established in Washington State Model Toxics Control Act (MTCA).

*3.5.2.1.2 Ecological Risk Assessment*

An ecological risk assessment was conducted in which soil, sediment, and water contaminant concentrations and modeling algorithms were used to predict an exposure dose to the ecological species of concern. Biological impacts were not measured directly.

In the aquatic habitat, hazard quotients for dioxin greater than 1 were estimated for surface water exposure for the cutthroat trout (HQ 3.2 – 32% from PCP) and kingfisher (HQ 2.4 – 46% from lead) in the lagoon and downstream in Dillenbaugh Creek (HQ 7.7 and 5.7 respectively). Hazard indices greater than one also were found for the cutthroat trout (98% PCP) and kingfisher (99% HPAHs) in the upstream portion of Dillenbaugh Creek. The downstream portion of the Chehalis River and the areas chosen as reference stations for Dillenbaugh Creek, not expected to be contaminated, had HQs less than 1 for these species.

In the terrestrial habitat, HQs greater than 1 were estimated for the vole in the wetland (mercury accounted for 31% of the value) but the hazard quotient for the mallard duck was less than 1 in all areas of the wetland. This is because the vole consumes its weight in forage daily, while the duck consumes only 11 percent of its body weight in forage daily. The hazard indexes for the vole and duck are less than one for the stormwater discharge lagoon terrestrial habitats.

Hazard quotient for dioxin in the surface sediment in Dillenbaugh Creek was 0.1 for the upstream portion and 0.3 for the downstream portion. The stormwater lagoon sediments had a hazard quotient of 4.1 for dioxin. Dioxin was not detected in sediment from the Chehalis River downstream from the river's confluence with Dillenbaugh Creek.

# 4. Remedial Actions

## 4.1. Regulatory actions (e.g., date and description of Records of Decision, Explanations of Significant Difference, Administrative Orders on Consent, Consent Decrees and Action Memorandum)

The ROD for the ACC Site was signed on June 30, 1993. The remedial action objectives (RAOs) for the selected remedy were designed to remove the potential threats to public health and the environment by significantly reducing the volume of contaminated soil. The contaminants of concern were PCP, cPAHs, and dioxins.

## 4.2. Remedial action objectives

The RAOs are fully described in the Third FYR Report at http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf . The RAOs are summarized here:

- Protect human health in the Chehalis Avenue area by excavation of contaminated soil to meet MTCA B (residential) cleanup standards.
- Protect human health from physical and chemical hazards from the ACC Site by demolition and removal of ACC Site structures.
- Protect human health and the environment by source control through excavation of ACC Site soil from the most highly contaminated areas, and meeting MTCA cleanup standards through containment and institutional controls. Resource Conservation and Recovery Act (RCRA) subtitle C requirements are not applicable to remedies on the facility or within the AOC because the contaminants were not listed at the time of release, and because contamination of the environmental media remaining after the action is low level. Also, RCRA subtitle C requirements and the State of Washington minimum functional standards for landfills are not relevant or appropriate to remedies at the facility because the requirements are not well suited to the ACC Site or ACC Site conditions. For example, no leachate has been identified although the ACC Site is located in a flood plain which is frequently inundated, depth to groundwater is less than 10 feet, etc.
- Protect the environment through removal of contaminated sediment in the lagoon and stormwater sewer to meet ambient water quality criteria (AWQC) and MTCA cleanup standards for surface water in Dillenbaugh Creek.
- Protect human health and the environment by removal of the floating product underneath the treatment works to meet Safe Drinking Water Act (SDWA) Maximum Contaminate Levels (MCLs) and MTCA clean up levels for groundwater at the Site boundary.
- Disposal of the most highly contaminated excavated material at an approved off-site hazardous waste landfill. A hazardous waste designation is relevant and appropriate for off-Site transportation and disposal of soil and debris from the facility.

## 4.3. Remedy description

As described in the ROD, and based upon consideration of CERCLA requirements, the detailed analysis of alternatives against the nine criteria, and comments from the public, the EPA and Ecology determined that a combination of Alternative 3 (off-site disposal) and Alternative 5 (containment) was the most appropriate remedy for the ACC Site and AOC, and would reduce risks to $10^{-6}$. The major components of the selected remedy included:

1. Excavate soil in the Chehalis Avenue area contaminated with PAHs, PCPs, and dioxins and consolidate on the ACC Site. After confirmatory sampling, backfill excavated areas with clean soil and revegetate or cover as appropriate.
2. Demolish all facilities and structures of the ACC Site (e.g., treatment works, mill, kilns, above- and below-ground storage tanks, and all other structures.
3. Excavate the most highly contaminated surface and subsurface soils on the ACC Site.

4. Remove floating oil from groundwater under the ACC Site (treatment works) as a short-term source control activity.
5. Remove contaminated sediment from the stormwater discharge lagoon and stormwater drainpipe and dispose off-site. Clean and reline the stormwater drainpipe to the lagoon so that it will no longer convey water or sediment from the Site to Dillenbaugh Creek.
6. Dispose the most highly contaminated excavated material at a RCRA approved off-site hazardous waste landfill,
7. Cover the ACC Site with clean soil, slope and contour the land, and plant grass.
8. Erect a chain link fence around the entire ACC Site to restrict access. Impose deed notices and restrictions to limit future use of the ACC Site to ensure that the cover and contamination below are not disturbed, and ensure that current and future city utility maintenance, upgrades and or abandonment activities are consistent with remedy objectives.
9. Perform monitoring and five year reviews. Design the monitoring program to monitor remedial action performance.

Action items 1 through 9 were completed by 1996. On August 12, 1996, Ecology sent EPA a letter, in which they assumed responsibility for the ACC Site operation and maintenance (O&M) and acknowledged the RAOs had been accomplished in a satisfactory manner. Performance monitoring is the responsibility of Ecology (Weston 1996); however, annual groundwater monitoring was terminated by Ecology in 2001.

## 4.4. Remedy implementation (e.g., status, history, enforcement actions, performance)

Descriptions of the remedy implementation (status, history, enforcement actions, and performance) has not changed and can be found in the Third FYR Report:http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf

## 4.5. Systems Operations/Operations & Maintenance

An O&M plan was approved by EPA in June 1996. The primary O&M activities in the plan included conducting annual inspections, maintaining established institutional controls, and performing routine monitoring and laboratory testing of groundwater for at least the first five years after cleanup was completed. Ecology is responsible for these O&M activities. Lewis County Department of Health and EPA provide assistance and counsel on the remedy's effectiveness and corrective actions when required.

### *4.5.1. O&M Requirements*

The O&M requirements are described in the Third FYR Report http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf .

The O&M plan includes requirements to perform inspections, monitor groundwater, and examine ICs each year following the completion of the remedial action to ensure the appropriate restrictions remain applicable and in-place. The following provisions for ICs and restrictive covenants have been recorded with Lewis County:

- Installation of groundwater wells is prohibited.

- Intrusive activity (subsurface excavation, utility maintenance/repair, etc.) is restricted with the following controls:
    - Owners and workers are subject to Washington Labor and Industry Safety and Health requirements.
    - Generation, transportation and disposal of any excess subsurface materials may be subject to Washington Dangerous Waste requirements
- Rezoning of the property for agricultural or residential development is prohibited.

The restrictive covenants were placed on each of the three parcels that comprise the site. A title search conducted as part of the Third FYR Report found that those covenants are still in place.

### *4.5.2. Systems operations/O&M operational summary (***e.g.,** ***history, modifications, problems, and successes)***

No annual inspections have occurred since 2001 except for annual visual inspections of the stormwater lagoon conducted by the City of Chehalis (herein documented from 2011 to 2013) and regular vegetative maintenance of the landfill cap by the current landowner.

Since much of the Site has changed in recent years due to redevelopment, the O&M plan needs to be updated to reflect current conditions. For example, the Third FYR Report recommended that monitoring well MW-25 should be decommissioned according to Washington State regulations and that monitoring well MW-26 be relocated and regular groundwater sampling reinstituted. These activities not occurred and must be addressed in an updated O&M plan. The updated O&M Plan must include an inspection schedule to document that the remedy remains operational and that required engineering controls (fencing) remain intact. Finally, the O&M plan should be updated to reflect that buildings and pavement occupy most of the northern portion of the Site.

### *4.5.3. Summary of costs of system operations/O&M effectiveness (***i.e.,** ***are requirements being met and are activities effective in maintaining the remedy?)***

Since no O&M has occurred since the Second FYR, no costs are reported in this Fourth FYR.

# 5. Progress since the Last Five-Year Review

No monitoring was performed as part of this Fourth FYR. EPA conducted an evaluation of potential vapor intrusion as part of this Fourth FYR and reviewed the uncertainties of the ecological risk assessment.

## 5.1. Protectiveness statements from the last five-year review

The Third FYR Report protectiveness statement states, "A protectiveness determination of the remedy at the American Crossarm and Conduit Superfund Site cannot be made at this time. Further work is needed in the following areas: (1) collection of additional sediment samples from Dillenbaugh Creek to determine if sediments continue to exhibit dioxin/furan contamination; (2) if Dillenbaugh Creek sediments exhibit ACC-related dioxins/furans above screening and background levels, follow up with an evaluation of potential human health risks

from exposure to contaminants in Dillenbaugh Creek sediments through consumption of biota that may bioaccumulate contaminants from the Creek; (3) completion of vapor intrusion modeling. These evaluations are estimated to take approximately 18 months to complete, at which time a protectiveness determination will be made."

## 5.2. Status of issues and recommendations and follow-up actions from last review

Although vapor intrusion modeling was completed, and a review of the 1992 Ecological Risk Assessment was conducted, no other monitoring or studies were initiated as part of this Fourth FYR.

- Vapor Intrusion

Potential impacts from vapor intrusion were evaluated by EPA in September 2010 using a Johnson and Ettinger model. In September 1998, EPA developed a series of these models for estimating indoor air concentrations and associated health risks from subsurface vapor intrusion into buildings. These models were based on the analytical solutions of Johnson and Ettinger for contaminant partitioning and subsurface vapor transport into buildings A Johnson and Ettinger model was used to make estimates of vapor intrusion at potential future commercial buildings. Maximum soil concentrations for volatile organic compounds (VOCs) and cPAHs, based on the RI/FS document, were used. The maximum excess cancer risk from cPAHs for a worker at a potential future commercial building on-site was estimated to be $1.1 \times 10^{-5}$ and the HQ was 0.3. The maximum excess cancer risk from VOCs to an indoor worker in a future commercial building at the Site was estimated to be $2.7 \times 10^{-5}$, the hazard index was 0.39. EPA concluded that the risks and hazards from the vapor intrusion pathway for any future commercial building use are within the Superfund program's acceptable levels.

- Ecological Risk Uncertainties

A review of the uncertainties in the ACC Ecological Risk Assessment was conducted by EPA in September, 2014. EPA concluded that the uncertainties are typical of ecological risk assessments and likely over predict risks, and therefore no further evaluation of ecological risk is warranted.

- Operation and Maintenance

The City of Chehalis has conducted annual visual inspections of the outfall into the stormwater lagoon through May 2014. The landfill cap vegetation has been maintained annually by the land owner and consisting of mowing and removal of Scotch Broom plants. However, Ecology has not conducted O&M activities since 2001.

- Dioxin Contamination

As part of a screening level study to determine if residual contamination remained in the area near the Site, Ecology collected sediment and fish samples from Dillenbaugh Creek in 1998. A follow-up study of sediment samples was conducted in 2004. The Ecology studies determined that dioxins concentrations downstream of the ACC Site were higher than in background areas in Dillenbaugh Creek and the Chehalis River. The Ecology report determined that there is uncertainty as to when this dioxin contamination was deposited and its origin due to the existence of several contributing stormwater discharges whose sources

include an industrial/commercial area of the City of Chehalis, the BNSF railroad, and the Interstate 5 (I-5) corridor. The study showed elevated dioxin sediment concentrations occurred at the reference station in Dillenbaugh Creek (23 ng/kg), downstream of the BNSF railroad bridge (780 ng/kg), at the stormwater lagoon just downstream of its discharge to Dillenbaugh Creek (210 ng/kg), upstream of the I-5 highway (630 ng/kg), and downstream of the I-5 highway (790 ng/kg). Ecology compared the dioxin concentrations to their residential and industrial/commercial soil screening values. All Site dioxin concentrations remain below industrial/commercial screening levels.

Consumption of biota from Dillenbaugh Creek by humans was not included as an exposure pathway in the ACC Site risk assessment or in the ROD because the creek was not considered fishable by Washington Department of Fish and Wildlife.

No new analytical data has been collected as part of the Fourth FYR. However, a review of past data collection analyses in combination with ACC Site inspection results and information obtained from interviews has led EPA to reassess the recommendations and protectiveness determination provided in the Third FYR Report. As a result of the reassessment completed for the Fourth FYR, EPA has determined that the recommendations regarding Dillenbaugh Creek from the Third FYR Report are no longer necessary. EPA notes that the dioxin contamination found in Dillenbaugh Creek remains below Ecology commercial/industrial soil screening levels, and there continues to be no evidence that humans access Dillenbaugh Creek or that the creek supports a viable fishery. The Washington State Department of Fish and Wildlife confirmed that Dillenbaugh Creek is not open to recreational fishing as per personal communicastion with Mr. Mike Scharpf on 8/28/14. (See Interview Records within attached Inspection Checklist)

Table 2 describes the status of issues from the previous FYR and actions taken.

**Table 2. Actions Taken Since the Last Five-Year Review**

| Issues from Previous Review | Recommendations/ Follow-up Actions | Party Responsible | Milestone Date | Action Taken and Outcome | Date of Action |
|---|---|---|---|---|---|
| No maintenance inspections have been performed and documented since the last FYR. | Perform and document regular maintenance inspections in accordance with the updated O&M plan. | Ecology | July 2010 | Ecology committed to fund O&M operations | August 2014 |
| Dillenbaugh Creek sediment samples exhibited dioxin contamination. | Develop and implement a sampling plan to determine if Dillenbaugh Creek sediments remain contaminated with dioxins/furans and if so, whether ACC is the source. | EPA | September 2010 | Determined no action required. | September 2014 |

| Issues from Previous Review | Recommendations/ Follow-up Actions | Party Responsible | Milestone Date | Action Taken and Outcome | Date of Action |
|---|---|---|---|---|---|
| Potential human health exposure from consumption of biota from Dillenbaugh Creek has not been evaluated. | If Dillenbaugh Creek sediments exhibit ACC-related dioxins/furans above screening levels and background, evaluate the potential risks from bioaccumulation of dioxins into biota that are consumed by humans. | EPA | March 2011 | Determined no action required | September 2014 |
| The 1992 ERA method of evaluating impacts resulted in uncertainties regarding severity of potential impacts. | Review uncertainties associated with the 1992 Risk Assessment evaluation of impacts to ecological receptors. Apply updated methods as appropriate to evaluate potential impacts from the ACC Site on aquatic and terrestrial species. | EPA | March 2011 | Completed | September 2014 |
| The 1992 HHRA did not evaluate vapor intrusion in the event of Site development. | Complete vapor intrusion modeling to evaluate the potential pathway. | EPA | March 2010 | Completed | September2010 |

The following are descriptions of the Issues and Recommendations from the Third FYR and the follow-up actions taken or determinations made to address the identified issues.

**Issue 1** – Maintenance inspections have not been conducted since 2001.

**Recommendation:** Update the O&M plan and ensure it is being implemented. For example, conduct regular maintenance inspections to ensure ACC Site conditions and ICs remain protective.

**Follow-up Actions Taken:** Although maintenance inspections have not been conducted by Ecology since 2001, EPA confirmed that the City of Chehalis has performed yearly visual inspections at the stormwater lagoon and the current land owner has been performing required vegetative maintenance on the landfill cap. Discussions between EPA and Ecology resulted in Ecology's commitment to fund O&M activities. This issue is addressed in this Fourth FYR.

**Determination:** This issue does not affect the current protectiveness of the remedy, but rather it only effects long-term protectiveness.

**Issue 2** – Dillenbaugh Creek sediment samples collected by Ecology in 1998 and 2004 exhibited dioxin contamination.

**Recommendation:** Develop and implement a sampling plan to determine if Dillenbaugh Creek sediments remain contaminated with dioxins/furans and if so, whether ACC is the source.

**Determination:**

The sampling completed in 1998 and 2004 by Ecology did not find sediment concentrations which exceed MTCA industrial/commercial dioxin soil screening levels for those sediments within the Site boundaries. In addition, there is significant uncertainty as to when and how dioxin contamination was deposited in Dillenbaugh Creek due to the existence of several contributing stormwater discharges whose sources include an industrial/commercial area of the City of Chehalis, the BNSF railroad, and the Interstate 5 corridor. As a result, EPA has determined that there is no need for further follow up action to address this issue.

**Issue 3 -** The 1992 human health risk assessment did not evaluate the potential human health exposure from consumption of biota that may bioaccumulate contaminants from water and/or sediments in Dillenbaugh Creek.

**Recommendation**: If Dillenbaugh Creek sediments exhibit ACC-related dioxins/furans above screening levels and background, evaluate the potential risks from bioaccumulation of dioxins into biota that are consumed by humans.

**Determination:**

No sampling results of the portion of Dillenbaugh Creek sediments which are located within the Site boundaries or the stormwater lagoon sediments showed exceedances of Ecology MTCA human health soil screening levels for industrial/commercial exposure. In addition, consumption of fish or invertebrates caught in the vicinity of the ACC Site (Dillenbaugh Creek) was not evaluated in the HHRA because the creek is not fished by the local community and it is not considered to be a viable fishery by WDFW. EPA believes that because there has been no change in the fishery status of Dillenbaugh Creek since the RI, no additional action to address this issue is warranted.

**Issue 4 -** The 1992 ecological risk assessment method of evaluating impacts to ecological receptors resulted in uncertainties regarding the severity of potential impacts.

**Recommendation:**

Review uncertainties associated with the 1992 risk assessment evaluation of impacts to ecological receptors. Apply updated methods as appropriate to evaluate potential impacts from the ACC Site on aquatic and terrestrial species. Utilize any new data collected as a result of this Fourth FYR.

**Action Taken**: EPA reviewed the ecological risk assessment in September, 2014 and determined that "The uncertainties described in the document are generally typical of ecological risk assessments. Overall the assumptions in the risk assessment would likely over predict risks rather than under predict risks." (EPA Risk Assessor, Joe Goulet email, 9/12/14).

**Determination:** While there are uncertainties in the model exposure assessment approach used in the RI/FS to derive exposure point concentrations, EPA concluded that the uncertainties are typical of ecological risk assessments and likely over

predict risks, and therefore no further evaluation of ecological risk is warranted. EPA determined that further evaluation of the 1996 ERA is not warranted and that the identified uncertainties do not affect the protectiveness of the remedy.

**Issue 5 -** The 1992 risk assessment did not evaluate vapor intrusion.

**Recommendation**: Complete vapor intrusion modeling to evaluate the potential pathway.

**Action Taken:** Potential impacts from vapor intrusion were evaluated by EPA in September, 2010. EPA conducted a Johnson and Ettinger vapor intrusion model and concluded that the risks and hazards from the vapor intrusion pathway for any future commercial building use are within the Superfund program's acceptable levels.

**Determination:** EPA concluded that the risks and hazards from the vapor intrusion pathway for any future commercial building use are within the Superfund program's acceptable levels. No further actions are required.

## 5.3. Status of any other prior issues

No other prior issues were presented that need to be addressed in this Fourth FYR.

# 6. Five-Year Review Process

The Fourth FYR review process included a newspaper publication and conversations with occupants of the buildings located in the northern properties during the Site inspection visit. No new data was collected during this fourth FYR.

## 6.1. Administrative Components

The FYR team established the review schedule (January 2014) and completed the following FYR components:

- Community Involvement
- Document Review
- Data Review
- Site Inspection
- Local Interviews
- FYR report development and review

The FYR team was led by Joe Wallace, EPA Remedial Project Manager, and included David Sullivan (Geologist) and Deborah Johnston (Biologist) from USACE.

## 6.2. Community Involvement

The public was notified of the initiation of the Fourth FYR in the Greater Lewis County The Chronicle on June 10, 2014, announcing the Five-Year Review process for the American Crossarm and Conduit Site, providing EPA's contact information, and inviting community participation. The public notice is provided in Appendix C. No one has contacted EPA as a result of this notice.

The Fourth FYR report will be made available to the public once it has been finalized. Copies of this document will be placed in the designated public repository at the Chehalis Timberland Library, 400 North Market Boulevard, Chehalis, Washington, 98532. Upon completion of the FYR, a public notice will be placed in The Chronicle to announce the availability of the final FYR report in the Site document repository.

## 6.3. Document review

Since no monitoring or studies were conducted during this Fourth FYR, no additional documents were reviewed other than those listed in the 3rd FYR (http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf).

### *6.3.1. ARARs Review*

Applicable or Relevant and Appropriate Requirements (ARARs) are those standards, requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial actions (RAs), location, or other circumstance at a CERCLA site. Section 121 (d)(2)(A) of CERCLA specifies that Superfund RAs must, at the completion of the RAs, attain any such standards, requirements, criteria, or limitations for hazardous substances, pollutants or contaminants that will remain on-site.

There have been no changes in ARARs since the last FYR. Chemical-specific ARARs identified in the ROD for the groundwater and soil at the ACC Site are listed in Table 3.

**Table 3. Summary of Soil and Groundwater ARARs**

| Contaminant of Concern | 1993 ROD Cleanup Standard | Basis |
|---|---|---|
| Dioxin | 0.0066 ng/kg | MTCA Method B residential-**soil** |
| cPAHs | 172 ug/kg | MTCA Method B residential-**soil** |
| PCP | 8,330 ug/kg | MTCA Method B residential-**soil** |
| Dioxin | 0.00058 ng/l | MCL **groundwater** |
| cPAHs | 0.012 ug/l | MCL **groundwater** |
| PCP | 0.73 ug/l | MCL **groundwater** |

Exposure to contaminants in groundwater was not evaluated for several reasons. The source of drinking water for Chehalis is located 17 miles upstream on the Newaukum River and there are no groundwater wells used for drinking water or other household purposes within the vicinity of the ACC Site. Contaminated groundwater was limited to three small localized areas beneath the treatment area within the ACC Site boundary. The soil is a tight silt and no

migration of groundwater contaminants was expected. Lastly, deed restrictions prevent future well installation.

In addition, consumption of fish or invertebrates caught in the vicinity of the ACC Site (Dillenbaugh Creek) was not evaluated since it is not fished by the local community and the Creek remains closed to recreational fishing by WDFW. It is more likely that a person fishing would be attracted to the nearby Chehalis and Newaukum Rivers which have viable fisheries. There have been no revisions to laws and regulations that affect the protectiveness of the remedy.

**Table 4. Applicable or Relevant and Appropriate Requirements Evaluation**

| Medium | Source ARAR | Document | Description | Comments |
|---|---|---|---|---|
| Soil | Model Toxics Control Act WAC 173-340-740 | 1993 ROD | MTCA soil cleanup levels will be met within the Site footprint and the Chehalis Avenue area. | Low-level contaminated soil does remain on Site; however, it is contained beneath a geomembrane and 10 – 17 feet of fill underneath the former Site footprint. MTCA B soil cleanup levels were met for the Chehalis Avenue area. |
| Groundwater | Safe Drinking Water Act 40 CFR 141 | 1993 ROD | Removal of the floating product will meet Safe Drinking Water Act (SDWA) MCLs at the Site boundary | The groundwater is currently not a source of drinking water. Groundwater is not monitored at locations off-Site. Prior monitoring data indicates MCLs have been achieved on-site. |
| Surface Water | Clean Water Act 40 CFR 403 | 1993 ROD | Surface water of Dillenbaugh Creek should be protective of ecological receptors and recreational receptors. | Although contamination was detected in surface water downstream of the stormwater lagoon discharge, the ROD concluded that water quality will improve over time due to the removal of the source of contamination from the ACC Site. |

### *6.3.2. Human Health Risk Assessment Review*

Since no additional samples were collected during this Fourth FYR, the HHRA has not changed and is described in the Third FYR Report (http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf). The EPA reevaluation conducted in September 17, 2009 found that the remedy was protective to residents since cleanup was to $10^{-6}$ cancer risk.

### *6.3.3. Ecological Review*

Since no additional samples were collected during this Fourth FYR, the ERA has not changed and is described in the Third FYR Report (http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf). The EPA conducted a review of the ACC ERA in September, 2014 and concluded that the uncertainties described in the document are generally typical of ecological risk assessments and that, overall, the assumptions in the risk assessment would likely over predict risks rather than under predict risks.

## 6.4. Data Review

Since no additional samples were collected during this FYR time period, no new data was reviewed and previous data is described in the third FYR (http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf).

## 6.5. Site Inspection

A site inspection was conducted on February 4, 2014. The inspection team included Joe Wallace, EPA Remedial Project Manager, Dom Reale (since retired) and Scott Rose, Ecology project and unit manager, and the USACE Five-Year Review team, Sharon Gelinas (geologist) and Deborah Johnston (biologist). The completed ACC Site Inspection Checklist is provided as Appendix A. The inspection consisted of a site visit, during which the team observed existing conditions. The following summarizes the observations made during the inspection.

- The areas of the former ACC Site are now developed with two buildings, associated parking lots, and a storm drainage basin.
- Elevation of the development is higher than the adjacent street due to the placement of additional material on top of the cap placed during the 1996 remedial action. The current surface lies 1.5 feet above the 100 year flood level of 182 feet.
- The landfill is currently intact and undeveloped. No fencing or gates remain to restrict access and some dumping was observed.
- The stormwater lagoon was not visited due to a locked gate.
- Monitoring wells could not be located due to heavy vegetation.

## 6.6. **Interviews** (Also see Interview Section of Site Inspection Report)

As part of the Site inspection, Mr. Joe Wallace of EPA conducted the following interviews:

**Dom Reale – WDOE Project Manager – 2/4/14 – 360.407.6266**

No groundwater sampling has occurred since 2001. Recommend resuming annual inspections and recommend collect sediment samples from stormwater lagoon and if high concentration, review risks associated with bioaccumulation. Recommend developing new O&M Plan including groundwater sampling downgradient. Recommend a review risk assessment uncertainties and apply updated models/methods. Will be retiring at end of month. Site remedy operating well – no known problems.

**Trent Zastrow – Industrial Hydraulics Staff – 2/4/14 – 360.748.7878**

Owner Roger Gregory in Palm Desert – not at shop. Mr. Zastrow didn't know anything about ACC Site. Mr. Wallace was not able to contact owner.

**Don Schmid City of Chehalis Stormwater Mgr. – 2/24/14 – 360.345.1220**

There is a 30 inch stormwater line which runs from Chehalis Ave to the stormwater lagoon. The City cleaned the entrance sump in front of Thorbeckes Fit Life last year (August 2013). The stormwater lagoon visual inspections generally occur at least once a year. The stormwater pipe drains most of downtown Chehalis and some of Green Hill. He has not noticed any problems with ACC Site.

City of Chehalis Stormwater Inspector John Chenowith kept records of the stormwater lagoon visual inspections:

| **CHEHALIS AVE OUTFALL AT 1st STREET** | |
|---|---|
| ***DATE*** | ***CONDITION*** |
| 1/14/11 | Outfall under water |
| 4/13/11 | Creek has pond backed up |
| 10/14/11 | Water level above outfall pipe |
| 8/1/12 | Water level above outfall pipe |
| 6/12/13 | About 8 inches of pipe at outfall showing |
| 5/28/14 | About 2 inches of pipe at outfall showing |

**Mr. Mike Scharpf Washington Department of Fish and Wildlife – 8/28/14 - 360.349.4628**

Mr. Joe Wallace contacted Mr. Mike Scharpf by phone. In response to Mr. Wallace's inquiry as to the whether or not Dillenbaugh Creek is currently a viable fishery, Mr. Scharpf replied that the Creek is "not open for recreational fishing." He was not able to articulate why the Creek is closed to recreational fishing, only that it does not appear on the list of creeks which are denoted as open to recreational fishing.

**Ms. Colleen Smith Facility Supervisor Head Start of Lewis County – 8/28/14 - 360.736.0700**

Mr. Wallace contacted Ms. Colleen Smith by phone regarding the Head Start facility currently operating on the ACC Site. Ms. Smith stated that the facility is attended by 80 to 85 pre-school children between the ages of 3 and 5 years old. The children recreate outside of the building, weather permitting, at least 45 minutes a day. Outdoor activities are limited to the concrete playground area abutting the south end of the Thorbeckes Fit Life Building, or else in the playfield to the east of the ACC Site landfill cap. Ms. Smith has not noticed any issues with the landfill cap or the surrounding area which might indicate Site maintenance problems.

**Scot Rose, Section Supervisor, Washington State Department of Ecology – Telephone interview - 8/11/14 - 360.407.6347**

Ecology has budgeted $5000 and 10 hours of labor to reinitiate O&M inspections including potential groundwater monitoring beginning 2015. Will also have to address an update to O&M Plan.

### 6.7. Institutional Controls

The institutional controls have not changed and are described in the Third FYR Report. (http://www.epa.gov/region10/pdf/sites/american_crossarm_3rd_fyr_093009.pdf).

# 7. Technical Assessment

### 7.1. Question A: Is the remedy functioning as intended by the decision documents?

Yes. The selected remedy was designed to remove the most highly contaminated soil from the Site and then relies on containment and ICs to manage waste remaining at depth. The ROD required the entire ACC Site to be covered with clean topsoil, properly sloped and contoured and re-vegetated with grass. Covering the entire ACC Site with clean soil and re-vegetation protected human health by eliminating soil ingestion, dermal contact, and dust inhalation pathways.

Protective covenants and use restrictions are currently in place for the ACC Site properties and property owners are managing their parcels in accordance with the protective covenants and use restrictions. However, maintenance inspections have not been performed by Ecology since 2001. The O&M Plan should be updated and implemented (including groundwater monitoring) to protect the remedy and to ensure that the remedy remains protective into the future.

### 7.2. Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes, the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection are still valid. There are no changes in the physical conditions of the site that would affect the protectiveness of the remedy. This site is zoned industrial/ commercial and the surface soil cleanup levels are consistent with that use. There have been no changes to the regulations that would call into question the protectiveness of the remedy since the Third FYR.

### 7.3. Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No, no other information has come to light that could call into question the protectiveness of the remedy.

### 7.4. Technical Assessment Summary

The remedy is functioning as intended although no maintenance inspections have been conducted by Ecology since 2001. Historical groundwater samples collected downgradient indicated that contaminants had not migrated off-site. No background samples or samples

from other potential sources were collected. The method of evaluating impacts to ecological receptors in the 1992 risk assessment resulted in uncertainties regarding the severity of potential impacts. However EPA determined that these uncertainties are "generally typical of ecological risk assessments and would likely over predict risks rather than under predict risks." (EPA Risk Assessor, Joe Goulet email, 9/12/14). Residual dioxin contamination was detected in sediments at Dillenbaugh Creek in 1998 and 2004 downstream of the stormwater lagoon. There is uncertainty related to the source of this contamination, when it was deposited, whether Dillenbaugh Creek sediments are currently contaminated and, if so, how contaminated sediments may be impacting human health and ecological receptors. The levels found in the Dillenbauch Creek sediments were all less that Ecology's commercial/industrial soil screening levels and it has been confirmed that Dillenbaugh Creek is not open to recreational fishing. The most contaminated areas found on-site were excavated to a depth of 10 feet and a soil cap with a geomembrane was placed above these areas as part of the completed remedy. Additional fill 6 to 8 feet thick was placed on top of the cap prior to construction of the buildings to elevate them above the 100-year flood zone. EPA conducted a vapor intrusion assessment in 2010 and concluded that no risks to commercial/industrial workers existed.

# 8. Issues

No additional issues that affect protectiveness were identified during the course of this Fourth FYR from those described in the Third FYR Report.

**Table 5. Issues**

| Issues | Affects Current Protectiveness (Y/N) | Affects Future Protectiveness (Y/N) |
|---|---|---|
| 1. Maintenance inspections have not been conducted since 2001. | N | Y |

# 9. Recommendations and Follow-up Actions

No additional recommendations that affect protectiveness were identified during the course of this Fourth FYR.

**Table 6. Issues and Recommendations**

| Issue | Recommendation | Party Responsible | Oversight Agency | Milestone Date | Affects Protectiveness (Y/N) | |
|---|---|---|---|---|---|---|
| | | | | | Current | Future |
| 1 | Update the O&M plan and implement O&M inspections to ensure ACC Site conditions and ICs remain protective into the future. | Ecology | EPA | 2014 | N | Y |

*Note that a "Yes" or "No" answer is required for this Table.

# 10. Protectiveness Statements

The remedy at the ACC Site continues to be protective of human health and the environment in the short-term.

The remedy at the ACC Site currently protects human health and the environment because all contamination which has been left in place remains contained either beneath a landfill cap or contained under 10 or more additional feet of fill material constructed over the remedy-placed fill to house the buildings and asphalt parking lots associated with the commercial redevelopment of the remaining portions of the ACC Site. Dioxin concentrations detected remain below commercial/industrial screening levels, and their source(s) is unknown. Institutional controls remain in place and remain protective in the long term by eliminating risk pathways. Although O&M inspections have not been conducted since 2001, no evidence has been uncovered to controvert the results of the first five years of monitoring data obtained following remedy implementation which indicate that the remedy was fully functional. However, O&M inspections must be resumed to protect the remedy and to insure remedy protectiveness into the future.

# 11. Next Review

This is a statutory ACC Site that requires ongoing FYRs as long as waste is left on-site that does not allow for unlimited use and unrestricted exposure. The next FYR will be due within five years of the signature date of this Fourth FYR Report.

# 12. References

Weston, Roy Inc. 1996. Maintenance and Monitoring Plan, American Crossarm and Conduit, Chehalis, Washington. Prepared for EPA Region X. June 1996.

U.S. Environmental Protection Agency. 1987. Risk Assessment for Pentachlorophenol and Dioxin/Furan in Chehalis, Washington.

U.S. Environmental Protection Agency. 1993. American Crossarm & Conduit, Record of Decision. May 1993.

U.S. Environmental Protection Agency. 2009. Five-Year Review Report Third Five-Year Review Report for American Crossarm and Conduit Superfund Site Chehalis, Washington

Washington State Department of Ecology. 2002. Reconnaissance Survey of Dioxins and furans in Dillenbaugh Creek and the Chehalis River near the American Crossarm Site.

Washington State Department of Ecology. 2005. Spatial Extent of Dioxin/Furan Contaminated Sediments in Dillenbaugh Creek. April 2005.

# Appendix A: Site Inspection Checklist

Five-Year Review Site Inspection Checklist

| I. SITE INFORMATION | |
|---|---|
| **Site name: American Crossarms & Conduit** | **Date of inspection: 2/4/2014** |
| **Location: Chehalis, WA** | **EPA ID: WAD 057311094** |
| **Agency, office, or company leading the five-year review: USACE** | **Weather/temperature: Cold, snowing** |

**Remedy Includes**: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☒ Surface water collection and treatment
- ☐ Other: *e.g. Groundwater monitoring*
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

**Attachments:** ☒ Inspection team roster attached ☐ Site map attached

**II. INTERVIEWS** (Check all that apply)

**Also See Section 6.6 of FYR**

1. **O&M site manager** _____ _____ _____

Name Title Date

Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____

Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ _____ _____

Name Title Date

Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____

Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached _____

Agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached _____

Agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached _____

Agency _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Problems; suggestions; ☐ Report attached _____

| | |
|---|---|
| 4. | **Other interviews** (optional) ☐ Summaries attached. |

Summary of Interviews – American Crossarm 5YR

2/4/14 –Interview on Site

Dom Reale – WaDOE Project Manager – 360 407 6266

No GW sampling since 2001. Recommend resuming annual inspections. Recommend collect sediment samples from stormwater lagoon and if high concentration, review risks associated with bioaccumulation. Recommend developing new O&M Plan. Recommend sampling GW downgradient. Recommend a review risk assessment uncertainties and apply updated models/methods. Will be retiring at end of month. Site remedy operating well – no known problems.

2/4/14 –Interview on Site

Trent Zastrow – Industrial Hydraulics Staff – 360 748 7878

Owner Roger Gregory in Palm Desert – not at shop. Don't know anything about ACC Site. Never was able to contact owner.

2/24/14 –Telephone Interview

Don Schmid City of Chehalis Stormwater Mgr. 360 345 1220

30 inch stormwater line from Chehalis Ave to stormwater lagoon. Cleaned entrance sump in front of Thorbeckes Fit Life last year (August). Stormwater lagoon inspections at least once/year. Stormwater pipe drains most of downtown Chehalis and some of Green Hill. Have not noticed any problems with Site.

City of Chehalis Stormwater Inspector John Chenowith kept records of stormwater lagoon inspections:

| **CHEHALIS AVE OUTFALL AT 1st STREET** | |
|---|---|
| DATE | CONDITION |
| 1/14/11 | Outfall under water |
| 4/13/11 | Creek has pond backed up |
| 10/14/11 | Water level above outfall pipe |
| 8/1/12 | Water level above outfall pipe |
| 6/12/13 | About 8 inches of pipe at outfall showing |
| 5/28/14 | About 2 inches of pipe at outfall showing |

2/21/14 –Telephone Interview

Clint Combs, BNSF Railroad 206 261 8363

Has not noticed any problems with site. Orange hose along track used as a wiring conduit under the tracks (see inspection photo).

RR ties replaced 3 years ago. Used ties picked up by contractor.

Cannot access RR within 25 feet of centerline without permission – requires flagger.

7/29/14 & 8/11/14–Telephone Interviews

Scot Rose, Section Supervisor, Washington State Department of Ecology – 360 407 6347

No new Project Manager since Dom Reale retired in (April?) 2014. Scot is point of contact for Ecology.

Read over draft 5YR – no comments.

Reviewed Dom Reale's notes on Site. Dom had been doing annual visits. Don't know why WaDOE stopped monitoring GW. Last samples taken in 2001 from 2 wells-sampled for GW and PAHs. Chlorinated phenolics sampled for SW. No problems noticed. Ecology monitored for 5 years following cleanup. Site remedy appears to be functioning well.

Have budgeted $5000 and 10 hours of labor to reinitiate O&M inspections including potential groundwater monitoring beginning 2015. Will also have to address an update to O&M Plan.

2/21/14 & 7/31/14 –Telephone Interviews

Darrel Peterson – Landfill Owner – Composite Aircraft Technology – 360-864-6271

Mows grass and Scotch Broom at least once (up to 3 times) per year. Has noticed trespassing activity- occasional abandoned cars which he removes. Will put ecology blocks or gate to limit vehicle access. Will put up fence along north end of landfill to limit pedestrian access. Trees planted as part of the remedy have died. Have been toying with the idea of placing a building on site.

Has not noticed any cap erosion or any other problems with the Site. Wants to be kept informed on Site issues.

2/4/14 & 7/25/14 –Telephone Interviews

Dale Pullin – Owner, Thorbeckes Fit Life – 360 269 3413

Has Fitness Center – shares building with Head Start center and Lower Columbia Occupational Health does drug testing. City of Chehalis inspects stormwater pipe and lagoon.

In 1996, remedy placed >7 feet of fill over marginally contaminated materials to a site finish elevation ranging from 163 to 171 feet MSL under his building. He put additional fill to 183.5 feet MSL, 1.5 feet above 100 year flood plain. Have been no changes to site since he built his building and parking lot in 1997. He reported sewer line to storm water lagoon was backed up two years ago? – not draining Chehalis Avenue. City cleaned sump which fixed drainage problem.

Has noticed access activities on adjacent landfill cap. People go there to do drugs, walk their dogs etc. No fence or gate to block access. Sometimes cars are abandoned there. Darrell Peterson has them removed. He would share in the cost of putting up a gate/fence to limit landfill access.

2 years ago, railroad replaced ~ RR ties.

No problems noted with remedy.

7/28/14 –Telephone Interview

Pam Marti - Ecology Hydrogeologist – 360 407 6768

Participated in sampling GW and SW monitoring in 2001. Two wells sampled, rest of wells missing. Sediment sampling in 2004. Assumed USACE had been monitoring Site since then.

Has not noticed any problems with the Site.

8/28/14 - Telephone Interview

Washington Department of Fish and Wildlife

Region 5 Wildlife Biologist - Mike Scharpf - 360 349 4628 ext. 205

In response to my inquiry as to the whether or not Dillenbaugh Creek is currently a viable fishery, Mr. Scharpf replied that the Creek is “not open for recreational fishing”. He was not able to articulate why the Creek is closed to recreational fishing, only that it does not appear on the list of Creeks which are denoted as open to recreational fishing.

8/28/14 - Telephone Interview

Colleen Smith  Facility Supervisor

Head Start of Lewis County - 360 736 0700

Ms. Smith stated that the facility is attended by 80 to 85 pre-school children between the ages of 3 and 5 years old. The children recreate outside of the building, weather permitting, at least 45 minutes a day. Outdoor activities are limited to the concrete playground area abutting the south end of the Thorbeckes Fit life Building, or else in the playfield to the East of the American Crossarm (Site) Landfill cap.

Ms. Smith has not noticed any issues with the landfill cap or the surrounding area which might indicate Site maintenance problems.

Ms. Smith provided contact information for the Head Start Executive Director, Debbie Hood, at 360 736 1696. I did not contact Ms. Hood.

**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

1. **O&M Documents**

☐ O&M manual ☐ Readily available ☐ Up to date ☒ N/A

☐ As-built drawings ☐ Readily available ☐ Up to date ☒ N/A

☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A

Remarks

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date ☒ N/A

☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☒ N/A

Remarks

| | | | | |
|---|---|---|---|---|
| 3. | **O&M and OSHA Training Records** | ☐ Readily available | ☐ Up to date | ☒N/A |
| | Remarks | | | |
| 4. | **Permits and Service Agreements** | | | |
| | ☐ Air discharge permit | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | ☐ Effluent discharge | ☐ Readily available | ☐Up to date | ☒ N/A |
| | ☐ Waste disposal, POTW | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | ☐ Other permits_____ | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | Remarks | | | |
| 5. | **Gas Generation Records** | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | Remarks | | | |
| 6. | **Settlement Monument Records** | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | Remarks | | | |
| 7. | **Groundwater Monitoring Records** | ☐ Readily available | ☐ Up to date | ☒N/A |
| | Remarks | | | |
| 8. | **Leachate Extraction Records** | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | Remarks | | | |
| 9. | **Discharge Compliance Records** | | | |
| | ☐ Air | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | ☐ Water (effluent) | ☐ Readily available | ☐ Up to date | ☒ N/A |
| | Remarks | | | |
| 10. | **Daily Access/Security Logs** | ☐Readily available | ☐ Up to date | ☒ N/A |
| | Remarks | | | |

| IV. O&M COSTS | |
|---|---|
| 1. | **O&M Organization** |
| | ☒ State in-house ☐ Contractor for State |
| | ☐ PRP in-house ☐ Contractor for PRP |
| | ☐ Federal Facility in-house ☐ Contractor for Federal Facility |
| | ☐ Other |
| 2. | **O&M Cost Records** |
| | ☐ Readily available ☐ Up to date ☐ Funding mechanism/agreement in place |
| | Original O&M cost estimate_____ ☐ Breakdown attached |
| | Total annual cost by year for review period if available |
| | From_____ To_____ _____ ☐ Breakdown attached |
| | Date Date Total cost |
| | From_____ To_____ _____ ☐ Breakdown attached |
| | Date Date Total cost |
| | From_____ To_____ _____ ☐ Breakdown attached |
| | Date Date Total cost |
| | From_____ To_____ _____ ☐ Breakdown attached |
| | Date Date Total cost |
| | From_____ To_____ _____ ☐ Breakdown attached |
| | Date Date Total cost |
| 3. | **Unanticipated or Unusually High O&M Costs During Review Period** |
| | Describe costs and reasons: |
| | No O&M completed in last 5 years. |

**V. ACCESS AND INSTITUTIONAL CONTROLS** ☒ Applicable ☐ N/A

**A. Fencing**

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks

Fence missing around most of the landfill area.

**B. Other Access Restrictions**

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A

Remarks

No signage at the landfill area.

**C. Institutional Controls (ICs)**

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____

Frequency _____

Responsible party/agency: Ecology_____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☒ No ☐ N/A

Reports are verified by the lead agency ☐ Yes ☒ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☐ Report attached

| | |
|---|---|
| 2. | **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A |
| | Remarks |
| | Breaching was not observed at the landfill, however, access restrictions should be enforce. |
| **D. General** | |
| 1. | **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident |
| | Remarks |
| | Tire tracks and garbage (e.g. tires) observed on landfill. |
| 2. | **Land use changes on site** ☐ N/A |
| | Remarks |
| | None |
| 3. | **Land use changes off site** ☐ N/A |
| | Remarks |
| | None |
| **VI. GENERAL SITE CONDITIONS** | |
| **A. Roads** ☒ Applicable ☐ N/A | |
| 1. | **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A |
| | Remarks |
| **B. Other Site Conditions** | |
| Remarks | |
| **VII. LANDFILL COVERS** ☒ Applicable ☐ N/A | |
| **A. Landfill Surface** | |
| 1. | **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident |
| | Areal extent_____ Depth_____ |
| | Remarks |

| | | |
|---|---|---|
| 2. | **Cracks** ☐ Location shown on site map ☒ Cracking not evident<br>Lengths_____ Widths_____Depths_____<br>Remarks | |
| 3. | **Erosion** ☐ Location shown on site map ☒ Erosion not evident<br>Areal extent_____ Depth_____<br>Remarks | |
| 4. | **Holes** ☐ Location shown on site map ☐ Holes not evident<br>Areal extent: sporadic_____Depth_____<br>Remarks<br>Mole/gopher holes | |
| 5. | **Vegetative Cover** ☒ Grass ☐Cover properly established<br>☐ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram)<br>Remarks<br>Grass contains lots of moss. Landfill appeared to be brush-cut as numerous brush stumps (Scotch Broom) were observed. | |
| 6. | **Alternative Cover (armored rock, concrete, etc.)** ☒ N/A<br>Remarks | |
| 7. | **Bulges** ☐ Location shown on site map ☒ Bulges not evident<br>Areal extent_____ Height_____<br>Remarks | |

| | | |
|---|---|---|
| 8. | **Wet Areas/Water Damage** | ☒ Wet areas/water damage not evident |
| | ☐ Wet areas | ☐ Location shown on site map Areal extent_____ |
| | ☐ Ponding | ☐ Location shown on site map Areal extent_____ |
| | ☐ Seeps | ☐ Location shown on site map Areal extent_____ |
| | ☐ Soft subgrade | ☐ Location shown on site map Areal extent_____ |
| | Remarks | |
| 9. | **Slope Instability** | ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability |
| | Areal extent_____ | |
| | Remarks | |
| **B. Benches** | | ☒ N/A ☐ Applicable |
| | (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.) | |
| 1. | **Flows Bypass Bench** | ☐ Location shown on site map ☐ N/A or okay |
| | Remarks | |
| 2. | **Bench Breached** | ☐ Location shown on site map ☐ N/A or okay |
| | Remarks | |
| 3. | **Bench Overtopped** | ☐ Location shown on site map ☐ N/A or okay |
| | Remarks | |
| **C. Letdown Channels** | | ☐ Applicable ☒ N/A |
| | (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) | |

| | |
|---|---|
| 1. | **Settlement** ☐ Location shown on site map ☐ No evidence of settlement<br>Areal extent_____ Depth_____<br>Remarks |
| 2. | **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation<br>Material type_____ Areal extent_____<br>Remarks |
| 3. | **Erosion** ☐ Location shown on site map ☐ No evidence of erosion<br>Areal extent_____ Depth_____<br>Remarks |
| 4. | **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting<br>Areal extent_____ Depth_____<br>Remarks |
| 5. | **Obstructions** Type_____ ☐ No obstructions ☐ Location shown on site map<br>Areal extent_____ Size_____<br>Remarks |
| 6. | **Excessive Vegetative Growth** Type_____<br>☐ No evidence of excessive growth<br>☐ Vegetation in channels does not obstruct flow<br>☐ Location shown on site map Areal extent_____<br>Remarks |
| **D. Cover Penetrations** | ☐ Applicable ☒ N/A |
| 1. | **Gas Vents** ☐ N/A ☐ Active ☐ Passive ☐ Properly secured/locked ☐ Functioning<br>☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration<br>Remarks |

| | |
|---|---|
| 2. | **Gas Monitoring Probes**<br>☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition<br>☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A<br>Remarks |
| 3. | **Monitoring Wells** (within surface area of landfill)<br>☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition<br>☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A<br>Remarks |
| 4. | **Leachate Extraction Wells**<br>☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition<br>☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A<br>Remarks |
| 5. | **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐N/A<br>Remarks |
| **E. Gas Collection and Treatment** | ☐ Applicable ☒N/A |
| 1. | **Gas Treatment Facilities**<br>☐ Flaring ☐ Thermal destruction ☐ Collection for reuse<br>☐ Good condition ☐ Needs Maintenance<br>Remarks |
| 2. | **Gas Collection Wells, Manifolds and Piping**<br>☐ Good condition ☐ Needs Maintenance<br>Remarks |
| 3. | **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)<br>☐ Good condition ☐ Needs Maintenance ☐ N/A<br>Remarks |

| | | | |
|---|---|---|---|
| **F. Cover Drainage Layer** | | ☐ Applicable | ☒ N/A |
| 1. | **Outlet Pipes Inspected** | ☐ Functioning | ☐ N/A |
| | Remarks | | |
| 2. | **Outlet Rock Inspected** | ☐ Functioning | ☐ N/A |
| | Remarks | | |
| **G. Detention/Sedimentation Ponds** | | ☐ Applicable | ☒ N/A |
| **1.** | **Siltation** ☐ N/A | ☐ Siltation not evident | |
| | Areal extent_____ | Depth_____ | |
| | Remarks | | |
| 2. | **Erosion** Areal extent_____ | Depth_____ | ☐ Erosion not evident |
| | Remarks | | |
| 3. | **Outlet Works** | ☐ Functioning | ☐ N/A |
| | Remarks | | |
| 4. | **Dam** | ☐ Functioning | ☐ N/A |
| | Remarks | | |
| **H. Retaining Walls** | | ☐ Applicable | ☒ N/A |
| 1. | **Deformations** | ☐ Location shown on site map | ☐ Deformation not evident |
| | Horizontal displacement_____ | Vertical displacement_____ | |
| | Rotational displacement_____ | | |
| | Remarks | | |
| 2. | **Degradation** | ☐ Location shown on site map | ☐ Degradation not evident |
| | Remarks | | |

| | | |
|---|---|---|
| **I. Perimeter Ditches/Off-Site Discharge** | ☒ Applicable | ☐ N/A |
| 1. **Siltation** | ☐ Location shown on site map | ☒ Siltation not evident |
| Areal extent_____ Depth_____ | | |
| Remarks | | |
| Water appeared to be highly turbid. | | |
| 2. **Vegetative Growth** | ☐ Location shown on site map | ☐ N/A |
| | ☒ Vegetation does not impede flow | |
| Areal extent_____ Type_____ | | |
| Remarks | | |
| 3. **Erosion** | ☐ Location shown on site map | ☒ Erosion not evident |
| Areal extent_____ Depth_____ | | |
| Remarks | | |
| 4. **Discharge Structure** | ☐ Functioning | ☒ N/A |
| Remarks | | |
| **VIII. VERTICAL BARRIER WALLS** | ☐ Applicable | ☒ N/A |
| 1. **Settlement** | ☐ Location shown on site map | ☐ Settlement not evident |
| Areal extent_____ Depth_____ | | |
| Remarks | | |
| 2. **Performance Monitoring** Type of monitoring_____ | | |
| ☐ Performance not monitored ☐ Evidence of breaching | | |
| Frequency_____ Head differential_____ | | |
| Remarks | | |

| IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A |
|---|
| **A. Groundwater Extraction Wells, Pumps, and Pipelines** ☐ Applicable ☐ N/A |
| 1. **Pumps, Wellhead Plumbing, and Electrical**<br>☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A<br>Remarks |
| 2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**<br>☐ Good condition ☐ Needs Maintenance<br>Remarks |
| 3. **Spare Parts and Equipment**<br>☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided<br>Remarks |
| **B. Surface Water Collection Structures, Pumps, and Pipelines** ☐ Applicable ☐ N/A |
| 1. **Collection Structures, Pumps, and Electrical**<br>☐ Good condition ☐ Needs Maintenance<br>Remarks |
| 2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**<br>☐ Good condition ☐ Needs Maintenance<br>Remarks |
| 3. **Spare Parts and Equipment**<br>☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided<br>Remarks |

| C. Treatment System | ☐ Applicable | ☐ N/A |
|---|---|---|

1. **Treatment Train** (Check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation

☐ Air stripping ☐ Carbon adsorbers

☐ Filters_____

☐ Additive (*e.g.*, chelation agent, flocculent)_____

☐ Others_____

☐ Good condition ☐ Needs Maintenance

☐ Sampling ports properly marked and functional

☐ Sampling/maintenance log displayed and up to date

☐ Equipment properly identified

☐ Quantity of groundwater treated annually_____

☐ Quantity of surface water treated annually_____

Remarks

2. **Electrical Enclosures and Panels** (properly rated and functional)

☐N/A ☐ Good condition ☐ Needs Maintenance

Remarks

3. **Tanks, Vaults, Storage Vessels**

☐N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

Remarks

4. **Discharge Structure and Appurtenances**

☐ N/A ☐ Good condition ☐ Needs Maintenance

Remarks

| | |
|---|---|
| 5. | **Treatment Building(s)**<br>☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair<br>☐ Chemicals and equipment properly stored<br>Remarks |
| 6. | **Monitoring Wells** (pump and treatment remedy)<br>☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition<br>☐ All required wells located ☐ Needs Maintenance ☐ N/A<br>Remarks |
| **D. Monitoring Data** | |
| 1. | Monitoring Data<br>☐ Is routinely submitted on time ☐ Is of acceptable quality |
| 2. | Monitoring data suggests:<br>☐ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining |
| **E. Monitored Natural Attenuation** | |
| 1. | **Monitoring Wells** (natural attenuation remedy)<br>☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition<br>☐ All required wells located ☐ Needs Maintenance ☐ N/A<br>Remarks |
| X. OTHER REMEDIES | |
| | If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. |

| XI. OVERALL OBSERVATIONS | |
|---|---|
| **A.** | **Implementation of the Remedy** |
| | Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).<br><br>The landfill cap was not observed to contain any breaches; however, access is not restricted since the fence is missing around most of the site. Tire tracks and garbage indicate that people are accessing this area. The cap appears to have been mowed or brush-cut as Scotch Broom stumps were observed across the site. The cap/cover on the portions of the site containing buildings appears to be in adequate condition.<br><br>Permission to access the property to the west of the site was not obtained; therefore, monitoring wells and the storm water lagoon to the west of the site were not observed. |
| **B.** | **Adequacy of O&M** |
| | Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.<br><br>There has been no O&M in the last 5 years. The landfill cover was mowed, but it is uncertain who completed this task. The fence around is the landfill is missing in most areas and should be replaced to restrict access. |
| **C.** | **Early Indicators of Potential Remedy Problems** |
| | Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.<br><br>The fence around is the landfill is missing in most areas and should be replaced to restrict access and reduce the potential for breaching and human contact with contaminated materials. |
| D. | Opportunities for Optimization |
| | Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.<br><br>None. |

Inspection Team:

Sharon Gelinas, USACE
Deborah Johnston, USACE
Joe Wallace, EPA
Dom Reale, Ecology
Scott Rose, Ecology

# Appendix B: Site Photos

The following site visit photographs were taken on February 4, 2014

Photo 1. Drainage swale between buildings.

Photo 1a. Drainage swale from road noting pipe and filter fabric fencing.


Photo 2. Only remaining fence around landfill.

Photo 3. Debris around landfill perimeter.

Photo4. Drainage swale to west of landfill showing railroad.

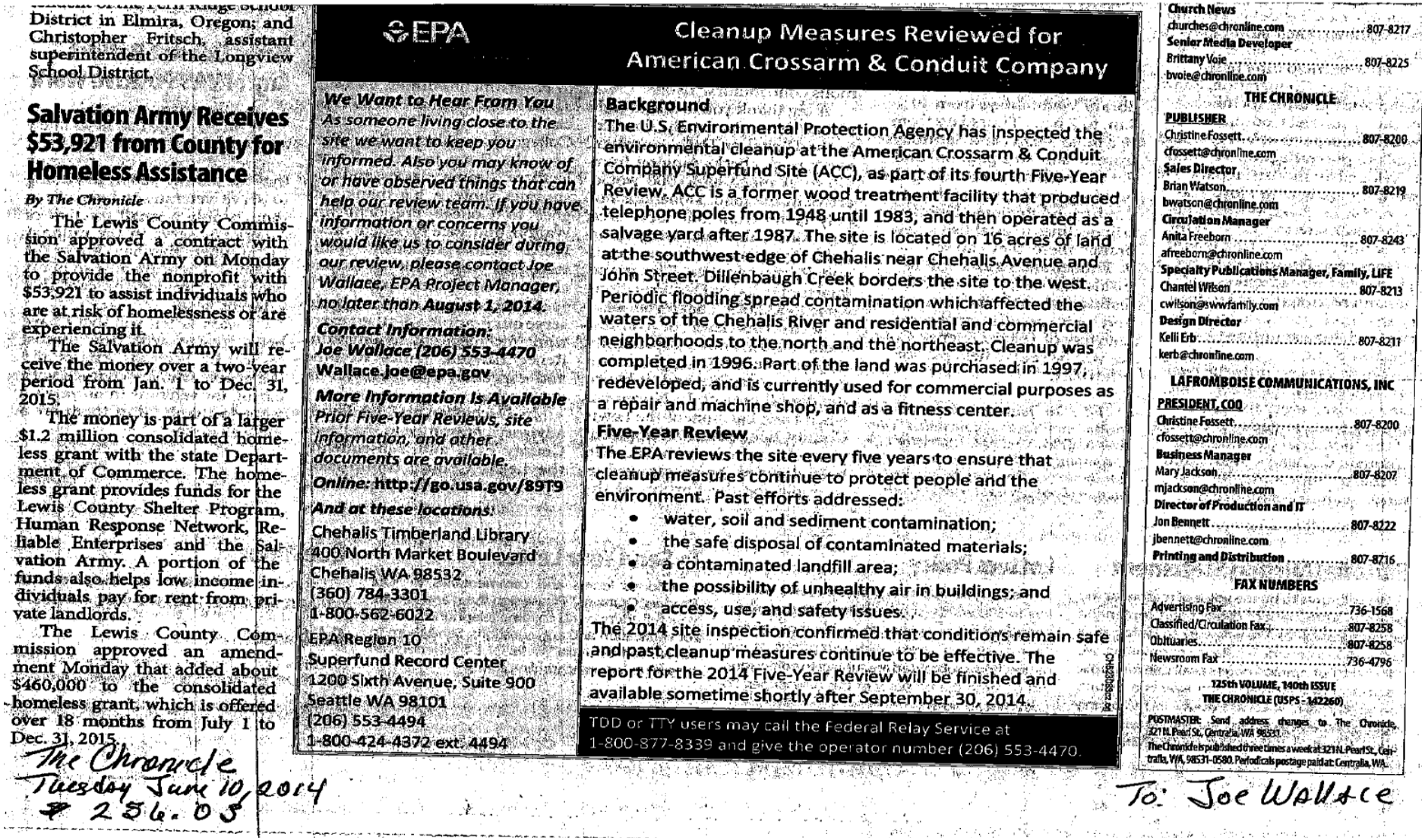
Photo 5. Roots from brush cutting and vegetation remaining at base of landfill side slope.

Photo 6. Tire tracks on top of landfill.


Photo 7. Sign noting location of water main on west edge of landfill.

# Appendix C: Public Notice

The following announcement was placed in the greater Lewis County The Chronicle on 10 June 2014.



District in Elmira, Oregon; and Christopher Fritsch, assistant superintendent of the Longview School District.

## Salvation Army Receives $53,921 from County for Homeless Assistance

*By The Chronicle*

The Lewis County Commission approved a contract with the Salvation Army on Monday to provide the nonprofit with $53,921 to assist individuals who are at risk of homelessness or are experiencing it.

The Salvation Army will receive the money over a two-year period from Jan. 1 to Dec. 31, 2015.

The money is part of a larger $1.2 million consolidated homeless grant with the state Department of Commerce. The homeless grant provides funds for the Lewis County Shelter Program, Human Response Network, Reliable Enterprises and the Salvation Army. A portion of the funds also helps low income individuals pay for rent from private landlords.

The Lewis County Commission approved an amendment Monday that added about $460,000 to the consolidated homeless grant, which is offered over 18 months from July 1 to Dec. 31, 2015.

The Chronicle
Tuesday June 10, 2014
# 256.05

EPA

## Cleanup Measures Reviewed for American Crossarm & Conduit Company

***We Want to Hear From You***

*As someone living close to the site we want to keep you informed. Also you may know of or have observed things that can help our review team. If you have information or concerns you would like us to consider during our review, please contact Joe Wallace, EPA Project Manager, no later than August 1, 2014.*

***Contact Information:***
***Joe Wallace (206) 553-4470***
***Wallace.joe@epa.gov***

***More Information Is Available***

*Prior Five-Year Reviews, site information, and other documents are available.*

***Online: http://go.usa.gov/89T9***

***And at these locations:***

Chehalis Timberland Library
400 North Market Boulevard
Chehalis WA 98532
(360) 784-3301
1-800-562-6022

EPA Region 10
Superfund Record Center
1200 Sixth Avenue, Suite 900
Seattle WA 98101
(206) 553-4494
1-800-424-4372 ext. 4494

**Background**

The U.S. Environmental Protection Agency has inspected the environmental cleanup at the American Crossarm & Conduit Company Superfund Site (ACC), as part of its fourth Five-Year Review. ACC is a former wood treatment facility that produced telephone poles from 1948 until 1983, and then operated as a salvage yard after 1987. The site is located on 16 acres of land at the southwest edge of Chehalis near Chehalis Avenue and John Street. Dillenbaugh Creek borders the site to the west. Periodic flooding spread contamination which affected the waters of the Chehalis River and residential and commercial neighborhoods to the north and the northeast. Cleanup was completed in 1996. Part of the land was purchased in 1997, redeveloped, and is currently used for commercial purposes as a repair and machine shop, and as a fitness center.

**Five-Year Review**

The EPA reviews the site every five years to ensure that cleanup measures continue to protect people and the environment. Past efforts addressed:

- water, soil and sediment contamination;
- the safe disposal of contaminated materials;
- a contaminated landfill area;
- the possibility of unhealthy air in buildings; and
- access, use, and safety issues.

The 2014 site inspection confirmed that conditions remain safe and past cleanup measures continue to be effective. The report for the 2014 Five-Year Review will be finished and available sometime shortly after September 30, 2014.

TDD or TTY users may call the Federal Relay Service at 1-800-877-8339 and give the operator number (206) 553-4470.

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**Church News**
churches@chronline.com ..... 807-8217
**Senior Media Developer**
Brittany Voie ..... 807-8225
bvoie@chronline.com

**THE CHRONICLE**

**PUBLISHER**
Christine Fossett ..... 807-8200
cfossett@chronline.com
**Sales Director**
Brian Watson ..... 807-8219
bwatson@chronline.com
**Circulation Manager**
Anita Freeborn ..... 807-8243
afreeborn@chronline.com
**Specialty Publications Manager, Family, LIFE**
Chantel Wilson ..... 807-8213
cwilson@swwfamily.com
**Design Director**
Kelli Erb ..... 807-8211
kerb@chronline.com

**LAFROMBOISE COMMUNICATIONS, INC**

**PRESIDENT, COO**
Christine Fossett ..... 807-8200
cfossett@chronline.com
**Business Manager**
Mary Jackson ..... 807-8207
mjackson@chronline.com
**Director of Production and IT**
Jon Bennett ..... 807-8222
jbennett@chronline.com
**Printing and Distribution** ..... 807-8716

**FAX NUMBERS**
Advertising Fax ..... 736-1568
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To: Joe Wallace