



PERIODIC REVIEW

PACCAR
Facility Site ID#: 2065
ISIS Cleanup Site ID# 788

**1400 North 4th Street,
Renton, Washington**

Northwest Region Office
TOXICS CLEANUP PROGRAM

July 2014

1.0	INTRODUCTION.....	1
2.0	SUMMARY OF SITE CONDITIONS	3
2.1	Site Description and History	3
2.2	Site Investigations.....	4
2.3	Sample Results.....	6
2.4	Cleanup Levels.....	6
2.5	Restrictive Covenant.....	7
3.0	PERIODIC REVIEW.....	9
3.1	Effectiveness of completed cleanup actions	9
3.2	New scientific information for individual hazardous substances for mixtures present at the Site	10
3.3	New applicable state and federal laws for hazardous substances present at the Site	10
3.4	Current and projected site use.....	12
3.5	Availability and practicability of higher preference technologies	12
3.6	Availability of improved analytical techniques to evaluate compliance with cleanup levels	12
4.0	CONCLUSIONS.....	13
4.1	Next Review.....	14
5.0	REFERENCES.....	16
6.0	APPENDICES.....	18
6.1	Vicinity Map	19
6.2	Site Plan	20
6.3	TPH-Dx Concentration Map.....	21
6.4	Environmental Covenant	22
6.5	Photo log	28

1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of the long-term implementation of a Cleanup Action Plan (CAP) and monitoring data to ensure that human health and the environment are being protected at PACCAR; aka. Pacific Car & Foundry Co. (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site were completed under a Consent Decree No. 91 2 25053 7, and the Site is on the National Priorities List (Federal Superfund). The cleanup actions resulted in concentrations of arsenic, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), chromium, lead, petroleum, and vinyl chloride remaining at the Site which exceed MTCA cleanup levels. The MTCA cleanup levels for soil are established under WAC 173-340-740. The MTCA cleanup levels for groundwater are established under WAC 173-340-720. When contamination remains at the site after remediation, WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a site every five years under the following conditions:

- (a) Whenever the department conducts a cleanup action
- (b) Whenever the department approves a cleanup action under an order, agreed order or consent decree
- (c) Or, as resources permit, whenever the department issues a no further action opinion;
- (d) and one of the following conditions exists:
 - 1. Institutional controls or financial assurance are required as part of the cleanup;
 - 2. Where the cleanup level is based on a practical quantitation limit;
 - 3. Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors the department shall consider include [WAC 173-340-420(4)]:

- (a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the site;
- (b) New scientific information for individual hazardous substances of mixtures present at the site;
- (c) New applicable state and federal laws for hazardous substances present at the Site;
- (d) Current and projected site use;
- (e) Availability and practicability of higher preference technologies; and
- (f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

The department shall publish a notice of all periodic reviews in the site register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Site Description and History

The PACCAR site is located in the City of Renton, Washington, about 1/2 mile northeast of the downtown area. Roadways bounding the site include Garden Avenue North on the west, Houser Way North on the east, North 4th Street on the south, and North 8th Street on the north. The PACCAR site is 82 acres in area. The northern 40 acres were initially remediated to allow construction of the Kenworth Truck Plant. The truck plant began operations in 1993. The Cedar River is located about 2,000 to 3,000 feet to the southwest and west. John's Creek and Lake Washington are about 2,500 to 3,000 feet to the north and northwest. Both John's Creek and Cedar River flow into Lake Washington.

PACCAR, Inc., formerly PACCAR Defense Systems, is a Fortune 500 Company, with about 15 billion dollars in annual sales (2008 annual report). The company makes Peterbilt and Kenworth trucks, and formerly owned Al's Auto Parts. The company began on the Renton Site in 1907 as Pacific Car and Foundry, making rail cars. They made Sherman Tanks in World War II, and fabricated the legs of the Space Needle. When the rail car business declined, they started making military vehicles. PACCAR decided to decommission that facility in 1988.

The PACCAR Renton site was placed on the National Priorities List (NPL) on February 21, 1990. It is a state-lead site. The Washington State Department of Ecology (Ecology) is responsible for the oversight management of the site as stipulated by an agreement with Region 10 of the Environmental Protection Agency (EPA). The cleanup is managed by Ecology under the authority of the Model Toxics Control Act (MTCA; Chapter 70.105D RCW), the Water Pollution Control Act (Chapter 90.48 RCW), and other applicable state and federal laws.

SITE CHRONOLOGY:

1907 - 1988	Industrial Operations
June 24, 1989	Proposed NPL Listing
1989	Remedial Investigation Completed
February 21, 1990	Final NPL Listing
1990	Feasibility Study Completed
1991	Consent Decree Finalized including the Cleanup Action Plan (CAP)
1993	Kenworth Truck Plant Begins Operations
1994	Consent Decree Amendment
1995	Excavation and Stabilization of Soil Completed
1997	Bioremediation of Soil Completed
1997	Confirmational Monitoring Plan Issued
1998 - present	Confirmational Monitoring

Activities at the Site which have caused environmental concern were:

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- Industrial fill on north half of the Site containing heavy metals;
 - Diesel fuel in above-ground tanks within the southwestern portion of the Site;
 - Diesel fuel pipeline system which powered the plant until natural gas was installed in 1955, generally within the southern half of the Site;
 - Fuels and solvents stored in both above- and below-ground tanks;
 - Paint-spraying operations;
 - Galvanizing operation;
 - Transformers containing polychlorinated biphenyls (PCBs).

The regulatory history is described as follows:

- PACCAR approached Ecology and requested a consent decree for conducting a Remedial Investigation/Feasibility Study (RI/FS);
- The Environmental Protection Agency (EPA) put the site on the Superfund list due to concerns about the Renton Well Field;
- The site became a State-Lead Superfund Site;
- The Remedial Investigation/ Feasibility Study (RI/FS) was completed;
- Ecology prepared the Cleanup Action Plan (CAP, equivalent to a Record of Decision, or ROD), and PACCAR and Ecology entered into a consent decree to implement the CAP in November 1991;
- Cleanup actions completed by November 1997, after which long-term monitoring begins.

2.2 Site Investigations and Cleanup

The RI/FS found there was no immediate threat to human health or the Renton well field. The Site was found to be a low, long-term risk to human health and the environment. The primary risks to human health were from direct contact with contaminated soil and from blowing dust.

Constituents of concern (COCs) and cleanup levels (CULs) are defined in the Cleanup Action Plan (CAP; Ecology 1991). The CAP identifies CULs for soil, groundwater, and surface water based on the results of a risk assessment (Hart Crowser 1989). The CAP identified arsenic, lead, vinyl chloride, and benzene as the groundwater COCs. CULs and hot spot action levels (HSALs) for the groundwater COCs are presented in the CAP. The CULs were set based on procedures and requirements of MTCA Method B. The HSALs are based on drinking water standards maximum contaminant levels (MCLs) that are in some cases higher than the MTCA Method B cleanup levels. In addition to the groundwater COCs, several other constituents were included in the monitoring program because they were present in remaining site soils, treated soils, or detected above MTCA cleanup levels.

The groundwater point of compliance is the property boundary as defined by the CAP (Ecology 1991).

The following interim actions were completed between 1979 and 1991:

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- Removal of underground storage tanks (USTs) between 1985 and 1988.
 - Removal of electrical equipment containing PCBs between 1979 and 1990.
 - Removal of about 2,000 cubic yards of soil containing high concentrations of TPH and 10 cubic yards of soil containing lead during the fall of 1987.
 - Removal of approximately 2,500 cubic yards of soil containing high concentrations of TPH, 5 cubic yards of soil containing arsenic, and 5 cubic yards of soil containing lead in the summer and fall of 1990.
 - Removal of asbestos-containing materials from structures prior to their demolition.
 - Steam cleaning of pits and sumps to remove residual TPH.
 - Removal of source of hazardous materials and wastes from the manufacturing operations.

The CAP, as part of the Confirmational Monitoring and Inspection Plan (CMIP; DOF 1997) for the PACCAR site, was approved by Ecology in September 1991. The cleanup actions identified in the CAP include the following:

- Excavation and biotreatment of soils containing TPH concentration greater than HSALs to protect groundwater quality;
- Excavation and immobilization (stabilization) of soils containing lead, chromium, arsenic, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) concentration greater than their respective HSALs to prevent direct contact and protect groundwater quality;
- Excavation and off-site disposal of soil containing PCBs above HSALs;
- Containment of soils with cPAH, TPH, or metals concentration above the CUL with a protective soil cover to prevent direct contact;
- Implementation of institutional controls and monitoring to ensure that the integrity of the cover is maintained;
- Implementation of site access restrictions to prevent public contact with soils containing low levels of contamination and health and safety protocols to protect workers installing or repairing underground utilities;
- Groundwater monitoring to ensure groundwater quality at the point of compliance reaches and remains within regulatory limits;
- Monitoring of surface water to ensure that the quality of surface water is within regulatory limits at the point of compliance.

The Remedy consisted of the following actions:

- Soil with high levels of contamination of total petroleum hydrocarbons, arsenic, chromium, and lead (TPH, As, Cr, Pb) treated and contained on Site;
 - Soil with PCB and carcinogenic poly aromatic hydrocarbons (CPAHs) were sent off Site;
 - Soil with low levels of contamination contained on Site to prevent direct contact and dust;
 - Groundwater has low levels of contamination (As, vinyl chloride), but the cleanup of soil is expected to cause contamination levels to decrease;
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- Surface water and groundwater is monitored to ensure it meets standards.

While the Cleanup Action Plan was being written, PACCAR approached Ecology about constructing a new Kenworth Assembly Plant on the north half of the site. Ecology and PACCAR reached agreement on the CAP and excavation began. The CAP was a critical path item for this construction, and additional soil excavation occurred because of it. The excavated contaminated soil was placed on the south part of the property. The Kenworth plant began operations in May 1993. A truck forwarding company (Dallas and Mavis) began operating on a corner of the south half of the site in 1996, ceasing operations there in 2008.

Approximately 105,000 yds³ of TPH contaminated soil were biotreated, 30,000 yds³ of metals contaminated soil was solidified, less than 5,000 yds³ of PCB and cPAH contaminated soil were sent off-Site, and 105,000 yds³ of soil with contamination at levels between cleanup levels and hazardous substance action levels were moved by grading and ultimately placed beneath structural fill as cover.

Site cleanup was conducted in five phases between 1991 and November 1997. A brief description of these five phases and their associated work and a summary of all the remedial activities, largely completed in the 1990s, is provided in great detail in the Hart Crowser May 1, 2008 Periodic Review Report (1639-46). Phase 5-C was reported completed in 2014 (DOF, 2014).

Groundwater monitoring is carried out in accordance with the CMIP. Water quality in the compliance wells is evaluated to determine whether the remedy is functioning as intended with respect to groundwater quality. Although groundwater monitoring has been conducted at the site since 1984, confirmational groundwater monitoring began in 1997. More detail of the groundwater monitoring is provided in the Hart Crowser May 1, 2008 Periodic Review Report (1639-46).

Surface water monitoring is carried out in accordance with the CMIP. The water quality in surface water is evaluated to determine whether the remedy is functioning as intended with respect to surface water quality. More detail of the surface water monitoring is provided in the Hart Crowser May 1, 2008 Periodic Review Report (1639-46).

2.3 Sample Results

Please see the reports referenced in Section 5.0 for details regarding sampling. The reports are contained in Ecology's Central Records in the PACCAR file.

2.4 Cleanup Levels

Constituents of concern (COCs) and cleanup levels (CULs) are defined in the Cleanup Action Plan (CAP; Ecology 1991). The CAP identifies CULs for soil, groundwater, and surface water based on the results of a risk assessment (Hart Crowser 1989). The CAP identified arsenic, lead, vinyl chloride, and benzene as the groundwater COCs. CULs and hot spot action levels

(HSALs) for the groundwater COCs are presented in the CAP. The CULs were set based on procedures and requirements of MTCA Method B. The HSALs are based on drinking water standards maximum contaminant levels (MCLs) that are in some cases higher than the MTCA Method B cleanup levels. In addition to the groundwater COCs, several other constituents were included in the monitoring program because they were present in remaining site soils, treated soils, or detected above MTCA cleanup levels.

The groundwater point of compliance is the property boundary as defined by the CAP (Ecology 1991).

2.5 Restrictive Covenant

Based on the site use, surface covers and calculated cleanup levels, it was determined that the Site required a Restrictive Covenant to be recorded for the property. A Restrictive Covenant was recorded for the Site in 1991 which imposed the following limitations:

1. At least 30 days prior to conveyance of any real property interest in any portion of the Property the grantor shall give written notice to Ecology of such contemplated conveyance describing the particulars thereof.
2. Any conveyance of any real property interest in any portion of the Property is hereby expressly made subject to the provisions of the CAP, including without limitation any provision thereof for continued operation and maintenance, monitoring, containment, or other measures necessary to assure the integrity of the cleanup action. A copy of the Consent Decrees, RI/FS, and CAP shall be furnished to any transferee of any real property interest in any portion of the Property prior to conveyance thereof to such transferee.
3. No wells for the extraction of potable water for human ingestion shall be hereafter installed in the Property without Ecology approval.
4. No redevelopment of the property other than for industrial use shall hereafter be undertaken unless 30 days prior notice has been given to Ecology. For purposes of this restriction, "industrial use" means and includes any use permitted pursuant to the provisions of Renton Municipal Code 4-713 (Heavy Industry District (H-1)), 4-712 (Light Industry District (L-1)), 4-730 (Manufacturing Park (M-P) District), Business District (B-1), and 4-748 (Conditional Use Permit) as in effect on the date hereof, and any substantially similar uses hereafter permitted under successor Renton zoning ordinances. The property shall not be used for a day care center without Ecology approval.
5. Ecology and its designated representatives are hereby given the right to enter the property at reasonable times, upon 48 hours prior notice, for the purpose of evaluating compliance with the cleanup action plan, including the right to take samples, inspect the operation of cleanup action measures, and inspect cleanup records.
6. This Declaration of Restrictive Covenants may be amended by the agreement of Declarant and Ecology after public notice and comment.
7. Notices given to Ecology pursuant to this Declaration of Restrictive Covenants shall be deemed effectively given if delivered by hand or mailed by U.S. certified Mail, return receipt requested, to Washington Department of Ecology, Northwest Regional Office, Attn: Section

Head, Toxics Cleanup Program, or to any successor agency or officer thereof having substantially comparable functions.

8. Declarant, and Ecology by its approval of this Declaration as endorsed hereon, agree that any dispute concerning the interpretation, duration, or applicability of the foregoing restrictive covenants shall, failing agreement between the parties, be submitted for determination to the Superior Court for King County, Washington, having jurisdiction over the Consent Decrees.

9. The foregoing Restrictive Covenants shall no longer limit uses of the site or be of any further force or effect upon recordation by Declarant, or its grantees, successors, or assigns of an instrument terminating this Declaration of Restrictive Covenants pursuant to the terms of the 1991 Consent Decree.

The foregoing restrictive covenants shall henceforth burden and run with the Property, and bind Declarant, its grantees, successors, and assigns, and shall insure to the benefit of and be enforceable by Ecology and its successors and assigns. Except only as limited by the express provisions of the foregoing restrictive covenants, Declarant expressly reserves all right of ownership, use, and enjoyment of the Property.

The Restrictive Covenant is available as Appendix 6.4.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

The remedy is functioning as intended. The Restrictive Covenant for the Site was recorded in October 1991 and is in place. This Restrictive Covenant prohibits activities that will result in the release of contaminants at the Site without Ecology's approval, and prohibits any use of the property that is inconsistent with the Covenant. This Restrictive Covenant serves to ensure the long term integrity of the remedy.

Based upon the site visit conducted on June 25, 2014, the various covers and stabilization remedy at the Site continue to eliminate exposure to contaminated soils by ingestion and contact. The soil cover and asphalt appear in satisfactory condition and no repair, maintenance, or contingency actions have been required. The Site is still operating as a large vehicle manufacturer, asphalted parking lot, and large open field (soil capped southern portion). A photo log is available as Appendix 6.5.

Soils with cPAHs, TPH, and metals concentrations higher than MTCA cleanup levels are still present at the Site. However, the soil cover and asphalt surface prevent human exposure to this contamination by ingestion and direct contact with soils. The Restrictive Covenant for the property will ensure that the contamination remaining is isolated, contained, and controlled.

The remedy has significantly reduced impacts to groundwater, but groundwater arsenic and vinyl chloride CULs have not been achieved in all compliance wells. The Ecology Site Manager, David L. South agrees with the general assessment that CUL exceedances do not warrant additional cleanup actions beyond continued monitoring. It is postulated that the presence of arsenic in groundwater may be caused by, in whole, or in part, natural conditions, but this has not been confirmed. Arsenic is detected in groundwater in the majority of compliance wells. The distribution of arsenic and the geochemical conditions in groundwater beneath the site suggest the possibility that arsenic concentrations are controlled by natural occurring processes.

The historical use of arsenic at the site cannot explain the widespread distribution of arsenic in groundwater. The relatively small amount of materials containing arsenic concentrations above 100 mg/kg were excavated and stabilized on site. High concentrations of potentially leachable arsenic are no longer present at the site. The available data do not indicate that an arsenic plume is migrating off the PACCAR site. Rather, the data indicate that naturally occurring arsenic in soil is being mobilized by the reducing conditions in groundwater in the vicinity of the site.

The primary receptor of concern with respect to arsenic migration is the City of Renton wellfield located south of the PACCAR Renton site. A conservative risk assessment (RA) was performed during completion of the RI that concluded the risks from migration of arsenic to the wellfield were minimal based on conditions present in the late 1980s. A transport analysis completed for the RA estimated arsenic concentrations in the Renton wells would range between 0.04 ug/L (average) and 0.18 ug/L (95% UCL). The 95% UCL concentration assumed an "input" arsenic

concentration of 100 ug/L. The City of Renton regularly monitors the water supply for over 120 compounds and reports the results in the annual Drinking Water Quality report. Data are available since 2002 and show that the COCs or other constituents which have been monitored as part of the PACCAR's compliance monitoring program have either not been detected or were detected at concentrations less than the applicable state and federal water quality standards.

A comparison of arsenic concentrations in groundwater and other information collected since the RI was completed (approximately 15 years ago) with information contained in the RI indicate the remedy is still protective. For example, groundwater flow directions have not changed, arsenic concentrations in wells downgradient of the PACCAR site have not increased, and the potency factor used to estimate carcinogenic risks from the ingestion of arsenic has not changed (the RI used 1.5 kg-day/mg, which is the value listed in the current version of Ecology's Cleanup Level and Risk Calculation (CLARC) database, May 2014).

In addition, the RI assumed that off-site constituent attenuation along the flow paths was negligible. The Renton wells are screened in coarse-grained "Delta Fan Deposits" that were deposited near the former mouth of the Cedar River. It is anticipated that less reducing conditions are present in groundwater of the Delta Fan Aquifer and that arsenic concentrations will decrease (by precipitation) with any migration toward the wellfield.

Vinyl chloride concentrations remain above the CUL in two wells downgradient of the site. The remedy continues to be protective since vinyl chloride concentrations have decreased or remain the same since confirmational monitoring began in 1998. The federal and state drinking water standard of 2 ug/L has not changed and all the monitoring well concentrations are below this standard.

3.2 New scientific information for individual hazardous substances for mixtures present at the Site

There is no new scientific information for the contaminants related to the Site. No other information has come to light that could call into question the protectiveness of the remedy.

3.3 New applicable state and federal laws for hazardous substances present at the Site

The cleanup at the site was governed by Chapter 173-340 WAC (1991 ed.). WAC 173-340-702(12) (c) [2001 ed.] provides that,

"A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provision in this chapter on cleanup levels, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment."

Although cleanup levels changed for petroleum hydrocarbon compounds as a result of modifications to MTCA in 2001, soil contamination remains at the site above the new MTCA Method A and B cleanup levels. Even so, the cleanup action is still protective of human health and the environment because the soil is covered and environmental covenants are in place to prevent cover disturbance without proper soil management. A table comparing MTCA cleanup levels from 1991 to 2001 is available below.

Analyte	1991 MTCA Method A Soil Cleanup Level (ppm)	2001 MTCA Method A Soil Cleanup Level (ppm)	1991 MTCA Method A Groundwater Cleanup level (ppb)	2001 MTCA Method A Groundwater Cleanup Level (ppb)
Cadmium	2	2	5	5
Lead	250	250	5	15
TPH	none listed	none listed	1000	none listed
TPH-Gas	100	100/30	none listed	1000/800
TPH-Diesel	200	2000	none listed	500
TPH-Oil	200	2000	none listed	500

The MTCA Cleanup Regulation (Chapter 173-340 WAC), which was used to establish cleanup requirements for the site, has undergone several amendments (including January 1996, February 2001, and October 2007) since the cleanup action was completed. Over this time period, there have been several changes in federal requirements and calculated cleanup levels for specific primary constituents of concern including the following:

- **Arsenic.** The MCL established under the Federal Safe Drinking Water Act (published under 40 CFR 141) was revised from 0.05 to 0.01 mg/L. The MCL of 0.05 mg/L was used as the HSAL to determine whether “active” remedial actions (e.g., pump and treat) are required. Arsenic groundwater concentrations below the HSAL but above the CUL required long-term monitoring. The MTCA Method A drinking water CUL (0.005 mg/L) used to establish the groundwater CUL for arsenic at the site has remained the same.
- **Lead.** The MCL established for lead was revised from 0.05 to 0.015 mg/L. The MCL of 0.05 mg/L was used as the HSAL for lead. The MTCA Method A drinking water CUL (0.005 mg/L) used to establish the groundwater CUL for lead at the site has increased to 0.015 mg/L to reflect the current MCL.
- **Vinyl Chloride.** The current MTCA Method A cleanup level for vinyl chloride of 0.0002 mg/L is slightly lower than the CUL established in the PACCAR CAP of 0.0004 mg/L (based on 1991 Method B value using an EPA carcinogenic potency factor of 2.3). The federal and state drinking water standard (MCL) of 0.002 mg/L has not changed.

These relatively minor changes in groundwater HSALs or CULs do not significantly affect the protectiveness of the implemented remedial action at the PACCAR Renton Site. The exposure

assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection are still valid.

Appropriate, relevant, and applicable requirements and calculated MTCA groundwater CULs for several of the supplemental constituents including chromium, cPAHs, and TPH have been revised since the remedial action was implemented. However, these chemicals were not originally considered COCs in groundwater and were primarily added to the CMIP (DOF 1997) because they were present in site soils following implementation of the cleanup action. These constituents have generally not been detected in site groundwater at concentrations exceeding MTCA cleanup levels.

An element that was not addressed in the original CAP was the consideration of risk to ecological receptors as required under the current MTCA regulations. However, the heavily urbanized PACCAR Renton Site qualifies for an exclusion from having to perform a terrestrial ecological evaluation under the criteria outlined in WAC 173-340-7491. If a site meets any one of the four criteria, it does not need to undergo an ecological evaluation. This site meets the second exclusion, which is that buildings, pavement, or other barrier covers all contaminated soils and an institutional control is in place. Therefore, an ecological risk assessment would not be applicable at the site.

3.4 Current and projected site use

The site is currently used for industrial purposes. There have been no changes in current or projected future site or resource uses.

3.5 Availability and practicability of higher preference technologies

The remedy implemented included containment of hazardous substances, and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The analytical methods used at the time of the remedial action were capable of detection below selected site cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the site.

4.0 CONCLUSIONS

The following conclusions have been made as a result of this periodic review:

- The cleanup actions completed at the Site appear to be protective of human health. The remedy at PACCAR is expected to be protective of both human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.
- Soils cleanup levels have not been met at the standard point of compliance for the Site; however, the cleanup action has been determined to comply with cleanup standards since the long-term integrity of the containment system is ensured, and the requirements for containment technologies are being met.
- Surface water cleanup levels have been generally met at the point of compliance. The point of compliance for surface water is the property boundary. Monitoring data are collected at five locations and compliance is measured at two locations, SW-3 and SW-6. The following metals are currently measured:
 - **Copper** has not exceeded the cleanup level at SW-3 since November 2004. Copper was about 1½ times its cleanup level at SW-6 in March 2014, but had not exceeded its cleanup level prior to that since March 2004.
 - **Hexavalent chromium** has not been detected in SW-3 or SW-6 since April 2005. The detections were below the cleanup level.
 - **Lead** exceeded its cleanup level at SW-6 by about 4 times in March 2014, but had otherwise been below its cleanup level since March 2004 at this location. Lead has been below its cleanup level since March 2004 at SW-3 with the exception of October 2011, when it was measured at about twice its cleanup level
 - **Zinc** has been below its cleanup level since March 2012 at SW-3 and since March 2004 at SW-6.

The sporadic exceedances do not identify a significant, ongoing deterioration in environmental protection. Continued annual monitoring of these metals is warranted at the five locations identified in the Compliance Monitoring and Inspection Plan to assess whether any long-term changes are occurring.

- The Restrictive Covenant for the property is in place and continues to be effective in protecting public health from exposure to hazardous substances and protecting the integrity of the cleanup action.
- Arsenic and vinyl chloride concentrations in groundwater continue to be above their cleanup levels and below their hot spot action levels in a few wells at or downgradient of the point of compliance. Ecology does not believe that these concentrations warrant additional remedial action at this time.

- The number of monitoring wells for the next periodic review will be reduced to eight wells LW-6D, LW-9D, CW-1S, CW-1D, LW-9S, MW-3I, SC-1S, and SC-2S. These wells continue to exceed cleanup levels for arsenic or vinyl chloride or are sentinel wells for the stabilized cells. If any of these wells are destroyed or in any way inaccessible, then replacement wells will be required and placement will require concurrence from the Department of Ecology. Concentrations of the contaminants of concern in other groundwater monitoring wells at the site have stabilized below the cleanup levels for multiple years. The exception to this is for arsenic concentration in wells OSP-4D and MW-10. The elevated arsenic levels in these wells are attributed to (1) location-specific conditions based on the observation that high arsenic levels have been consistently elevated throughout the monitoring history and (2) groundwater monitoring wells upgradient of these two wells and down gradient of the site remain below the cleanup levels for contaminants of concern. Consequently, elevated arsenic in wells OSP-4D and MW-10 is not believed to originate from the PACCAR Site.
- The LW-6D, LW-9D, CW-1S, CW-1D, LW-9S, MW-3I listed above will be sampled annually in March. Groundwater elevations, field parameters, and arsenic will be measured in all wells.
- Vinyl chloride will be measured in wells CW-1S and LW-9D annually as well.
- SC-1S and SC-2S will be sampled in March 2019. Groundwater elevations, field parameters, arsenic, lead, and chromium will be measured.

Based on this periodic review, the Department of Ecology has determined that the requirements of the Restrictive Covenant continue to be met. It is the property owner's responsibility to continue to inspect the site to assure that the integrity of the remedy is maintained.

The number of serviceable wells has changed over the years. The CMIP specifies 60 wells. However, one well was duplicated in the listing, one well (HC-2I) off Houser Way North was lost in 2003, and two confirmation wells (OSP-7S and OSP-7D) were lost during an off-site 2007 construction project. The latter wells, covered by asphalt, were located in the middle of the intersection of Garden Avenue North and North 8th Street. Confirmation monitoring wells OSP-7S and OSP-7D were not usable due to damage during construction activity along Garden Avenue North. Additionally, monitoring wells LW-13S and LW13-D were approved for abandonment (PACCAR, 2014). These wells were properly abandoned (closed) following Washington State regulations after Ecology approval. The remaining 54 confirmation, stabilization cell, and information wells are in usable condition for monitoring groundwater conditions at the site.

4.1 Next Review

The next review for the site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

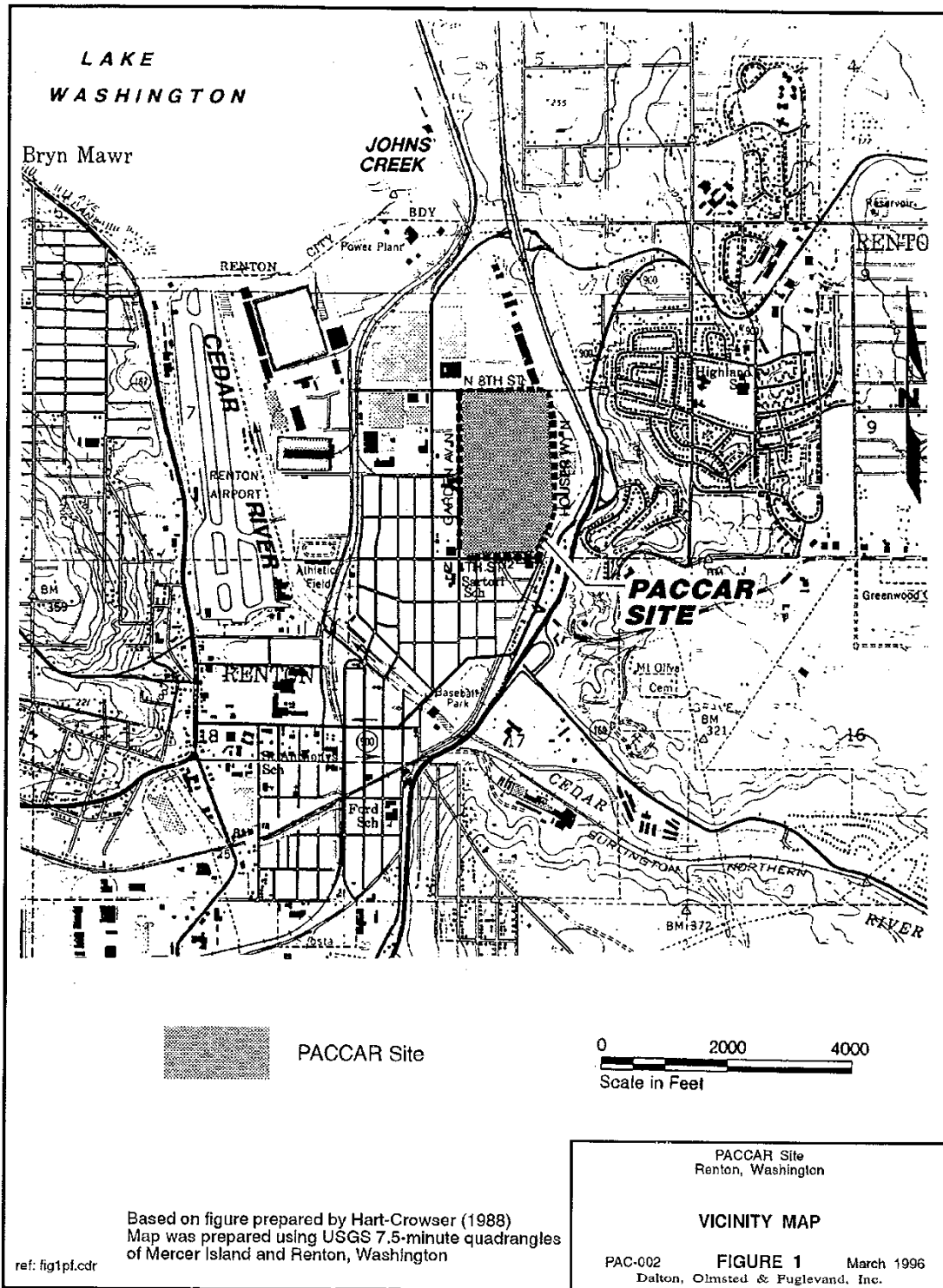
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- Hart Crowser 1992d. Construction Documentation Report for Phase IIB Work: North Site Grading and Placement of Structural Fill Cover. November 9, 1992.
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- Hart Crowser 1998b, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009: Annual Groundwater and Surface Water Monitoring.
- Hart Crowser, Periodic Review, May 1, 2008 (1639-46).
- Ecology, 2009, Site Visit.
- DOF (Dalton, Olmsted, & Fuglevand Inc.), 2014, Soil Evaluation – To Close Southwest Corner of PACCAR Site.
- Ecology, 2014, Site Visit.
-

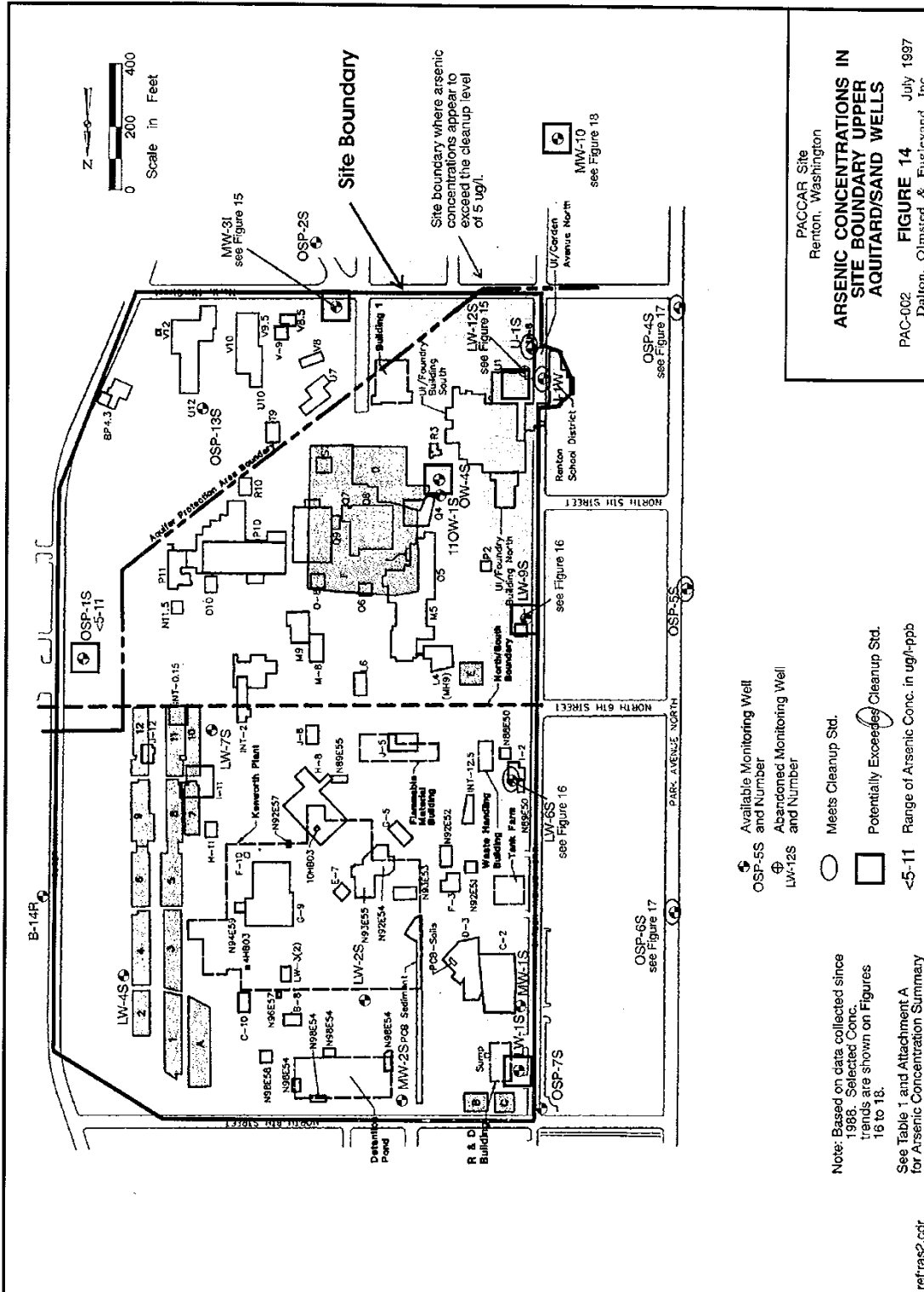
PACCAR Inc., 2014, Comments on PACCAR Site, Ecology Periodic Review – July 2014.

6.0 APPENDICES

6.1 Vicinity Map



6.2 Site Plan



6.3 TPH-Dx Concentration Map

Not presently available.

6.4 Environmental Covenant

EXHIBIT C
Declaration of Restrictive Covenants
on the PACCAR Property, Renton, Washington

RECEIVED
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PERMITS DIVISION

PACCAR Inc., a Delaware corporation ("Declarant") is current owner of the real estate (the "Property") described in Exhibit A attached hereto and made part hereof. Pursuant to Consent Decrees entered in February 1989¹, and October 1991², in King County Superior Court, Said Property became the subject of a remedial investigation and feasibility study (as from time to time amended, the "RI/FS") and a cleanup action plan (as from time to time amended, the "CAP"), conducted under Washington Department of Ecology ("Ecology") supervision to identify and remediate certain environmental contamination of the Property as more particularly described in said Consent Decrees and RI/FS and CAP.

Pursuant to said Consent Decrees, Declarant hereby subjects the Property to the following restrictive covenants:

1. At least 30 days prior to conveyance of any real property interest in any portion of the Property the grantor shall give written notice to Ecology of such contemplated conveyance describing the particulars thereof.
2. Any conveyance of any real property interest in any portion of the Property is hereby expressly made subject to the provisions of the CAP, including without limitation any provision thereof for continued operation and maintenance, monitoring, containment, or other measures necessary to assure the integrity of the cleanup action. A copy of the Consent Decrees, RI/FS, and CAP shall be furnished to any transferee of any real property interest in any portion of the Property prior to conveyance thereof to such transferee.
3. No wells for the extraction of potable water for human ingestion shall be hereafter installed in the Property without Ecology approval.
4. No redevelopment of the Property other than for industrial use shall hereafter be undertaken unless 30 days prior notice has been given to Ecology. For purposes of this restriction, "industrial use" means and includes any use permitted pursuant to the provisions of Renton Municipal Code 4-713 (Heavy Industry District (H-1)), 4-712 (Light Industry District (L-1)), 4-730 (Manufacturing Park (M-P) District), Business District (B-1), and 4-748 (Conditional Use Permit) as in effect on the date hereof, and any substantially similar uses hereafter permitted under

Page 1 of 3

*Cause No. 88-222080-8
+Cause No. 91-255053-7

11/12/2013 9/11/262431

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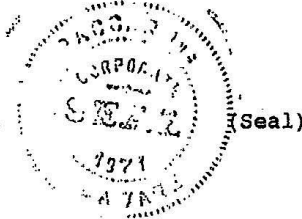
successor Renton zoning ordinances. The Property shall not be used for a day care center without Ecology approval.

5. Ecology and its designated representatives are hereby given the right to enter the property at reasonable times, upon 48 hours prior notice, for the purpose of evaluating compliance with the cleanup action plan, including the right to take samples, inspect the operation of cleanup action measures, and inspect cleanup records.
6. This Declaration of Restrictive Covenants may be amended by the agreement of Declarant and Ecology after public notice and comment.
7. Notices given to Ecology pursuant to this Declaration of Restrictive Covenants shall be deemed effectively given if delivered by hand or mailed by U.S. certified Mail, return receipt requested, to Washington Department of Ecology, Northwest Regional Office, Attn: Section Head, Toxics Cleanup Program, or to any successor agency or officer thereof having substantially comparable functions.
8. Declarant, and Ecology by its approval of this Declaration as endorsed hereon, agree that any dispute concerning the interpretation, duration, or applicability of the foregoing restrictive covenants shall, failing agreement between the parties, be submitted for determination to the Superior Court for King County, Washington, having jurisdiction over the Consent Decrees.
9. The foregoing Restrictive Covenants shall no longer limit uses of the Site or be of any further force or effect upon recordation by Declarant, or its grantees, successors, or assigns of an instrument terminating this Declaration of Restrictive Covenants pursuant to the terms of the 1991 Consent Decree.

The foregoing restrictive covenants shall henceforth burden and run with the Property and bind Declarant, its grantees, successors, and assigns, and shall insure to the benefit of and be enforceable by Ecology and its successors and assigns. Except only as limited by the express provisions of the foregoing restrictive covenants, Declarant expressly reserves all right of ownership, use, and enjoyment of the Property.

Executed this 7th day of October, 1991.

PACCAR Inc.



By [Signature]
Its President

Attest:

By: Bruce N. Holliday
Its: Assistant Secretary

Approved:

State of Washington
Department of Ecology
Kenneth O. Eikenberry
Attorney General

By: [Signature]
Assistant Attorney General
Attorneys for State

[Signature] for Carol L. Fleskes
Carol Fleskes
Program Manager, Toxics
Cleanup Program, Washington
Department of Ecology

STATE OF WASHINGTON
COUNTY OF King } ss.

On this 7th day of October, 1991
before me, the undersigned, a Notary Public in and for the State of Wash-
ington, duly commissioned and sworn, personally appeared Joseph
M. Dunn

and Bruce N. Holliday

to me known to be the President and Assistant Secretary,
respectively, of PACCAR Inc

the corporation that executed the foregoing instrument, and acknowledged
the said instrument to be the free and voluntary act and deed of said corpora-
tion, for the uses and purposes therein mentioned, and on oath stated that
They are authorized to execute the said instrument and that the seal
affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first
above written.

Nancy J. Duehn

[Signature]
Notary Public in and for the State of Washington,

residing at [Signature]

My appointment expires: 12-31-93

EXHIBIT A

DODDS ENGINEERS, INC.
BELLEVUE, WA 98007

PACCAR
DEI Project No. 85123
May 8, 1986
Revised November 30, 1987
Revised June 13, 1991

PARCEL A

All those portions of the south half of Section 8, Township 23 North, Range 5 East, W.M., in the City of Renton, King County, Washington, and of Renton Farm Acreage, as recorded in Volume 12 of Plats, page 37, records of said county, including vacated streets and avenues as would attach by operation of law, and of Car Works Addition to the City of Renton, as recorded in Volume 15 of Plats, page 47, records of said county, including vacated streets, avenues, and alleys as would attach by operation of law, described as follows:

Commencing at the east quarter corner of said Section 8, from which point the northeast corner of said section bears N01°02'09"E; thence N89°27'25"W, along the north line of said south half, 2647.56 feet to an existing center of section monument; thence S01°02'40"W, along the north-south center of section line of said Section 8, a distance of 60.00 feet to the southerly margin of North 8th Street, said point being on the south line of the north 30.00 feet of Block 1 of said Renton Farm Acreage, and the TRUE POINT OF BEGINNING; thence N89°27'25"W, along the south line of the north 30.00 feet of said Block 1 and its westerly prolongation, 986.13 feet to a point on the west line of Block 2 of said plat; thence S01°05'34"W, along said west line and its southerly prolongation, 1235.01 feet to the southwest corner of Block 5 of said plat, said point being on the easterly margin of Garden Avenue North; thence S01°05'34"W, along said easterly margin, 1099.75 feet to the northwest corner of Lot 1, Block 4, of aforesaid Car Works Addition to the City of Renton; thence S89°23'14"E, along the north line of said Lot 1 and its easterly prolongation 119.00 feet to the northwest corner of Lot 10 of said Block 4; thence S01°05'51"W, along the west line of Lots 6, 7, 8, 9, and 10 of said Block 4; a distance of 226.95 feet to the southerly line of said Block 4; thence S89°23'14"E, along the southerly line of said Block 4 and its easterly prolongation, 869.30 feet to a point on the north-south center of section line of said Section 8; thence S89°23'14"E, along the south line of Block 13 and its easterly prolongation (if any) of said plat, 248.21 feet to the westerly margin of vacated Houser Way North (a.k.a. Railroad Avenue); thence N23°50'20"E, along the westerly margin of said vacated Houser Way North, 414.23 feet to a point of tangency with a 789.02 foot radius circular curve to the left; thence northerly along said curve and said westerly margin through a central angle of 22°50'00" an arc distance of 314.44 feet to a point of tangency;

85123A-PARCEL - 1
Printed - 06/13/1991

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EXHIBIT A

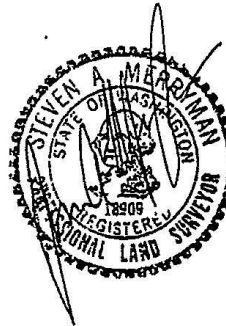
DODDS ENGINEERS, INC.
BELLEVUE, WA 98007

PACCAR
DEI Project No. 85123
May 8, 1986
Revised November 30, 1987
Revised June 13, 1991
Page 2 of 2

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thence N01°00'20"E, along said westerly margin 1621.58 feet to a point of tangency with a 543.69 foot radius circular curve to the left; thence northerly, along said curve and said westerly margin, through a central angle of 00°07'54", an arc distance of 1.25 feet to a point on the southwesterly margin of the Burlington Northern Railroad right-of-way, said point being on a 691.78 foot radius circular curve to the left, from which point the center bears S39°27'38"W; thence northwesterly, along said curve and said margin, through a central angle of 08°27'46", an arc distance of 102.18 feet; thence continuing along said margin N59°00'08"W 151.23 feet to a point of tangency with a 757.01 foot radius circular curve to the right; thence northwesterly, along said curve and said margin, through a central angle of 14°46'33", an arc distance of 195.22 feet to the south line of the north 60.00 feet of the south half of said Section 8; thence N89°27'25"W, along said south line, 98.96 feet to the TRUE POINT OF BEGINNING.

Containing approximately 3,596,945 square feet or 82.5745 acres, more or less.



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Printed - 06/17/1991

EXHIBIT A

DODDS ENGINEERS, INC.
BELLEVUE, WA 98007

PACCAR
DEI Project No. 85123
May 8, 1986

PARCEL A-1

All that portion of the south half of Section 8, Township 23 North, Range 5 East, W.M., in the City of Renton, King County, Washington, described as follows:

Commencing at the east quarter corner of said Section 8, from which the northeast corner of said section bears N01°02'09"E; thence N89°27'25"W, along the north line of said south half, 2647.56 feet to an existing center of section monument; thence S01°02'40"W, along the north-south center of section line of said Section 8, a distance of 60.00 feet to the southerly margin of North 8th Street, said point being on the south line of the north 60.00 feet of said south half; thence S89°27'25"E, along said south line, 187.07 feet to a point on the northeasterly margin of the Burlington Northern Railroad right-of-way and the TRUE POINT OF BEGINNING; thence continuing S89°27'25"E, along said south line, 225.49 feet to a point on the westerly margin of Houser Way North (aka Railroad Avenue); thence S18°00'40"E, along said westerly margin, 82.32 feet to a point of tangency with a 543.68 foot radius curcular curve to the right; thence southerly, along said curve and said westerly margin, through a central angle of 09°49'26", an arc distance of 93.22 feet to a point on the northeasterly margin of said railroad right-of-way; thence N57°49'50"W, along said northeasterly margin, 321.37 feet to the TRUE POINT OF BEGINNING.

Containing approximately 19,452 square feet or 0.4465 acres more or less.

85123LEG-3

6.5 Photo log

Photo 1: Soil capped southern portion – looking south



Photo 2: Soil capped southern portion – looking west



Photo 3: Soil capped southern portion w/ some asphalt – northern portion visible



Photo 4: Soil capped southern portion w/ some asphalt – looking east

