

SITE HAZARD ASSESSMENT
WORKSHEET 1
Summary Score Sheet

SITE INFORMATION:

Bear Mart Auto Sales
One East 1st Ave
Kennewick, WA 99336

Current Owners: Joey Land, UST is in City of Kennewick Right of Way
Benton Co Parcel ID: 106802040008018
Section/Township/Range: 6/8N/30E
Latitude: 46.20779
Longitude: -119.11605
Ecology Facility Site ID #: 6411794
Cleanup Site ID#: 7700
LUST Release ID: 3129

Site scored/ranked for the August 2014, Hazardous Sites List

Background

This site hazard assessment was conducted by Jim Coleman, Environmental Health Specialist with the Benton-Franklin Health District (BFHD). Mr. Coleman reviewed documentation from the Washington State Department of Ecology (Ecology). Only one cleanup report existed on the site even though there was a reference that other work had been performed and documented in a separate report. Mr. Coleman was able to obtain a copy of the missing report from Jonathan B. Britton, RSM Risk Management/Safety Coordinator at the City of Kennewick (“City”). Neither cleanup report had much historical information regarding the site so Mr. Coleman spoke with the previous owner of the property and also researched previous businesses located at the property by using the Polk Street Directory.

Mr. Coleman spoke with the previous owner of the property, Barry Blondheim, on two separate occasions in January and February 2014. Mr. Blondheim said the tank was discovered because a power pole in the alley north of his business was leaning into the building. The City was called and when they came to repair the power pole they discovered an underground storage tank (UST). He said he was unaware that there was a tank present as it was covered with asphalt. Mr. Blondheim ran the Bear Mart Auto Dealership from 1987 to 2012. He said that he was unaware of what the previous businesses had been at the site but he knew that other car dealerships had been present. One of the dealerships had a car showroom that was to the west of where the current building stands. He said that that building was later used as a video rental store that burned down.

The first record of a business occupying the site was in 1961. The following chronology was obtained from the Polk Street Directory:

Prior to 1961 Unknown
1961-1974 Sandvig Motors (Auto Sales)

1975-79 Vacant
1979-1980 Shared Lot-Trader Pat Imports and American Body Work
1980-1984 Subaru Auto Dealership
1984-1987 Cascade Auto Body and Paint Auto Dealer (Video Store?)
1987-2012 Bear Mart Auto Sales
2012-present J&R Auto (Auto Sales)

Site Sampling

In the spring of 1992, the City hired Chen-Northern, Inc. (Pasco, WA) to perform an underground storage tank (UST) site assessment on a UST found in the City right-of-way (see Figures 1-3). The ownership of the UST was unclear but it was believed that it belonged to the property to south of where the tank was located. The City accepted responsibility for trying to determine the extent of the problem. Prior to contacting Chen-Northern the City had the contents of the 275-gallon tank analyzed and disposed. The volume of material and the analytical results of the material was not found in reports available to the Washington State Department of Ecology (Ecology). However, one report stated that “The tank contents were analyzed by NHS, Inc. and shown to be a mixture of various compounds and water with the main constituents of concern being naphtha and lead” (2). Historical information regarding previous businesses is lacking from the reports on this site but one report stated, “Reportedly, the tank was originally used for heating fuel but in recent time had become the storage tank for waste paints and thinners.” (1). There is no reference in the text to indicate what the source of this information was.

Chen-Northern hired K. Kaser Construction, Inc. (Kennewick, WA) to remove the UST and some soil surrounding the tank on March 20, 1992. The report indicated that excavation was limited due to the proximity of the building foundations (1). The single-walled bare steel tank was 4 feet long and 3.5 feet in diameter. The estimated volume of tank was 275 gallons. The tank was rusted and pitted but no obvious signs of holes were present. The excavation site was 8' x 6' x 5' (depth) and there were no obvious signs of contaminated soil within the pit. Chen-Northern staff took two soil samples; one directly below the tank at 5 feet below the ground surface (bgs) and another from the north wall at a depth of 3 feet bgs. Soil samples were sent to Huntingdon Laboratories in Billings, Montana and analyzed for Total Petroleum Hydrocarbons (TPH), EPA Method 418.1. The results are shown in Table 1. Both samples exceeded cleanup levels (100 parts per million) at the time. The lab also performed hydrocarbon identification using gas chromatography but the results were inconclusive. However, the lab speculated the chromatographs were very different than that of #2 diesel or mineral spirits (1). The excavated soil was removed and stored on site. No groundwater was encountered during the excavation. Clean fill dirt was added back into the excavation pit. Chen-Northern recommended to the City that Ecology be notified that a release was documented and that further characterization of the site be performed.

Table 1. Soil Sampling from Excavation Pit at Bear Mart Site

Sample Date	Sample Location	Matrix	Test	Result (parts per million)
3/30/1992	North Wall-3'	subsoil	TPH-418.1	990
3/30/1992	Base of Tank (~5 feet)	subsoil	TPH-418.1	520
6/18/1992	5' feet	subsoil	TPH-418.1	3100
6/18/1992	5' feet	subsoil	SW-846, Method 6010 (Lead)	160
6/18/1992	10.5 feet	subsoil	TPH-418.1	220

Current Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses (Selected Items)

	Cleanup Level (parts per million)
Lead	250
Gas	100
Diesel/Heavy Oil	2000

On June 18, 1992, Chen-Northern returned to the site to conduct a limited phase II subsurface assessment. The report stated that the contaminated soil that was excavated previously was still on site and was being aerated to reduce the concentration of the contamination (2). Chen-Northern acquired E.P. Johnson, Inc. to perform excavating activities. The clean fill dirt that was added to the excavation pit in March was removed and stockpiled for later use. A soil sample was taken when native soils were encountered (~5 feet bgs) and was analyzed for TPH and lead. The depth of the excavation was continued to a depth of 10.5 feet and another soil sample was taken and analyzed for TPH. The excavation hole was not expanded horizontally because of the location building foundation and a nearby power pole. Chen-Northern also speculated that if contamination came from the tank that the contaminants would travel vertically due to soil types encountered and lack of ground water at the site (2).

The report indicated that delivery piping was encountered during the excavation and the piping extended under a retaining wall and onto the Bear-Mart Auto Sales property. The delivery piping was not followed as it went under a retaining wall and continued under an asphalt/concrete pad. The analytical results are shown in Table 1 (6/18/92 data). The results indicate that high levels of TPH were encountered directly below the tank with contaminant levels decreasing with depth. However, the TPH level still exceeded the state cleanup level at 10.5 feet - the final depth of excavation. In addition lead was detected at 5 feet bgs. The lead concentration, 160 ppm, does not exceed current cleanup standards (250 ppm). Chen-Northern stated in the final report that "the majority of the contaminated subsoil is believed to have been removed and is currently being aerated to reduce the concentration of the contamination....tank site appears to be suitable for permanent closure." (2) The contaminated soil was moved off site (assumed to be City shop) where it could be aerated prior to disposal. The excavation pit was filled with clean fill soil from off site. No other work at the site was documented.

Site Hazard Assessment

On January 24, 2014 a site hazard assessment (SHA) was performed at the former Bear Mart Auto Sales location by Jim Coleman. The current owner of the property, Joey Land, was also present during the SHA. Mr. Land said he purchased the land from Barry Blondheim in June 2012. He was not familiar with the history of the property nor was he aware of any previous cleanup activity at the site. He did confirm that he had received notification from Ecology that a SHA was being conducted.

The property is located at 1 E 1st Avenue-Benton County Parcel ID 106802040008018 (see Figures 1-2). The site is surrounded by small businesses to the west and light industry to north and east. A few homes are located to the east of the property and a residential area occupies most of the area to the south. Two other SHA sites are located near the property. The GTE SW (Facility ID 1564314) is approximately 900 feet due west and Welches (Facility ID 89931898) site is approximately 1000 feet due north of the property. The Columbia River is 2,700 feet due north of the property and the City has two Ranney Collector Wells feet to the northwest of the site. Ranney wells #4 and #5 are 8,500 and 7,300 feet respectively from the site and these two wells provide 67% of the drinking water for the City (population 76,000). The remaining 33% of Kennewick's drinking water comes from treated Columbia River water. The river intake pump station is located approximately 3,800 feet to the northeast. Ground water at the Welches site (~1000 feet to the north) is 21 feet bgs and another well driller report (Fred Matts well) 1,200 feet to the southeast indicates that groundwater was encountered at 14 feet bgs.

Mr. Coleman was able to locate the approximate location of the excavation site (see Figure 3). He took several photos (see Figure 4) at the site and that concluded the inspection.

SPECIAL CONSIDERATIONS (include limitations in site file data or data which cannot be accommodated in the model, but which are important in evaluating the risk associated with the site, or any other factor(s) over-riding a decision of no further action for the site): Contamination at the site still exists but the type of contamination was not very well characterized. Mineral spirits/white spirits/naphtha was selected as the contaminant for the following reasons (1)the reports indicated paints and paint thinner may have been improperly disposed at the site (2)evidence of auto body painting businesses having occupied the site based on the Polk Directory, (3)analytical results showing lead and petroleum contamination in the soil of the excavation pit and (4) a comment from one of the reports that the UST contained a mixture of water, naphtha and lead.

Mineral spirits/white spirits/naphtha is a mixture of saturated aliphatic and alicyclic C₇-C₁₂ hydrocarbons with a content of 15-20% (by weight) of aromatic C₇-C₁₂ hydrocarbons and a boiling range of 130-230°C. The C₉-C₁₁ hydrocarbons (aliphatics, alicyclics and aromatics) are most abundant, constituting ≥ 80% (by weight) of the total (9, Appendix II). Benzene, toluene, ethylbenzene, and xylene will be used to score the site.

ROUTE SCORES:

Surface Water/Human Health:	<u>NS</u>	Surface Water/Environmental.:	<u>NS</u>
Air/Human Health:	<u>NS</u>	Air/Environmental:	<u>NS</u>
Groundwater/Human Health:	<u>59.2 =>5</u>		

OVERALL RANK: 2

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE – NOT SCORED.** No data or direct observation exists to support that contaminants were released into surface water near the site. The site is covered primarily with asphalt and pavement.

2. **AIR ROUTE – NOT SCORED.** The site is covered primarily with asphalt and pavement.

3. **GROUNDWATER ROUTE**
 - a. List those substances to be considered for scoring: Source: 1-2,9
Benzene, Toluene, Ethylbenzene, Xylene

 - b. Explain basis for choice of substance(s) to be used in scoring:
The final cleanup report documented a TPH level of 220 ppms at the bottom of the excavation pit. No other analytical work was performed to further characterize the contaminant. One report indicated that the contents of the UST contained naphtha and also indicated the paint thinners were presumed to be in the tank.

 - c. List those management units to be considered for scoring: Source: 2-4
Subsurface soil/groundwater.

 - d. Explain basis for choice of unit to be used in scoring:
Contaminants were detected in soil from the bottom of the excavation pit.

WORKSHEET 6
Groundwater Route

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity										
Substance	Drinking Water Standard (µg/L)	Value	Acute Toxicity (mg/ kg-bw)	Value	Chronic Toxicity (mg/kg/day)	Value	Carcinogenicity		Value	
							WOE	PF*		
1 Benzene	5	8	3306	3	ND	-	A=1	.029	5	
2 Ethylbenzene	700	4	3500	5	0.1	1	ND	ND	-	
3 Toluene	2000	2	5000	3	0.2	1	ND	ND	-	
4 Xylenes	10,000	2	50	10	2	1	ND	ND	-	

* Potency Factor

Source: 1,2,3

Highest Value: 10
(Max = 10)

Plus 2 Bonus Points? 2
Final Toxicity Value: 12
(Max = 12)

1.2 Mobility (use numbers to refer to above listed substances)	
Cations/Anions	OR Solubility (mg/L)
1=	1= $1.8 \times 10^3 = 3$
2=	2= $1.5 \times 10^2 = 2$
3=	3= $5.4 \times 10^2 = 2$
4=	4= $2.0 \times 10^2 = 2$

Source: 1,2,3

Value: 3
(Max = 3)

1.3 Substance Quantity:	
Explain basis: The exact quantity of the spill cannot be determined and Table GW-7A was used as the basis to determine substance quantity. Based on evidence that the spill may have been relatively small in nature the investigator estimated that the amount of contaminated soil to be <10 cubic yards.	Source: 1,2,4 Value: 1 (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	Containment (explain basis): Spill that has been capped. Scored as a landfill with cover but no liner or leachate collection system.	1,2,4	8 (Max = 10)
2.2	Net precipitation: 5" – 3.4" = 1.6"	5	1 (Max = 5)
2.3	Subsurface hydraulic conductivity: Sandy-Gravel	1,2,4	4 (Max = 4)
2.4	Vertical depth to groundwater: ~14-21 feet	7	8 (Max = 8)

3.0 TARGETS¹

		Source	Value
3.1	Groundwater usage:	4	4 (Max = 10)
3.2	Distance to nearest drinking water well: 7,300	6,7	1 (Max = 5)
3.3	Population served within 2 miles: >10,000 City of Kennewick Ranney Wells	6,7	100 (Max = 100)
3.4	Area irrigated by (groundwater) wells within 2 miles: 2744 acres = 0.75(52)=39	4,6	39 (Max = 50)

4.0 RELEASE

		Source	Value
	Explain basis for scoring a release to groundwater: No groundwater was encountered during excavation at the site.	1,2	0 (Max = 5)

SOURCES USED IN SCORING

1. Report of Underground Storage Tank Site Assessment, Chen-Northern, Inc, May 1992.
2. Proposal for Limited Phase II Subsurface Investigation, Bear-Mart Auto Sales, Gerald Harper, Chen-Northern, May 28, 1992.
3. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992
4. Washington State Department of Ecology, WARM Scoring Manual, April 1992.
5. Washington Climate – Net Rainfall Table
6. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.
7. Washington State Department of Ecology Well Log Viewer
<https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap/default.aspx>
8. Washington Department of Health, Sentry Internet Database printout for public water supplies.
9. United Nations Environment Programme, World Health Organization, Environmental Health Criteria 187, <http://www.inchem.org/documents/ehc/ehc/ehc187.htm>

Appendix I: Figures

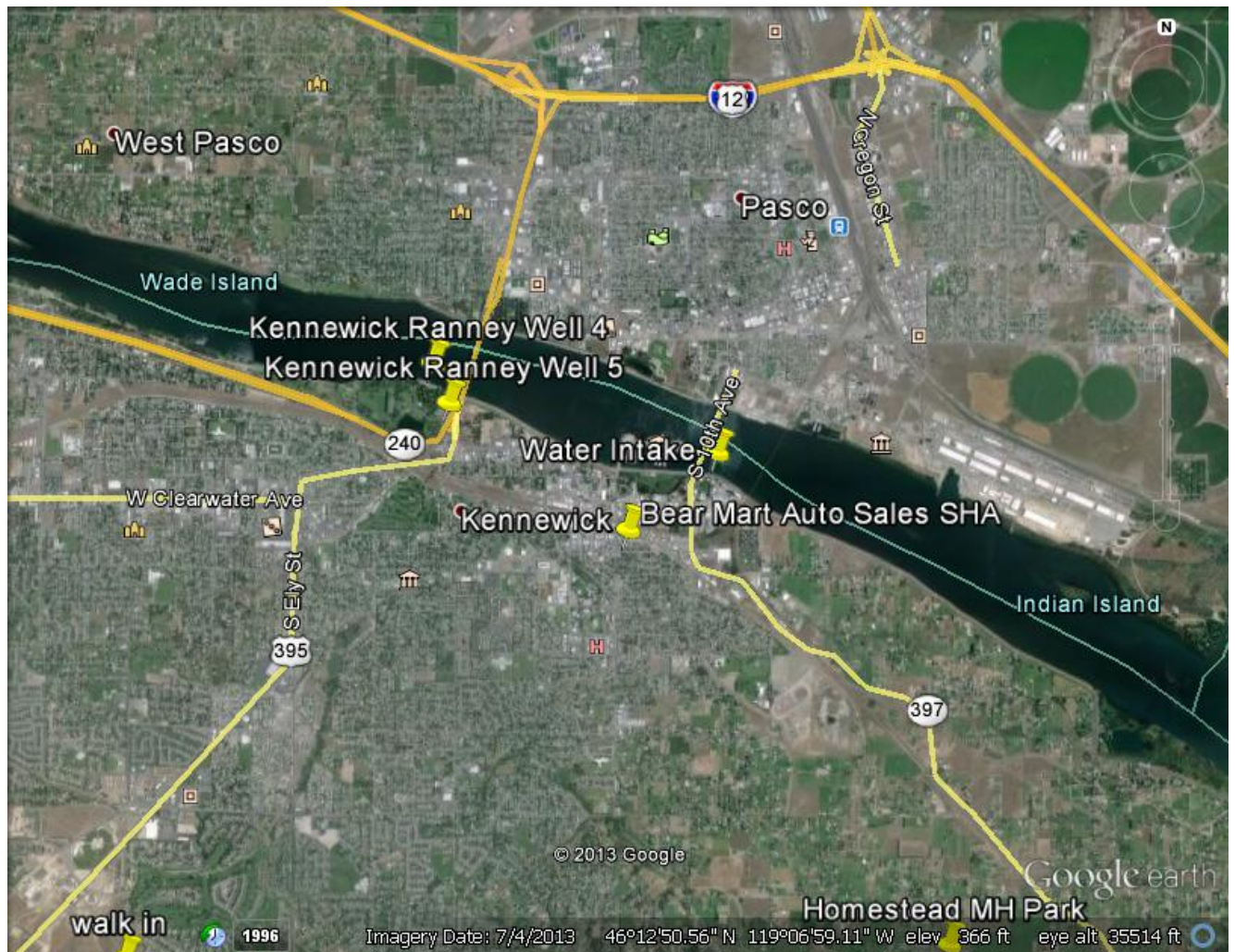


Figure 1. Aerial Map of City of Kennewick Showing Bear Mart Auto Sales Site and City of Kennewick Ranney Wells and Water Intake.

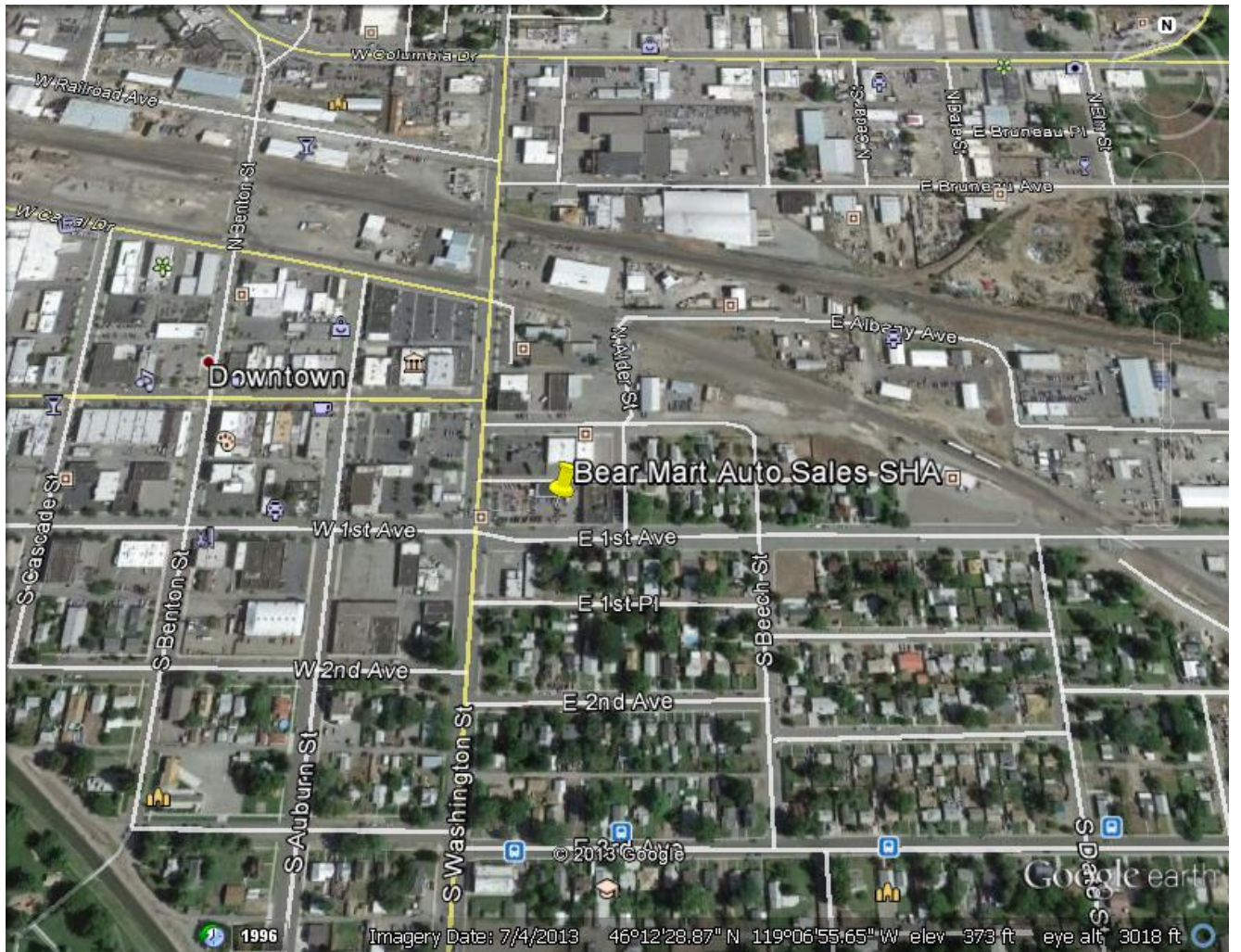


Figure 2. Aerial Close-up of Area Surrounding Bear Mart Auto Sales

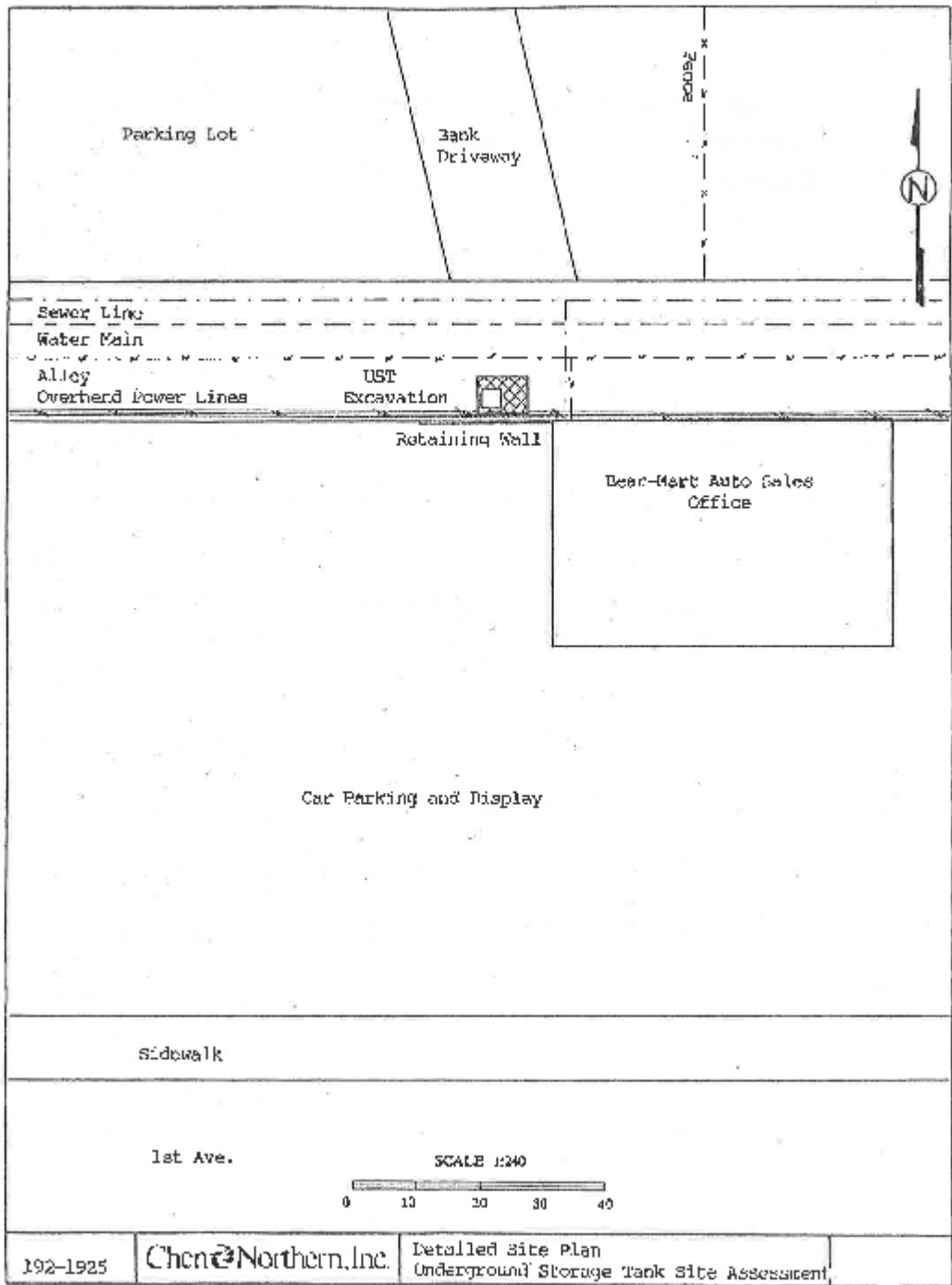


Figure 3. Site Map Showing Underground Storage Tank Excavation Area.



Figure 4. Photos Taken During Site Hazard Assessment. Top Photo-Looking to South. Bottom Left-Looking to East. Bottom Right-Looking to West.

Appendix II

1.1 Properties of white spirit White spirit is a clear colourless solvent with very low water solubility and a characteristic odour (odour threshold: 0.5-5 mg/m³). The most common variety of white spirit is a mixture of saturated aliphatic and alicyclic C₇-C₁₂ hydrocarbons with a content of 15-20% (by weight) of aromatic C₇-C₁₂ hydrocarbons and a boiling range of 130-230°C. The C₉-C₁₁ hydrocarbons (aliphatics, alicyclics and aromatics) are most abundant, constituting ≥ 80% (by weight) of the total. This ordinary white spirit is designated *white spirit, type 1, regular grade*, as three different types and three different grades exist. The type refers to whether the solvent has been subjected to hydrodesulfurization (removal of sulfur) alone (type 1), solvent extraction (type 2) or hydrogenation (type 3). The hydrodesulfurized type contains less than 25% aromatic hydrocarbons, the solvent-extracted less than 5%, and the hydrogenated less than 1%. Each type comprises three different grades: low flash grade (flash point: 21-30°C; initial boiling point: 130-144°C), regular grade (flash point: 31-54°C; initial boiling point: 145-174°C), and high flash grade (flash point: ≥ 55°C; initial boiling point: 175-200°C). The grade is determined by the crude oil used as the starting material and the conditions of distillation. Type 0 white spirit is defined as a distillation fraction with no further treatment, consisting predominantly of saturated C₉-C₁₂ hydrocarbons with a boiling range of 140-220°C. The low flash grade possesses the highest vapour pressure of approximately 1.4 kPa (10.5 mmHg) at 20°C. A USA variety of type 1 is called Stoddard solvent and is a petroleum distillate defined according to its boiling range of 149-204°C and the absence of rancid or objectionable odours.

**WASHINGTON RANKING METHOD
ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET**

Site name: Bear Mart Auto Sales Region: Central

Street, city, county: One East 1st Ave, Kennewick, Benton

Ecology Facility Site ID: 6411794

This site was (X) ranked, () re-ranked, for the August 2014, Site Register update, based on the August 2008 quintile update values from a total of 1126 assessed/scored sites.

<u>Pathway</u>	<u>Route Score(s)</u>	<u>Quintile Group number(s)</u>	<u>Priority scores:</u>
SW-HH	_____	_____	$\frac{H^2 + 2M + L}{8} = \frac{(5)^2 + 2(0) + 0}{8} = 3.125$ rounds up to 4
Air-HH	_____	_____	
GW-HH	<u>59.2</u>	<u>5</u>	
SW-En	_____	_____	$\frac{H^2 + 2L}{7} =$ _____
Air-En	_____	_____	

	Human Health	Environment					
		5	4	3	2	1	N/A
Use the matrix presented to the right, along with the two priority scores, to determine the site ranking. N/A refers to where there is no applicable pathway (e.g. typically with ground water route-only sites).	5	1	1	1	1	1	1
	4	1	2	2	2	3	2
	3	1	2	3	4	4	3
	2	2	3	4	4	5	3
	1	2	3	4	5	5	5
	N/A	3	4	5	5	5	NFA

DRAFT / FINAL

Matrix ("bin") Ranking: 2

CONFIDENCE LEVEL: The relative position of this site within this bin is:
 _____ almost into the next higher bin.
 _____ right in the middle, unlikely to ever change.
 X almost into the next lower bin.

SUBSTANCE CHARACTERISTICS

Toxicity	12
Mobility	3
Substance Quantity	1
Containment	8

MIGRATION

Net Precipitation	1
Hydraulic Conductivity	4
Depth to Ground Water	8

TARGETS

Aquifer Usage	4
Nearest Well Distance	1
Population Served	100
Area Irrigated	39

RELEASE 0

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GW ROUTE SCORE 59.2

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SCORE SUMMARY 0

Surface Water Human Health	0.0
Air Human Health	0.0
Ground Water Human Health	59.2

Surface Water Environment	0.0
Air Environment	0.0