

**WORKSHEET 1
SUMMARY SCORE SHEET**

Site Name/Location (Street, City, County, Section/Township/Range, TCP ID Number):

Alexander Farms	Sec 19/T09N/R24E
179101/179301 W. King Tull Road	Ecology Facility Site ID: 23975611
Near Prosser, Benton county, WA 99350	

Latitude: 46° 14' 37"	Site scored/ranked for 08/27/02 update
Longitude: 119° 52' 10"	

Site Description (Include management areas, substances of concern, and quantities):

The Alexander Farms site, located at 179101 and 179301 West King Tull Road, Grandview, WA, (this is the mailing address, the actual site property is in Benton county) was one of several hop ranches owned and operated by Dan and Harriet Alexander as part of Yakima Chief Ranches. Ranch support activities at this site property from 1974 through 1991 included the use and management of pesticides and herbicides.

From 1974 through 1980, storage, mixing, handling, loading, cleaning, and disposal of pesticides and pesticide application equipment activities occurred at the site on an area of bare soil and gravel located with 15-20 feet of the shallow Alexander residential domestic well.

From 1980 on, these pesticide mixing, loading, handling and cleaning activities occurred on a 24' X 24' concrete pad, again within 15-20 feet of the domestic groundwater well. This pad had a drain that led directly to a drywell. Other related activities still occurred on bare soil: parking of spray rigs that leaked pesticide solution; disposal of contaminated rinsates from the cleaning of the interior of the pesticide spray equipment; and purging of contaminated rinsates from the nozzles of the pesticide spray equipment. From approximately 1980 to 1985, the pesticide Dinoseb was used for a variety of pest control and defoliant uses on hop fields owned and operated by Dan and Harriet Alexander.

On April 15, 1998, the Washington State Department of Ecology (Ecology) Central Regional Office (CRO) received a complaint regarding discolored groundwater from a domestic well located at the site property. Sample results documented that the well contained Dinoseb at a concentration of 290 parts per billion (ppb). The U.S. Environmental Protection Agency (EPA) maximum concentration limit (MCL) for Dinoseb as safe for drinking water is 7 ppb. Additional sampling of on-site yellow-stained soils showed Dinoseb at concentrations of 345 to 425 parts per million (ppm), well above the 1.6 ppm level, as established under the Model Toxics Control Act, Ecology considers protective of groundwater..

The site was listed on Ecology's Confirmed and Suspected Contaminated Sites List (aka Integrated Site Information System or ISIS List) on April 28, 1998, as Alexander Farms, with confirmed contamination of soil and ground water by pesticides (in this case, Dinoseb). Between May and July 1998, White Shield conducted further soil sampling, revealing Dinoseb concentrations as high as 5,300 ppm at a depth of 18 inches below the ground surface, and other surface soil samples as high as 8,600 ppm Dinoseb. Additional sampling of groundwater at the site showed Dinoseb concentrations as high as 56,000 ppb, a state considered to be saturated.

The U.S. EPA has excavated over 12,600 tons of contaminated soil from the site, and there are an estimated 2,000 tons remaining, as well as Dinoseb contaminated groundwater to remediate.

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) overriding a decision of no further action for the site):

Due to the significant contamination documented on-site being primarily subsurface, the surface water and air routes are not applicable for WARM scoring for this site, thus only the ground water route will be scored.

ROUTE SCORES:

Surface Water/Human Health:	<u>NS*</u>	Surface Water/Environ.:	<u>NS</u>
Air/Human Health:	<u>NS</u>	Air/Environmental:	<u>NS</u>
Ground Water/Human Health:	<u>60.4</u>		

OVERALL RANK: 2

*Not scored

WORKSHEET 2
ROUTE DOCUMENTATION

1. SURFACE WATER ROUTE - Not Applicable/Not Scored.

2. AIR ROUTE - Not Applicable/Not Scored.

3. GROUND WATER ROUTE

List those substances to be considered for scoring: Source: 1-3

Dinoseb.

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

Analytical results from on-site soil/groundwater samples have shown concentrations of Dinoseb greater than their respective MTCA cleanup level.

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

Contaminated subsurface soils/groundwater.

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

Spill/discharge of Dinoseb caused contaminated subsurface soils/groundwater.

WORKSHEET 3 (If Required)
SUBSTANCE CHARACTERISTICS WORKSHEET
FOR MULTIPLE UNIT/SUBSTANCE SITES
Combination 1 Combination 2 Combination 3

Unit: Section Not Applicable.

1. SURFACE WATER ROUTE

Substance(s):
 Human Toxicity Value:
 Environ. Toxicity Value:
 Containment Value:
 Rationale:

Surface Water Human
 Subscore: (+3) (+1) = (+3) (+1) = (+3) (+1) =
 () () = () () = () () =

Surface Water Environ.
 Subscore: (+3) (+1) = (+3) (+1) = (+3) (+1) =
 () () = () () = () () =

2. AIR ROUTE

Substance(s):
 Human Toxicity/Mobility
 Value:
 Environ. Toxicity/
 Mobility Value:
 Containment Value:
 Rationale:

Air Human Subscore: (+3) (+1) = (+3) (+1) = (+3) (+1) =
 () () = () () = () () =

Air Environ. Subscore: (+3) (+1) = (+3) (+1) = (+3) (+1) =
 () () = () () = () () =

3. GROUND WATER ROUTE

Substance(s):
 Human Toxicity Value:
 Containment Value:
 Rationale:

Ground Water Subscore: (+3) (+1) = (+3) (+1) = (+3) (+1) =
 () () = () () = () () =

Based on their respective highest scoring toxicity/containment combinations, the following management units will be used for route scoring:

Surface Water -
 Air -
 Ground Water -

**WORKSHEET 4
GROUND WATER ROUTE**

1.0 SUBSTANCE CHARACTERISTICS

1.1 Human Toxicity

Substance	Drinking Water Standard		Acute Toxicity		Chronic Toxicity		Carcinogenicity		
	(ug/l)	Val.	(mg/kg-bw)	Val.	(mg/kg/day)	Val.	WOE	PF*	Val.
1. Dinoseb	7	8	16	10	0.001	5	ND	-	

*Potency Factor

Source: 1-3, 2, 5
Highest Value: 10
(Max.=10)

+2 Bonus Points? No
Final Toxicity Value: 10
(Max.=12)

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

Cations/Anions: _____ Source: 1-3, 5 Value: 1
(Max.=3)

Or

Solubility(mg/l): 1) 5.0E+01 = 1

1.3 Substance Quantity: Unknown, use default value = 1 Source: 6 Value: 1
Explain basis: _____ (Max.=10)

2.0 MIGRATION POTENTIAL

2.1 Containment Source: 1-3, 6 Value: 10
Explain basis: Spill to ground, contaminated soil (Max.=10)

2.2 Net Precipitation: Nov-April = 4.7"-3.7" = 1.0" Source: 7 Value: 1
(Max.=5)

2.3 Subsurf. Hydr. Conduct.: Sands/silts/fine gravels Source: 1-3 Value: 3
(Max.=4)

2.4 Vertical Depth to Ground Water: Obs. Release = 0' Source: 1-3 Value: 8
(Max.=8)

WORKSHEET 6 (CONTINUED)
GROUND WATER ROUTE

3.0 TARGETS

- 3.1 Ground Water Usage: Priv/public supplies, unthr. alts not available
with minimum hookup Source: 8,9 Value: 9
(Max.=10)
- 3.2 Dist. to Nearest Drinking Water Well: <600' Source: 8,9 Value: 5
(Max.=5)
- 3.3 Population Served within 2 Miles: (8875)^{1/2} Source: 8,9 Value: 94
(Max.=100)
- 3.4 Area Irrigated by (Groundwater) Wells
within 2 miles: 0.75 (2137)^{1/2} Source: 8,9 Value: 35
(Max.=50)
- 4.0 RELEASE
Explain basis for scoring a release to ground Source: 1-3 Value: 5
water: Documented by analytical data (Max.=5)

SOURCES USED IN SCORING

1. Groundwater Sampling and Characterization Report, Alexander Farm Site, White Shield Inc., Revised August 31, 2001.
2. Feasibility Study Report, Alexander Farm Site, White Shield, Inc., Revised September 18, 2001.
3. Superior Court Findings of Fact and Conclusions of Law, Craig J. Matheson, Superior Court Judge, April 22, 2002.
4. Site Drive-by, August 15, 2002.
5. Washington Department of Ecology, Toxicology Database for Use in Washington Ranking Method Scoring, January 1992.
6. Washington Department of Ecology, WARM Scoring Manual, April 1992.
7. See attached table identified as Reference 7.
8. U.S. EPA SITEINFO GIS Query for lat./long. of site - attached.
9. Water Rights Application System (WRATS) printout for two-mile radius of site.