Centralia Landfill
Centralia, Washington
Region 10
WAD980836662

Site Exposure Potential

The Centralia Landfill is an active municipal landfill located in the southern part of Centralia, Washington (Figure 1). The City of Centralia has owned and operated the landfill for domestic, commercial, and light industrial solid wastes since 1958. An estimated 45,359 metric tons of refuse per year is deposited at the unlined landfill, including an unknown quantity of hazardous wastes. Hazardous wastes known to be buried at the landfill include PCB-contaminated soils, incinerator ash classified by the State of Washington as extremely hazardous, clarifier sludges, boiler ash, and solvents (CH2M Hill 1987).

An 18-hectare area on the central portion of the 32-hectare landfill is active (E&E 1987). The site is bordered to the south by Salzer Creek, which flows 700 meters into the Chehalis River (E&E 1987). From the site, the Chehalis River flows 112 km to the Pacific Ocean (WDF 1975). The undeveloped portion of the landfill adjacent to Salzer Creek is flat and subject to periodic flooding. Though elevated, the active portion of the landfill is on the 100-year floodplain (E&E 1987).

There are two groundwater aquifers beneath the site: an unconfined water table aquifer and a deeper aquifer. The unconfined aquifer is very shallow, a maximum of four meters below the landfill's surface. Both aquifers are believed to flow to the southwest, toward Salzer Creek and the Chehalis River (E&E 1987).

Possible contaminant migration pathways to NOAA trust resources are leachate flows, surface water runoff, and groundwater discharge to Salzer Creek and the Chehalis River. In addition, contaminated soil and sediment may migrate into the surface waters during flooding.

Site-Related Contamination

The contaminants at the site of concern to NOAA include the trace metals cadmium, chromium, copper, mercury, and zinc, and many tentatively identified organic compounds (TICs) and other unknown substances (E&E 1987).

Both the leachate and groundwater at the site are contaminated with a number of trace metals, the most frequently observed being cadmium, chromium, copper, and zinc. The concentrations of these metals often exceeded AWQC for the protection of freshwater aquatic life. Cadmium and copper were also measured in Salzer Creek in concentrations above AWQC (Table 1) (E&E 1987), but similar levels were observed at stations both upstream and downstream of the landfill. In contrast to the water, the concentrations of trace metals measured in samples of surface soil from the landfill and in sediment samples from Salzer Creek were only slightly elevated compared to uncontaminated natural soils of the United States.

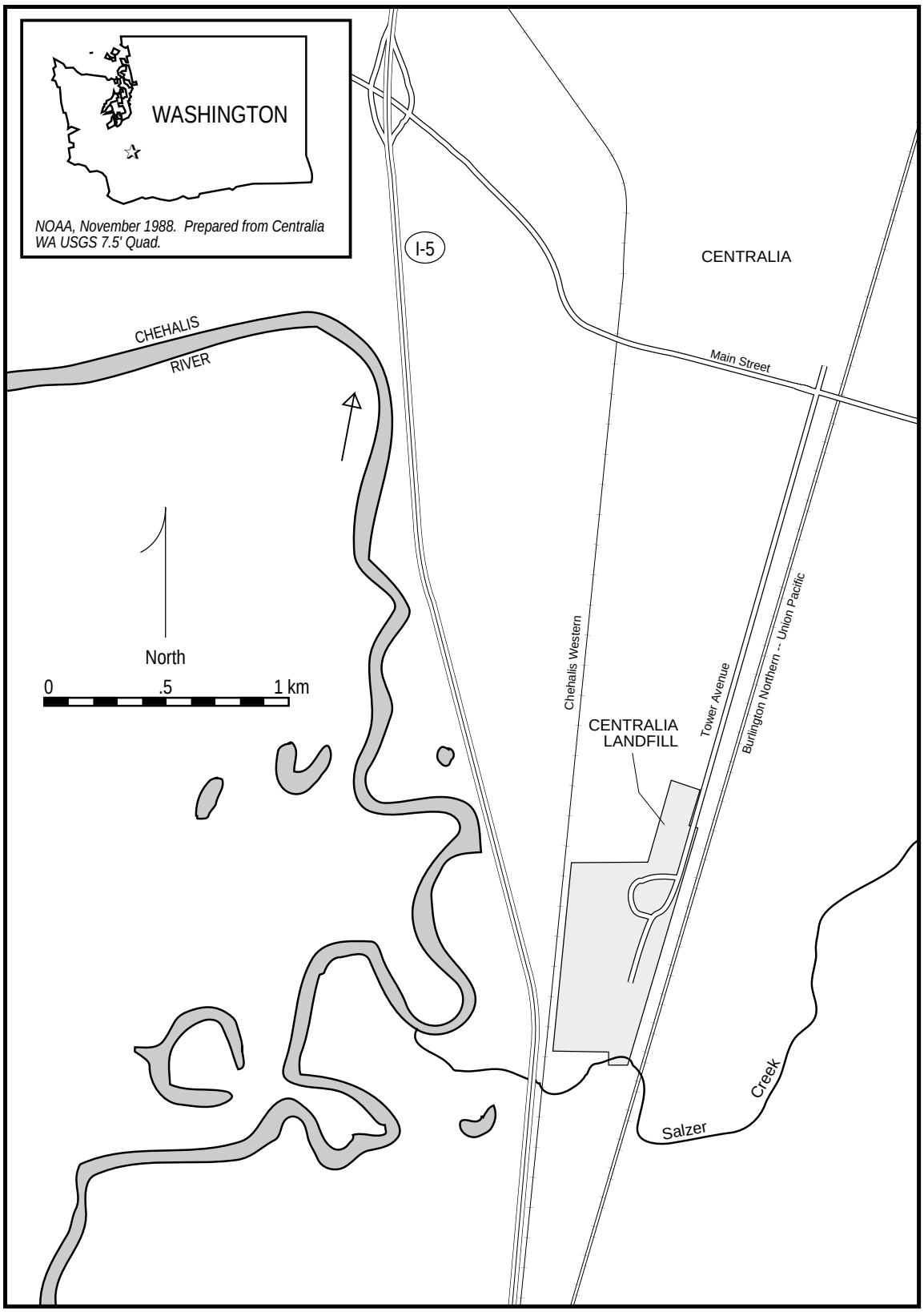

Figure 1. The Centralia Landfill site in Centralia, Washington.

Table 1. Maximum concentrations of selected contaminants at the Centralia Landfill site (E&E 1987); AWQC for the protection of freshwater aquatic life (EPA 1986); concentrations in µg/l.

Contaminant	Ground-water	Leachate	Surface Water (Drainage Ditch)	Salzer Creek (Downstream)	Salzer Creek (Upstream)	AWQC Acute	AWQC Chronic
Trace Metals							
cadmium	<10	18	2	2	3	3.9†	1.1†
chromium	23	146	3	<1	4	16	11
copper	35	95	17	16	14	18†	12†
lead	<20	<1	<1	2	<1	82†	3.2†
mercury	0.03	0.7	N/A	<0.2	<0.2	2.4	0.012
nickel	49	366	68	32	33	1,400†	160†
silver	<10	<4	N/A	<4	<4	4.1†	0.12
zinc	170	6,750	117	60	38	120†	110†
Organic Compounds							
methyl ethyl ketone	N/A	55,000	N/A	N/A	N/A	N/D	N/D
2-hexanone	N/A	9,600	N/A	N/A	N/A	N/D	N/D
benzoic acid	N/A	87,000	N/A	N/A	N/A	N/D	N/D
4-methylphenol	N/A	930	N/A	N/A	N/A	N/D	N/D

† Hardness-dependent (based on 100 mg/l $CaCO_3$); N/A: Not available; N/D: Criteria not determined

NOAA Trust Habitats and Species in Site Vicinity

Salzer Creek and the Chehalis River are the trust habitats near the site. Salzer Creek is a small, slow-flowing stream two to seven meters wide. The creek bottom in the vicinity of the landfill is sand and silt with a few areas of gravel and cobble. The Chehalis River is a continuously flowing, low-gradient river system.

Salzer Creek has limited spawning grounds and nursery habitat for coho salmon (Table 2) (WDF 1975). Adult coho migrate to spawning grounds upstream of the site during November and December. Juvenile coho probably rear in Salzer Creek during the winter, spring, and fall months but use the mainstem Chehalis River during the summer due to lower flow and warm temperatures.

The Chehalis River near the site provides nursery habitat and a migratory corridor for steelhead trout; and fall and spring chinook, coho, and chum salmon. A small number of fall chinook salmon may spawn in this stretch, but most suitable spawning habitat is up- and downstream of the site (Brix 1988). Chinook and coho salmon, and steelhead trout may use the Chehalis River near the site year-round (WDF 1975). Chum salmon use the

Table 2. NOAA trust resource use of Salzer Creek and the Chehalis River in the vicinity of the site (WDW undated a,b; WDF 1975; Ward 1988).

Species	Migration Route	Spawning Ground	Nursery Area	Commercial Fishery	Recreational Fishery
Salzer Creek					
coho salmon	X	X	X		
Chehalis River					
chinook salmon	X	X	X	X	X
coho salmon	X		X	X	X
chum salmon	X		X	X	X
steelhead trout	X		X	X	X

river for shorter periods; adults migrate past the site from mid-October to mid-January, and juveniles begin outmigration soon after emergence during late January to mid-June.

Due to its small size, Salzer Creek does not have significant fisheries, but the Chehalis River supports a large commercial and recreational fishery for adult salmonids (WDW undated a,b; Ward 1988). The Chehalis Indian Tribe commercially harvests salmon and steelhead near Oakville, Washington, 50 km downstream of the site. The Quinault Indian Tribe also harvests salmonids in streams tributary to the lower Chehalis River and near the mouth of the river at Grays Harbor. Recreational fishing takes place along the entire stretch of the river.

Response Category: State Enforcement Lead

Current Stage of Site Action: RI/FS Workplan

State Site Manager

Guy Gregory 206-753-6880

NOAA Coastal Resource Coordinator

Lew Consiglieri 206-442-2101

References

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