SITE HAZARD ASSESSMENT

WORKSHEET 1

Summary Score Sheet

SITE INFORMATION:
Welch's Kennewick/J Lieb Foods Inc
10 East Bruneau
Kennewick, WA 99336

Parcel ID: 1-0680-203-0001-022
Section/Township/Range: 6/8N/30E
Latitude: N46.21048
Longitude: W119.11620
Ecology Facility Site ID No.: 89931898
Cleanup Site ID: 3710

Site scored/ranked for the August 2013 update

Background
In early August 2006 PBS Engineering and Environmental was conducting some exploratory work at the Welch's Food plant in Kennewick, Washington to address concerns regarding some oil contaminated soil on site. The focus of the work was in area south of the main office and east of the boiler building (see Figure 3). The boiler was heated with oil that was stored in a 50,000 gallon underground storage tank (UST). The boiler fuel was switched over natural gas at some point and the oil was used as a backup fuel source. Preliminary work at the site indicated that the UST may have been leaking oil. PBS hired a contractor to take bore hole samples at various locations around the UST and the fuel lines (Figure 3). The bore hole samples were analyzed for contaminants. The borehole depths ranged from 17 feet to 21 feet below the ground surface (bgs) and groundwater was encountered at approximately 21 feet bgs. Soil in the boreholes was described as gravel with sand.

One bore hole (B4) was found to contain diesel contamination and groundwater obtained from bore holes (B4 and B7) was also contaminated with diesel and heavy oil at levels above Model Toxics Control Act (MTCA), Method A Cleanup Levels for groundwater. PBS continued exploratory excavations along the distribution line of the UST tank as well as around the tank itself but these excavations did not reveal any leakage. However, excavations farther to the east of the UST (near boreholes 6 and 7) did uncover oil contaminated soil starting at approximately 14 feet bgs and continuing to the groundwater level at 21 feet bgs. At this time old site maps revealed that at one time two, 12,000 gallon USTs were located just west of boiler building. No records were ever found that documented when the USTs were removed but it is believed they were removed in late 1970's or early 1980's. The USTs stored bunker oil that was used as fuel for the boiler. PBS continued with a large-scale excavation of the contaminated UST basin. Soil samples were taken as excavation was occurring and samples were also taken around the perimeter of the hole (see Table 1). The goal of the excavation was to remove all of the contaminated soil above the groundwater. According to the report "*contaminated soil from below the waste table was left due to the ineffectiveness of attempt to remediate the soil and*

groundwater by excavation" (2). A total of 516 cubic yards of contaminated soil was removed from the site and disposed at the Rabanco landfill in Klickitat County Washington (2).

Timeline of Actions Since Initial Cleanup

9/13/06-Recognition (Early Notice Letter) from Ecology that site has been listed and that Welch's can proceed with independent cleanup.

7/25/07 Welch's enters into an Agreed Order (DE 4781) to conduct remedial investigation/feasibility study to address problems (and should lead to a cleanup plan)-J. Lieb Foods named as a PLP.

9/26/07-Specifcs of Agreed Order are listed

10/2007-50,000 gallon UST Decommissioning Report. The 50,000 gallon tank and its piping were dug up, observed, sampling was performed, removed, and more sampling performed. Bottom-line: no evidence of leakage from large tank or its lines. Groundwater not encountered during excavation. Soil samples collected from around the base and sidewalls-soil samples also taken from soil stockpiles. Plastic covering on exterior of UST was still in place, no evidence of leaking, some slight rusting. Tank excavation was backfilled with clean onsite AND offsite soil. Material removed from tank is described as Bunker C oil. Proper decommissioning paperwork was filled out and submitted to Ecology and signed 10/11/07 (actual removal date was 9/21/07).

1/2008-Groundwater monitoring at wells #1-#3 (see Figure 4) was initiated and continued until 12/2008 (see Table 2 for results). Gap between first monitoring event and second monitoring event was 6 months. No detection of Diesel, BETX, or PAHs/Naphthalene.

4/2008-Remdial Investigation (as part of Agreed Order) was completed. Report was essentially a summary of excavations at the site. The report proposed that monitoring wells continue to be monitored for groundwater contamination and groundwater flow.

12/2008-Focused Feasibility Study completed by PBS Engineering and Environmental. The remedial action that was selected was long-term monitoring.

9/2010-Under Department of Ecology (Ecology) oversight, a new groundwater monitoring well (MW#4) was completed. Ecology held the belief that the three current monitoring wells were not detecting any oil contamination because the rate of travel in the smear zone was slow due to viscosity and poor solubility of Bunker oil in water (personal communication with PBS staff). The fourth well was placed closer to (and down gradient) the original site of soil contamination (see Figure 4)

12/2011- Four consecutive quarters of groundwater monitoring was completed (see Table 3). All levels of BTEX, DX and Motor Oil less than MTCA, Method A Cleanup Levels for groundwater. Wells 1 and 4 had PAHs detected but at levels less than cleanup.

4/2012-PBS on behalf of Welch's and J. Lieb Foods requested a No Further Action (NFA) to be granted for the site. At the time of this report, no NFA has been granted by Ecology.

Site Hazard Assessment

James Coleman, Environmental Health Specialist II, with the Benton-Franklin County Health District (BFHD) conducted a site hazard assessment on June 28, 2013. Accompanying Mr. Coleman during the site visit was Dana Ertel, Project Manager for PBS, and Jack West, Plant Manager for J. Lieb Foods. Mr. Ertel informed Mr. Coleman that Paul Danielson performed most of the work at the site for PBS but has since retired. Mr. Ertel became in involved at the site in the later stages of the groundwater sampling at the site and has recently been working with the potentially liable persons to get the site listed as a "No Further Action". Jack West was not employed with J. Lieb Foods during the period when the excavation and tank removal was performed.

The Welch's Kennewick/J. Lieb Foods site is located at 10 East Bruneau in Kennewick, WA (Benton County Parcel ID=106802030001022). The site is located in an area zoned for industrial commercial use and is located approximately 0.2 mile northeast of downtown Kennewick (see Figure 1). To the south of the property are railroad tracks and Washington Street is to the east of the site (see Figure 2). East Bruneau Avenue is to the north and the west end of the property abuts with another property owner. The site was initially used for agricultural purposes. Starting in the mid-1920's the Church Bottling Company starting using the property to produce fruit juice. In 1953, Welch's Juice Company purchased the property and continued to produce juice until 2007 when the business was sold to the current owner, J. Lieb Foods (4).

Access to the plant is controlled and courtyard where the USTs were excavated is surrounded by a high chain link security fence (see Figure 6). There is a small mobile home park 665 feet to the northwest and a larger residential area 850 feet to the southeast. The Columbia River is located approximately 1,700 feet to the north. A pond under the influence of the Columbia River is located slightly closer at ~1,400 feet to the north. A cement-lined irrigation canal is located approximately 2,000 feet to the southeast.

There is a deep (548 feet) groundwater well at the site that was installed in 1981 and is used for juice production at the plant (see Figures 2, 4, and 5). Mr. Coleman was informed by Vicki Muller, at J. Lieb Foods, that the water used for juice production is tested annually for a battery of potential chemical contaminants which included benzene, toluene, ethylbenzene, xylene (BTEX). She provided the water test results for 2012 and no BTEX was detected. The well is in a confined aquifer and will **not** be used as the "nearest well" in scoring the site.

The City of Kennewick has two Ranney Collector Wells approximately 6,000 feet to the northwest. These two wells provide 67% of the drinking water for the City of Kennewick (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 3,400 feet to the northeast of the Welch's site.

The inspection party toured the area where the UST's were excavated (see Figure 6). The site is covered with compact soil and gravel and is relatively flat with a slight downward slope running west to east. All four current groundwater monitoring wells were located.

Pathway Information

The **Surface Water Pathway** is not likely a significant route of potential exposure at this site, nor is the **Air Pathway**, due to the entirely subsurface nature of any possible remaining contamination.

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): Groundwater monitoring at the site currently shows little or no contamination. However, field observations during exaction at the site indicated that contaminants were still in the smear zone.

ROUTE SCORES:

Surface Water/Human Health:	**NS**	Surface Water/Environmental.:	**NS**
Air/Human Health:	**NS**	Air/Environmental:	**NS**
Groundwater/Human Health:	**29.5**		

OVERALL RANK: 5

WORKSHEET 2
Route Documentation

1. **SURFACE WATER ROUTE – NOT SCORED.**
   a. List those substances to be considered for scoring:

      Source:

   b. Explain basis for choice of substance(s) to be used in scoring.

   c. List those management units to be considered for scoring: Source

   d. Explain basis for choice of unit to be used in scoring:

2. **AIR ROUTE – NOT SCORED**
   a. List those substances to be considered for scoring: Source:

   b. Explain basis for choice of substance(s) to be used in scoring:

   c. List those management units to be considered for scoring: Source:

   d. Explain basis for choice of unit to be used in scoring:

3. **GROUNDWATER ROUTE**
   a. List those substances to be considered for scoring: Source: 1-3
      TPH-Diesel
      TPH-Other (Heavy/Bunker Oil)
   b. Explain basis for choice of substance(s) to be used in scoring: Source: 1-3
      Substances found in soil and groundwater at site.
   c. List those management units to be considered for scoring: Source: 1-3
      Subsurface soil/groundwater.
   d. Explain basis for choice of unit to be used in scoring: Source: 1-3
      Substances found in soil and groundwater at site.

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*	
4	TPH-diesel	160	4	490 (rat)	5	0.004 (RfD)	3	ND	ND	-
5	TPH-Other (Heavy/Bunker Oil)	ND	-	ND	-	0.040 (RfD)	1	ND	ND	-

* *Potency Factor*

Source: 2, 5,7,8

Highest Value: 5
(Max = 10)

Plus 2 Bonus Points? 0

Final Toxicity Value: 5
(Max = 12)

1.2 Mobility (use numbers to refer to above listed substances)

Solubility	
TPH-diesel 30.0 mg/L	3
Heavy Oil 6.6E-03 to 1.5E-11	3

Source:7-8

Value: 3
(Max = 3)

1.3 Substance Quantity:

Explain basis: The volume of oil released into soil is unknown. In August 2006, PBS estimated that 225 cubic yards of oil may exist in the smear zone beneath the USTs. PBS later suggested that amount was an overestimate but did not provide new estimate. >100-1000 cubic yards will be used as the range.	Source:5-6 **Value: 3** (Max=10)

2.0 MIGRATION POTENTIAL

		Source	Value
2.1	**Containment (explain basis):** Contaminated site has been covered with compacted soil. No leachate collection system.	2,8	**9** (Max = 10)
2.2	**Net precipitation:** 5" – 3.4" = 1.6"	9	**1** (Max = 5)
2.3	**Subsurface hydraulic conductivity:** sands/gravels	1,5,8	**4** (Max = 4)
2.4	**Vertical depth to groundwater:** 21 feet bgs	1,5	**8** (Max = 8)

3.0 TARGETS

		Source	Value
3.1	**Groundwater usage:** Public supply, unthreatened alts. avail.	10,11	**4** (Max = 10)
3.2	**Distance to nearest drinking water well: >5,000-10,000** City of Kennewick, Ranney Well #5	10,11	**1** (Max = 5)
3.3	**Population served within 2 miles:** >10,000 City of Kennewick Ranney Wells	10,11	**100** (Max = 100)
3.4	**Area irrigated by (groundwater) wells within 2 miles:** 2728 Acres=(0.75)(52)=40	11	**40** (Max = 50)

4.0 RELEASE

	Source	Value
Explain basis for scoring a release to groundwater: Observation by PBS staff and detection of diesel/heavy oil in groundwater monitoring wells.	3,6	**5** (Max = 5)

SOURCES USED IN THIS REPORT

1. Limited Underground Storage Tank (UST) Assessment, PCBs Inspection and Well Water Review At Welch's Food, 10 East Bruneau, Kennewick, WA, Paul E. Danielson, PBS Engineering and Environmental, August 16, 2006.

2. Soil Remedial Action Report at the Location of Former Underground Storage Tanks (USTs), 10 East Bruneau, Kennewick, WA, Paul E. Danielson, PBS Engineering and Environmental, August 24, 2006

3. Limited Underground Storage Tank Site Assessment/Decommissioning Report, Paul E. Danielson, PBS Engineering and Environmental, October 2007.

4. Remedial Investigation, Former Welch's Facility, Paul E. Danielson, PBS Engineering and Environmental, April 2008.

5. Focused Feasibility Study, Paul E. Danielson, PBS Engineering and Environmental, December 2008.

6. Letter to Norm Peck from Dana B. Ertel (PBS Engineering and Environmental) regarding Former Welch's Site Agreed Order#FS89931898, April 16, 2012.

7. Washington State Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.

8. Washington State Department of Ecology, WARM Scoring Manual, April 1992.

9. Washington Climate – Net Rainfall Table

10. Washington State Department of Ecology, Water Rights Application System (WRATS) printout for two-mile radius of site.

11. Annual Drinking Water Quality Report (2012), City of Kennewick, WA.

WASHINGTON RANKING METHOD
ROUTE SCORES SUMMARY AND RANKING CALCULATION SHEET

Site name: Welch's Kennewick/J. Lieb Region: Central

Street, city, county: 10 East Bruneau, Kennewick, Benton County

Ecology Facility Site ID: 89931898

This site was (X) ranked, ( ) re-ranked, for the August 2013, Site Register update, based on the December 2011 quintile update values from a total of 918 assessed/scored sites.

Pathway	Route Score(s)	Quintile Group number(s)	Priority scores:
SW-HH	_____	_____	$\frac{H^2 + 2M + L}{8}$ =[(2)^2+2(0)+0]/8=0.5 rnds to 1 _____
Air-HH	_____	_____	
GW-HH	29.5	2	
SW-En	_____	_____	$\frac{H^2 + 2L}{7}$ = _____
Air-En	_____	_____	

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).

Human Health	Environment 5	4	3	2	1	N/A
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: 5

CONFIDENCE LEVEL: The relative position of this site within this bin is:

_____almost into the next higher bin.
__X__right in the middle, unlikely to ever change.
_____almost into the next lower bin.

SCORE SUMMARY

Surface Water Human Health
Air Human Health
Ground Water Human Health

Surface Water Environment
Air Environment

HUMAN HEALTH PRIORITY:

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three route scores for human health.

High:
Medium:
Low:

Human Health Priority:

ENVIRONMENTAL PRIORITY:

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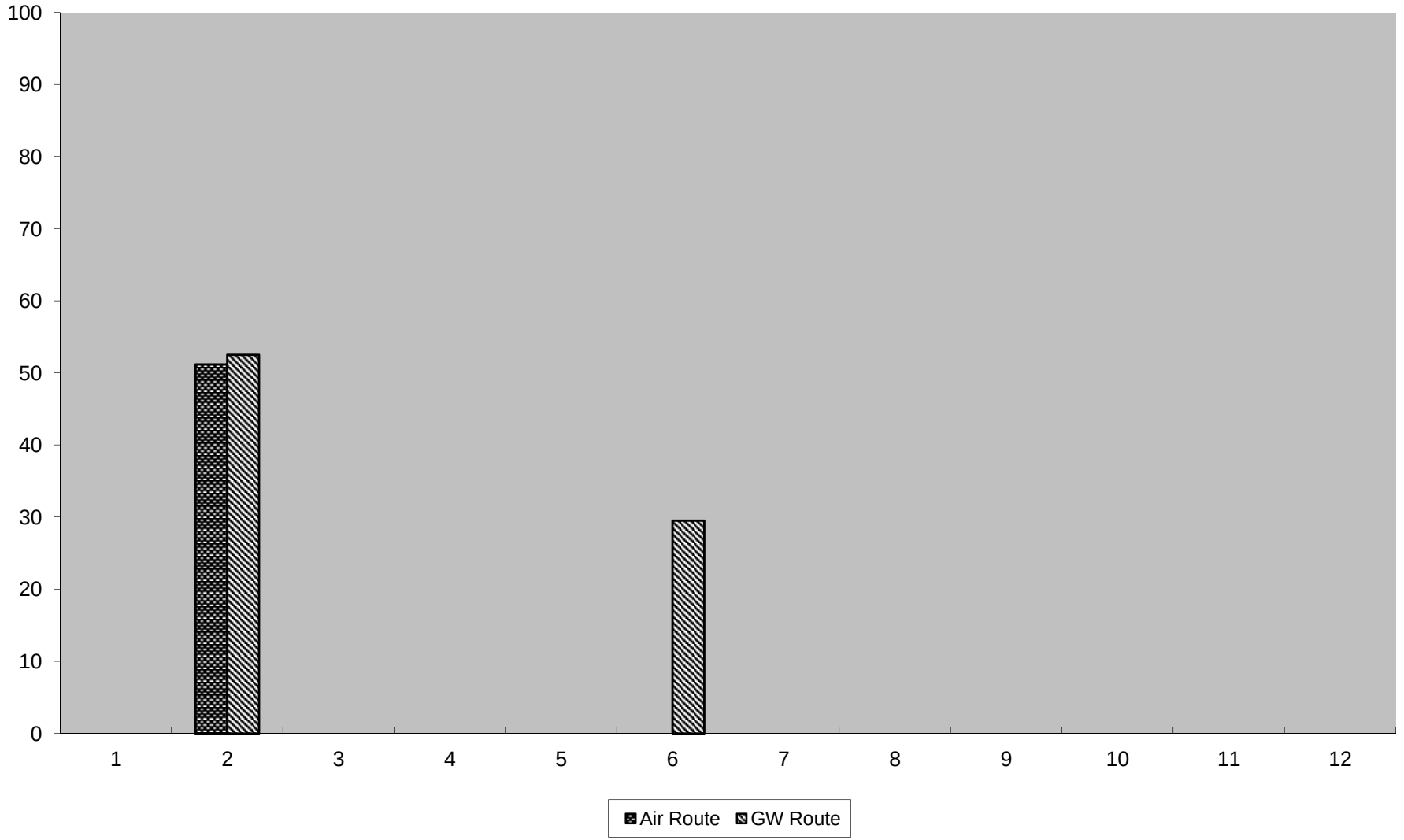
surface water routes for environment.

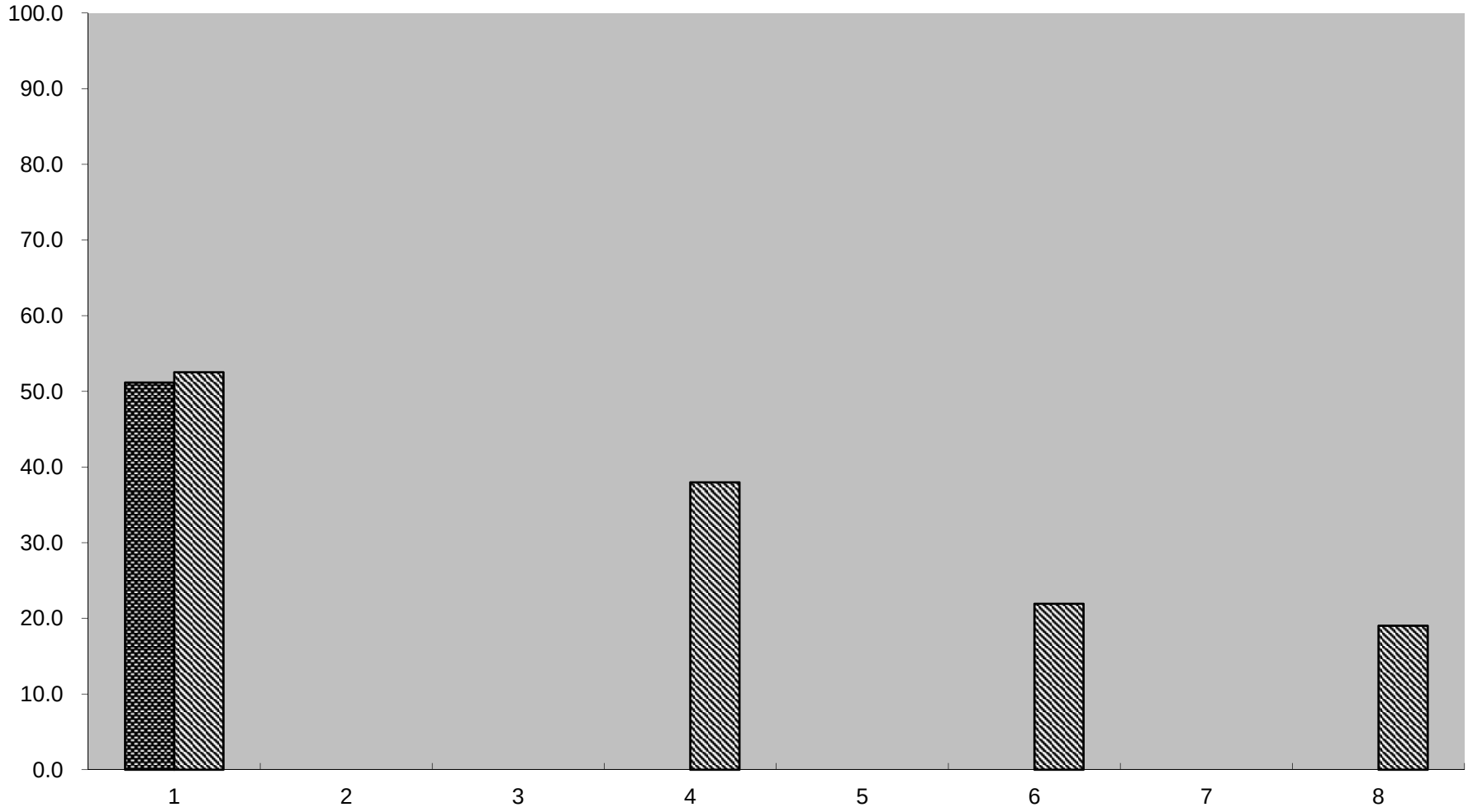
High:
Low:

Environmental Priority:

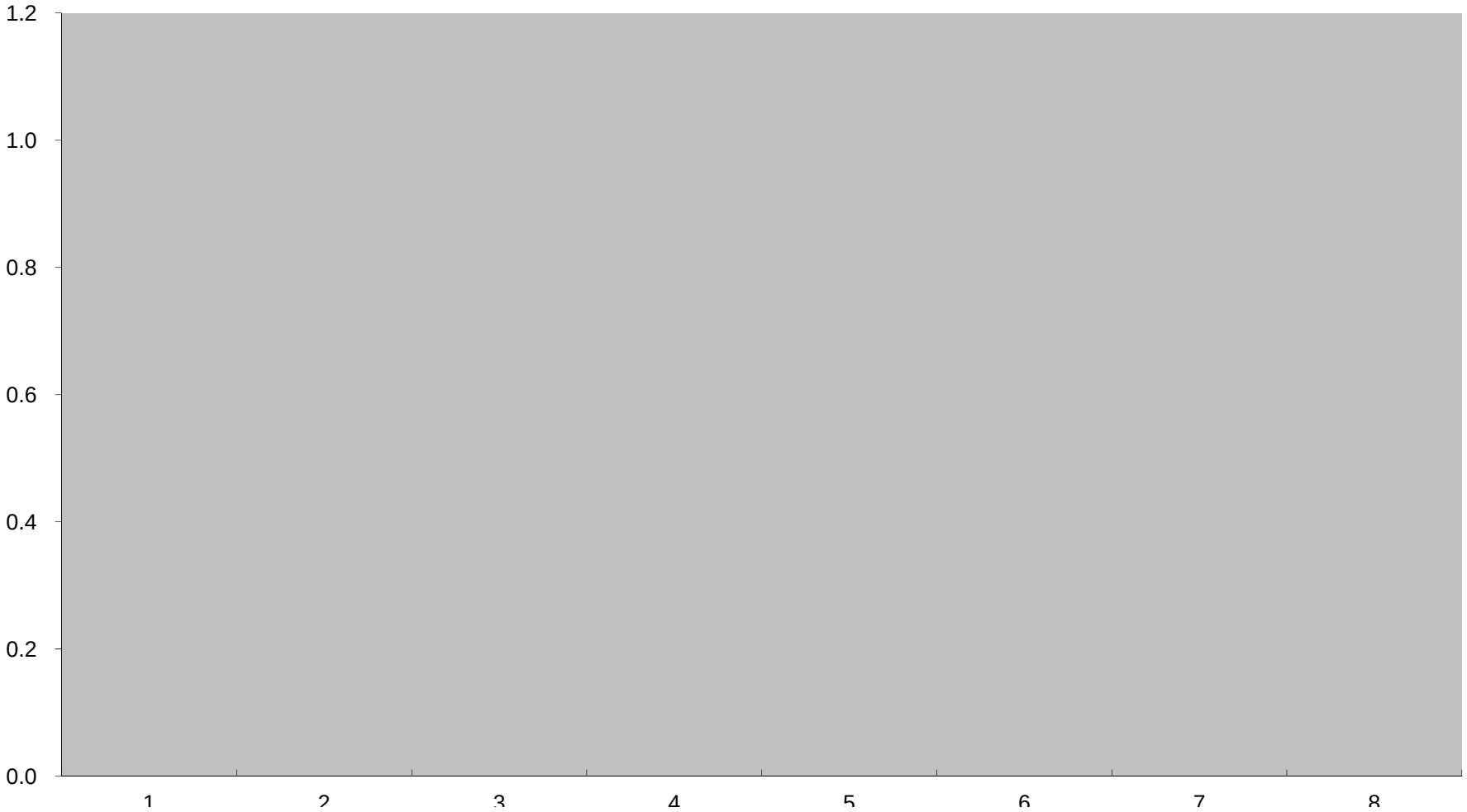
ROUTE SCORES FOR HIGH, MEDIUM AND LOW VALUES OF TARGETS



ROUTE SCORES FOR HIGH, MEDIUM AND LOW
VALUES OF MIGRATION FACTORS



SCORE FOR ADDITIVE (1) VS.
MULTIPLICATIVE (2) ALGORITHMS



Appendix II: Tables

TABLE 1
ANALYTICAL RESULTS

Sample Number	Sample Location	Diesel/Oil Results	BTEX	Pb/Cd/Cr	TOX
61405.00-1	Excavation 33W/39S/-21'	All ND	NA	NA	NA
61405.00-2	Excavation 31W/48S/-20'	All ND	NA	NA	NA
61405.00-3	Excavation 23W/31S/-20'	All ND	NA	NA	NA
61405.00-4	Excavation 23W/58S/-19'	All ND	NA	NA	NA
61405.00-5	Excavation 8W/66S/-17'	All ND	NA	NA	NA
61405.00-6	Excavation 5W/57S/-19'	62/ND	NA	NA	NA
61405.00-7	Excavation 6W/45S/-18'	420/1100	NA	NA	NA
61405.00-8	Contaminated Stockpile	**8900/12000**	All ND	9.31/<1/2.58	<5
61405.00-9	Contaminated Stockpile	NA	NA	NA	NA
61405.00-10	Contaminated Stockpile	**8300/11000**	ND/ND/ND/0.6	20.6/<1/3.33	<5
61405.00-11	Contaminated Stockpile	NA	NA	NA	NA
61405.00-12	Contaminated Stockpile	1400/**2400**	ND/ND/ND/0.8	5.46/<1/2.6	<5
61405.00-13	Clean Stockpile	55/ND	NA	NA	NA
61405.00-14	Clean Stockpile	140/ND	NA	NA	NA
61405.00-15	Clean Stockpile	All ND	NA	NA	NA
61405.00-16	Imported Clean Soil	In Progress	NA	NA	NA
61405.00-17	Imported Clean Soil	In Progress	NA	NA	NA
61405.00-18	Imported Clean Soil	In Progress	NA	NA	NA
Soil Cleanup Levels		2000/2000	0.03/7/6/9	250/2/19	NA

NOTES:
All sample matrix materials are soil.
WDOE – MTCA Method A Cleanup levels for each constituent are indicated in the last line.
Bolded numbers indicate analysis exceeding cleanup levels
All analytical results are in milligrams/kilogram (mg/kg)
ND – Soil sampled and analyzed but constituent not detected.
NA - indicates not applicable or not analyzed.
Excavation sample locations (and depth) are measured (in feet) from the southeast corner of the Welch's Office Building

TABLE #2
Welch Foods RIFS – Four Quarters of Groundwater Monitoring Results 2008 (Summary)

Well Number	Date	Groundwater Depth	Groundwater Elevation	Groundwater Flow Direction	pH	Conductivity (micromhos/cm)	Temperature	Diesel	BETX	PAHs/Naphthylene 8270 SIM
MW #1	1/24/08	21.35'	79.32'	N 4^0 E	7.48	572	18.0 ^{0}C	ND	All ND	All ND
MW #2	1/24/08	20.78'	79.25'	"	7.57	636	17.5 ^{0}C	ND	All ND	All ND
MW #3	1/24/08	20.54'	79.26'	"	7.70	629	17.4 ^{0}C	ND	All ND	All ND
MW #1	6/27/08	20.01'	80.66'	N 47^0 E	7.32	502	19.6 ^{0}C	ND	All ND	All ND
MW #2	6/27/08	19.46'	80.57'	"	7.36	609	20.2 ^{0}C	ND	All ND	All ND
MW #3	6/27/08	19.06'	80.54'	"	7.42	585	20.2 ^{0}C	ND	All ND	All ND
MW #1	9/5/08	19.68'	80.99'	N 11^0 E	7.34	593	19.7 ^{0}C	ND	All ND	All ND
MW #2	9/5/08	19.23'	80.80'	"	7.33	602	20.0 ^{0}C	ND	All ND	All ND
MW #3	9/5/08	18.76'	80.83'	"	7.36	586	21.7 ^{0}C	ND	All ND	All ND
MW #1	12/2/08	19.24'	81.43	N 47^0 E	7.44	536	20.0 ^{0}C	ND	All ND	ND (Pyrene 0.11ug/l)
MW #2	12/2/08	18.72'	81.31	"	7.31	611	19.9 ^{0}C	ND	All ND	All ND
MW #3	12/2/08	18.33'	81.27	"	7.37	601	19.8 ^{0}C	ND	All ND	All ND

Note: The January monitoring was completed for the Remedial Investigation.
Groundwater depth and elevations measurements are in feet.
Groundwater elevation is relative and figured to a temporary BM elevation.
ND = Non-detected above the minimum detection limit.
Temperatures in degrees Centigrade = ^{0}C
Pyrene detected in groundwater as indicated. Method B Reference Standard is 480 ug/l

Table 3. Ground Water Monitoring 2010-2011

9/28/2010- Install MW-4

2010	Date	B	T	E	X	Dx	Motor oil	PAHs	Naphthalene	Detected PAH/concentration
October	10/6/2010									
MW-1		<1	<1	<1	<3	**73x**	**300**	**Detect**	<0.1	.11 benzo(g,h,i)perylene
MW-2		<1	<1	<1	<3	<50	<250	<0.1	<0.1	not a cPAH
MW-3		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-4		<1	<1	<1	<3	**260**	<250	**Detect**	<0.1	.0024 chrysene
										well below 0.1 benzo(a)pyrene
2011										
March	3/1/2011									
MW-1		<1	<1	<1	<3	**66x**	<250	<0.1	<0.1	
MW-2		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-3		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-4		<1	<1	<1	<3	**51x**	<250	<0.1	<0.1	
June	6/20/2011									
MW-1		<1	<1	<1	<3	**52x**	<250	<0.1	<0.1	
MW-2		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-3		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-4		<1	<1	<1	<3	**100x**	<250	**Detect**	<0.1	anthracene, pyrene
										neither a cPAH
November	11/9/2011									
MW-1		<1	<1	<1	<3	**56x**	<250	<0.1	<0.1	
MW-2		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-3		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
MW-4		<1	<1	<1	<3	<50	<250	<0.1	<0.1	
Method A cleanup levels ug/L		5	1000	700	1000	500	500	0.1	160	

Bold = any detection above lab detection limit

x = lab qualifier, the sample chromatographic program does not resemble the fuel standard used for quantitation

Table was obtained from Dana Ertel at PBS Engineering and Environmental and summarizes groundwater monitoring from quarterly reports dated December 1, 2010, April 1, 2011, August 4, 2011, and December 15, 2011.

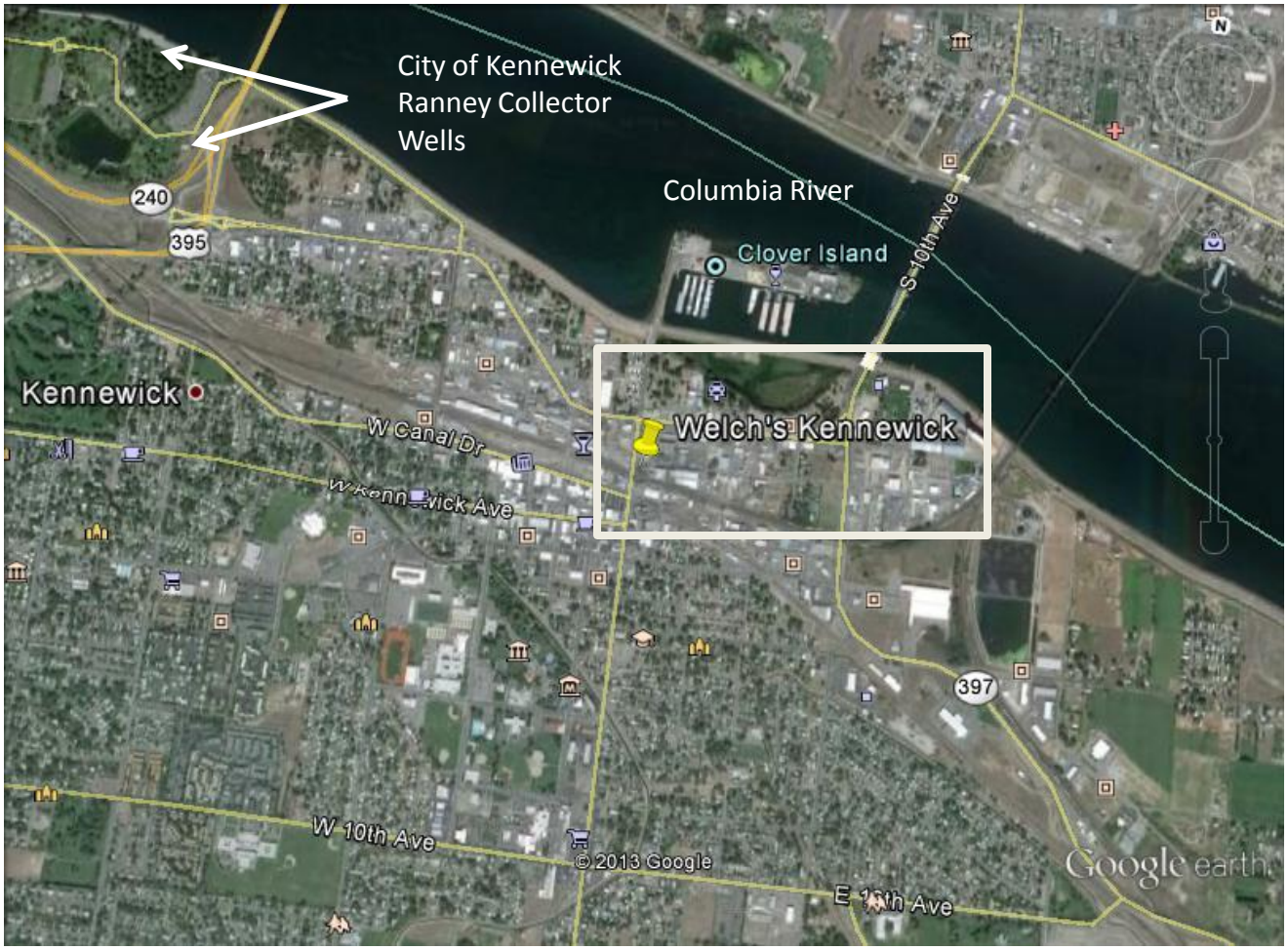


Figure 1. Aerial View of Kennewick, WA.

Figure 2. Aerial Photo (Close-up) of Welch's Kennewick Site

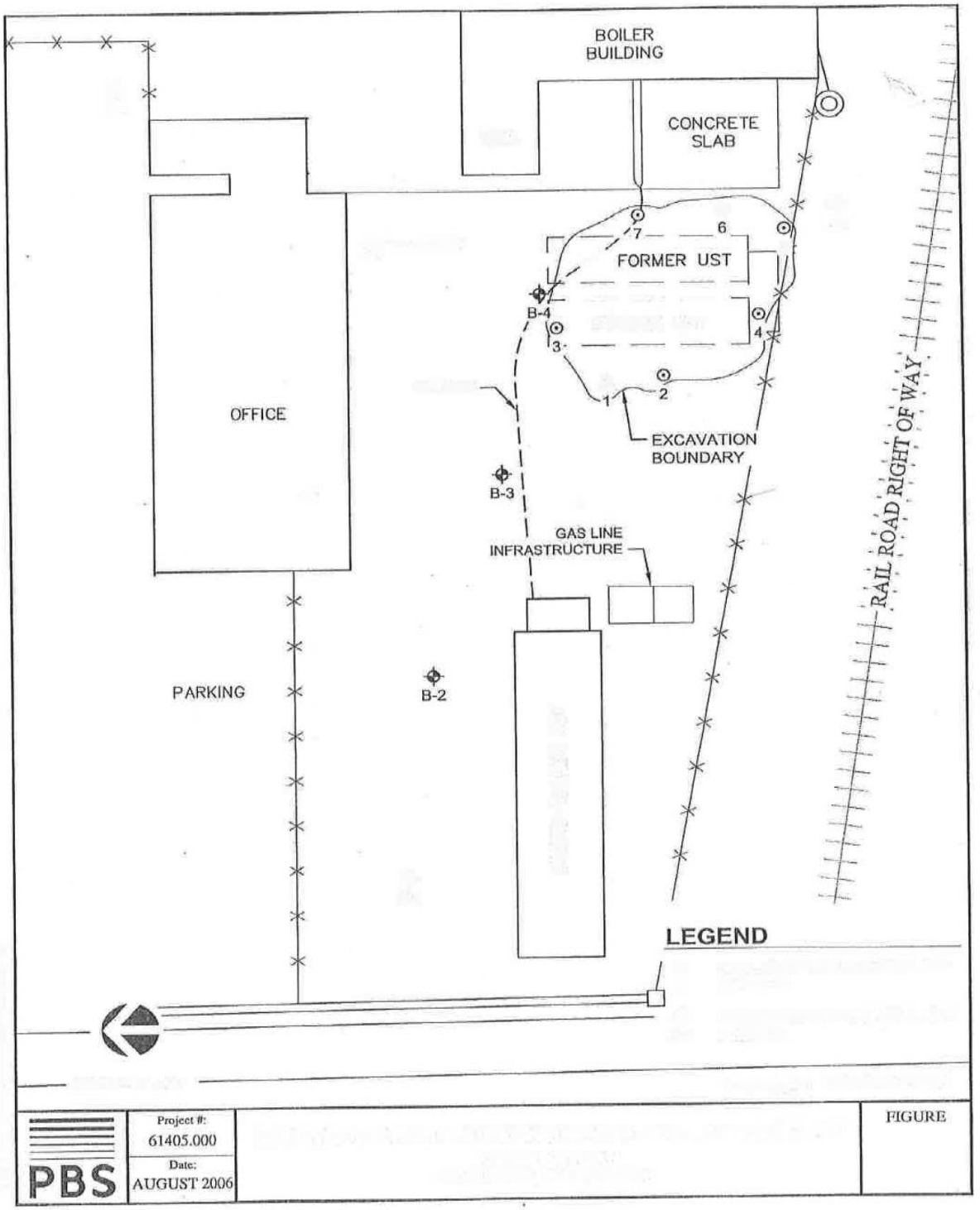


Figure 3. Site map showing location of underground storage tanks, bore holes, and soil sample locations

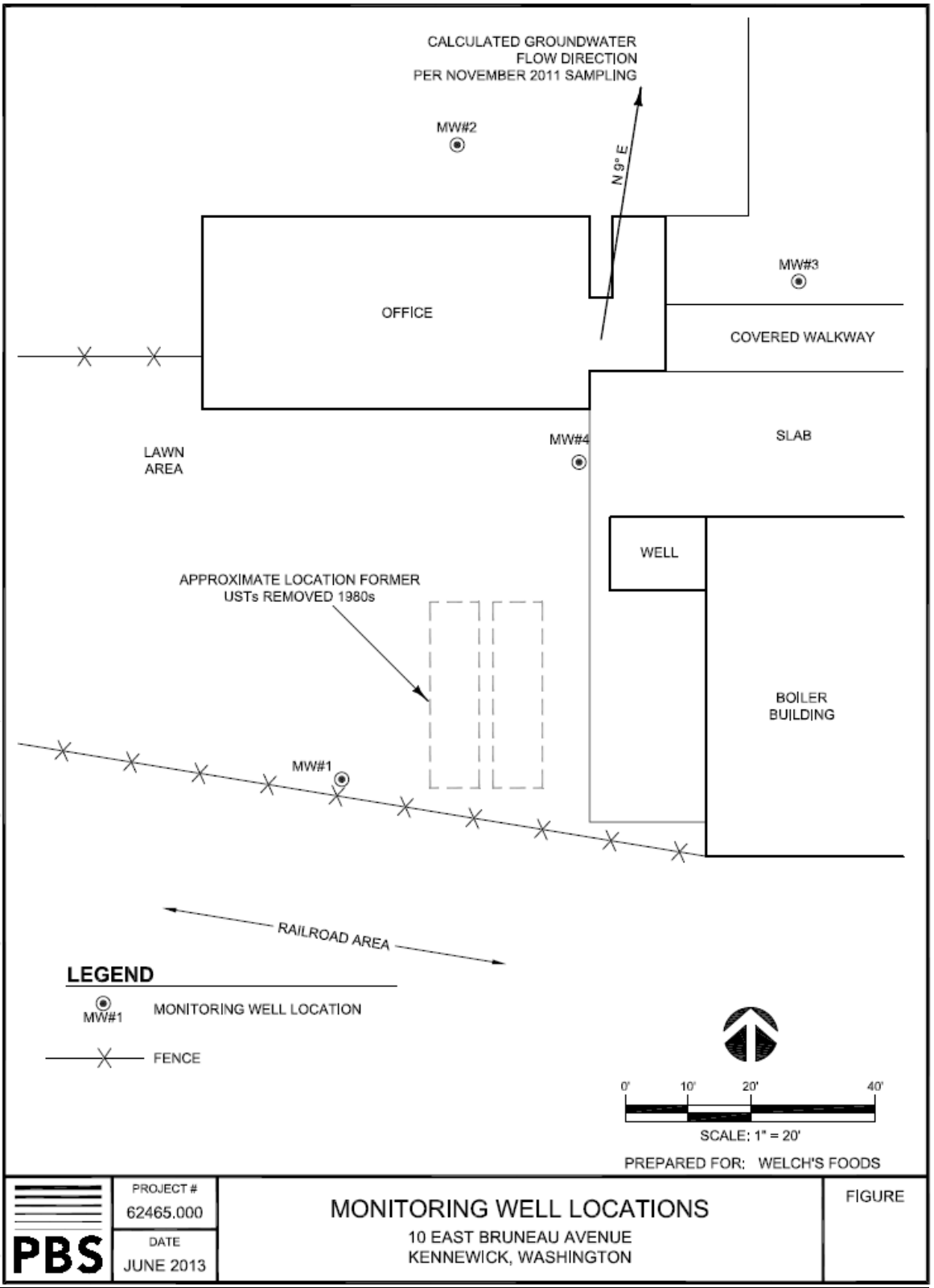
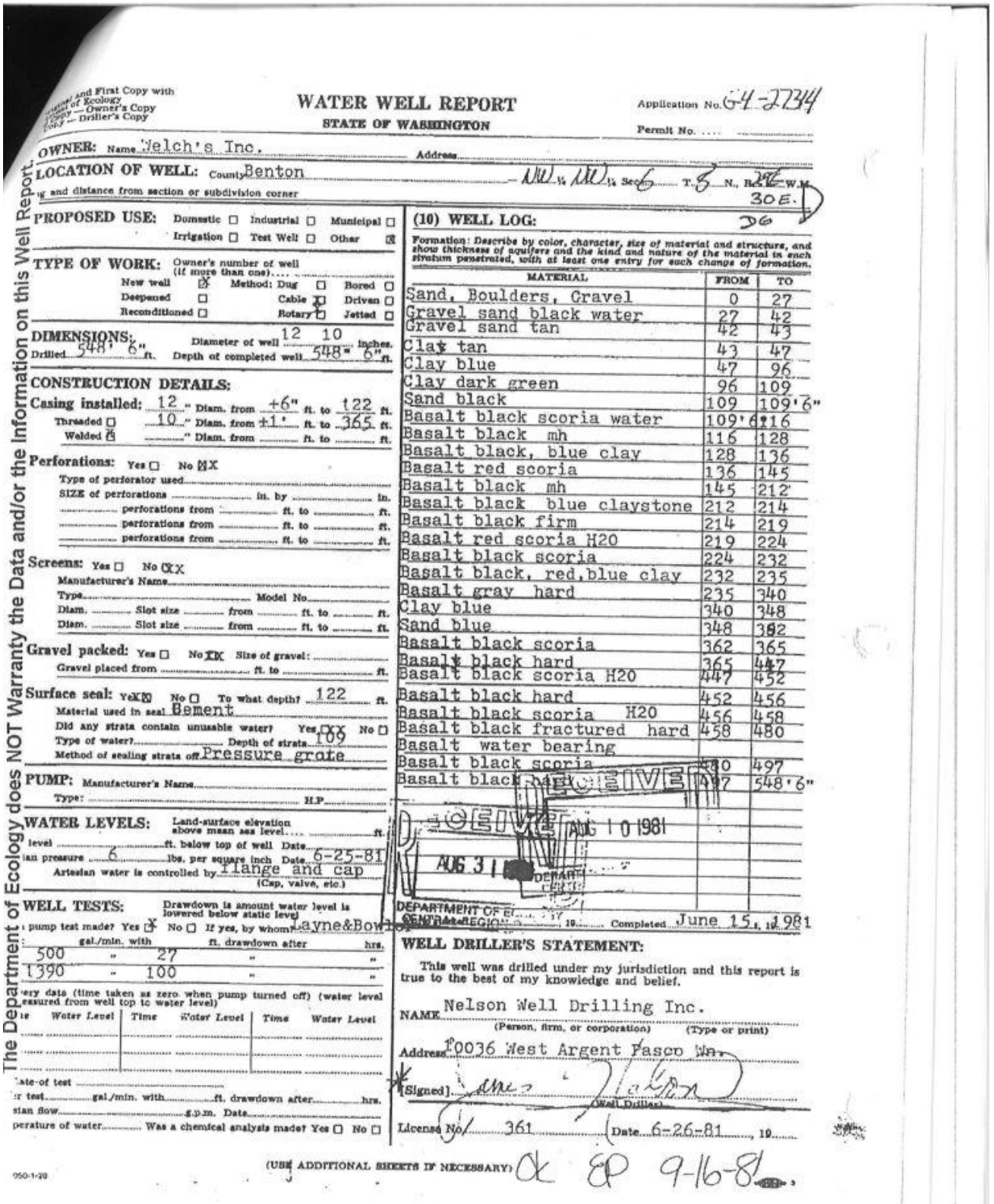


Figure 4. Site map showing location of monitoring wells



WATER WELL REPORT

STATE OF WASHINGTON

Application No. G4-2734

Permit No. ....

Original and First Copy with Department of Ecology
1st Copy — Owner's Copy
2nd Copy — Driller's Copy

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

OWNER: Name Welch's Inc. Address

LOCATION OF WELL: County Benton NW¼ NW¼ Sec. 6 T. 8 N., R. 30 E. W.M.

Bearing and distance from section or subdivision corner

PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☒

TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐

DIMENSIONS: Diameter of well 12 10 inches. Drilled 548' 6" ft. Depth of completed well 548' 6" ft.

CONSTRUCTION DETAILS:

Casing installed: 12" Diam. from +6" ft. to 122 ft.
Threaded ☐ 10" Diam. from +1' ft. to 365 ft.
Welded ☒ ..." Diam. from ... ft. to ... ft.

Perforations: Yes ☐ No ☒X
Type of perforator used
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☒X
Manufacturer's Name
Type ... Model No.
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☒X Size of gravel:
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☒X No ☐ To what depth? 122 ft.
Material used in seal Bement
Did any strata contain unusable water? Yes ☐XX No ☐
Type of water? ... Depth of strata 109
Method of sealing strata off Pressure grote

PUMP: Manufacturer's Name
Type: ... H.P.

WATER LEVELS: Land-surface elevation above mean sea level ... ft.
... level ... ft. below top of well Date
...ian pressure 6 lbs. per square inch Date 6-25-81
Artesian water is controlled by Flange and cap (Cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
... pump test made? Yes ☒ No ☐ If yes, by whom? Layne&Bowler
500 gal./min. with 27 ft. drawdown after ... hrs.
1390 " 100 " " "

...very date (time taken as zero when pump turned off) (water level measured from well top to water level)

...te	Water Level	Time	Water Level	Time	Water Level

...ate of test
...r test ... gal./min. with ... ft. drawdown after ... hrs.
...sian flow ... g.p.m. Date
...perature of water ... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG: D6

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand, Boulders, Gravel	0	27
Gravel sand black water	27	42
Gravel sand tan	42	43
Clay tan	43	47
Clay blue	47	96
Clay dark green	96	109
Sand black	109	109'6"
Basalt black scoria water	109'6"	116
Basalt black mh	116	128
Basalt black, blue clay	128	136
Basalt red scoria	136	145
Basalt black mh	145	212
Basalt black blue claystone	212	214
Basalt black firm	214	219
Basalt red scoria H20	219	224
Basalt black scoria	224	232
Basalt black, red, blue clay	232	235
Basalt gray hard	235	340
Clay blue	340	348
Sand blue	348	362
Basalt black scoria	362	365
Basalt black hard	365	447
Basalt black scoria H20	447	452
Basalt black hard	452	456
Basalt black scoria H20	456	458
Basalt black fractured hard	458	480
Basalt water bearing		
Basalt black scoria	480	497
Basalt black hard	497	548'6"

RECEIVED AUG 10 1981
AUG 31 1981
DEPARTMENT OF ECOLOGY CENTRAL REGION

DEPARTMENT OF E... 19... Completed June 15, 1981

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Nelson Well Drilling Inc.
(Person, firm, or corporation) (Type or print)

Address 10036 West Argent Pasco Wa.

[Signed] ... (Well Driller)

License No. 361 Date 6-26-81, 19...

(USE ADDITIONAL SHEETS IF NECESSARY) ok EP 9-16-81

050-1-20

Figure 5. Well drilling log of on-site groundwater well used in the production of juice.

Figure 6. Photograph of Area Where Underground Storage Tanks Were Removed. (Looking to the West)