8. SUMMARY AND CONCLUSIONS

In July 2000, the START conducted PA/SI sampling activities at the Old Mill Marina site located in Garibaldi, Oregon. The site is currently used as an RV resort and boat marina. Historical operations conducted at the site included wood treatment of marine lumber, plywood mill operations, and a power station.

The PA/SI involved the collection of samples from potentially hazardous substance sources on site and from target areas potentially impacted through contaminant migration. A total of 117 samples were collected for the PA/SI, including background and QA samples. Samples were collected from multiple on-site locations and from the intertidal zone of Miami Cove near the site. Samples were collected from on-site soil, groundwater, dredge spoil sediments and surface water, and Miami Cove surface water and sediments.

8.1 SOURCES

Potential source areas were identified for sampling based on the suspected presence of hazardous substances or contaminants. Potential on-site sources identified during the sampling event include the former mill building; former power station; log pole storage area; former waste dump area; former fuel station; dredge spoils; and office building, pool, restaurant, and railroad area. 2-butanone, methylene chloride, 2-propanone, and carbon disulfide are common laboratory contaminants that could not be conclusively attributed to the site; therefore, these VOCs were not considered in evaluating the site.

Of the soil samples collected from the Old Mill building, the surface soil sample collected from MB01 had the most inorganics and SVOCs detected at significant concentrations. In general, in the subsurface soil samples, the most significant concentrations of inorganics and SVOCs were present between 4 and 5.5 feet bgs in soil boring MB01. When the results were compared to the EPA, Region 9, Preliminary Remedial Goals (PRG; EPA 1999b) for cleanup of residential soils, only the surface soil sample at sample location MB01 exceeded the PRG for benzo(a)pyrene.

Of the soil samples collected from the former power station area, the surface soil sample collected from PS01 contained significant concentrations of one inorganic element and of one SVOC. In general, in the subsurface soil samples, the most significant concentrations of inorganics were present

between 0 and 4 feet bgs in soil boring PS04. The most significant concentrations of VOCs, PCBs, and SVOCs were present between 4 and 8 feet bgs in PS06. The surface soil sample from soil boring PS04 contained a concentration of PCB-1254 that exceeded the PRG; the subsurface sample collected from between 4 and 8 feet bgs in soil boring PS06 contained a concentration of PCB-1260 that exceeded the PRG; and surface and subsurface soil collected from soil boring PS02 contained concentrations of benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene that exceeded PRGs.

The one soil boring in the former log pole storage area indicated that the most significant concentrations of inorganics were present between 4 and 8 feet bgs and the most significant concentrations of SVOCs were present in the surface soil sample.

Of the soil samples collected from the former waste dump area, the surface soil sample collected from WD06 contained the most significant concentrations of SVOCs. In general, the most significant concentrations of inorganics were present between 4 and 8 feet bgs in soil boring WD02.

The one soil boring in the former fuel station area indicated that both the surface soil sample and soil between 4 and 8 feet bgs contain significant concentrations of inorganics.

Arsenic was the only element present at significant levels in the surface soil samples taken from the dredge spoils. The one soil boring from the dredge spoils indicated that the most significant concentrations of inorganics and SVOCs are present between 4 and 8 feet bgs. The subsurface soil sample collected from between 4 and 8 feet bgs in soil boring DS07 contained a concentration of benzo(a)pyrene that exceeded the PRG.

Of the surface soil samples collected at other areas on site, the railroad area contains the most significant inorganics and SVOCs. These elements may be contributed to railroad activity. The surface soil sample collected from RR02 contained concentrations of PCB-1254 that exceeded the PRGs.

8.2 TARGETS

Of the analytes detected at significant concentrations in source samples, 11 SVOCs and six inorganic elements were detected at elevated concentrations in sediment and surface water samples collected from Miami Cove. Sediments collected from sample locations OF03, OF06, OF07, OF08, and OF09 contained concentrations of benzo(a)pyrene that exceeded the PRGs. In addition, the sediment collected from OF06 contained concentrations of benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene that exceeded PRGs.

8.3 CONCLUSIONS

Results of the PA/SI indicate that the Old Mill Marina site is a source of hazardous substance contamination, including VOCs, SVOCs, inorganics, and PCBs. The PA/SI documented that inorganics and SVOCs have been released from the site to Miami Cove. This contamination could potentially impact the sport and commercial fisheries, as well as sensitive environments in the area.