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MEMORANDUM
August 15, 1984

To: Bill Yake

From: Joe Joy

Subject: Eagle Harbor Facilities Tours and Historical Review - Part II: The Washington State Ferries Maintenance Facility

INTRODUCTION

A series of environmental investigations by the Washington State Department of Ecology (WDOE) and the U.S. Environmental Protection Agency (EPA) has been undertaken to discern the extent and source(s) of polynuclear aromatic hydrocarbon (PNA) and phenolics contamination of Eagle Harbor sediments (Joy, 1984). As part of this effort, three commercial facilities were toured by WDOE personnel.

Three commercial facilities were selected by WDOE and EPA staff during an April 2 meeting (Cunningham, 1984). These facilities were thought to be potential sources of PNAs and/or phenolics. The three facilities chosen were (Figure 1):

- The Wyckoff Company - a pole and piling preserving plant
- The Washington State Ferries - a ferry maintenance and repair yard
- Diesel Oil Sales - a diesel storage facility

The Wyckoff Company report, Part I of this report series, was issued on August 9, 1984. The tour findings and historical review for the Washington State Ferries Maintenance Facility is covered in this report (Part II), and the Diesel Oil Sales report (Part III) is in progress.

On April 12, Art Johnson and I accompanied Dave Wright and Craig Baker of the Northwest Regional Office (NWRO) on tours through these three facilities. The purpose of the visits was to review existing and historical operations and waste-disposal practices with facility managers, and to identify any practices which might be contributing to the PNA and phenolics problems in Eagle Harbor.

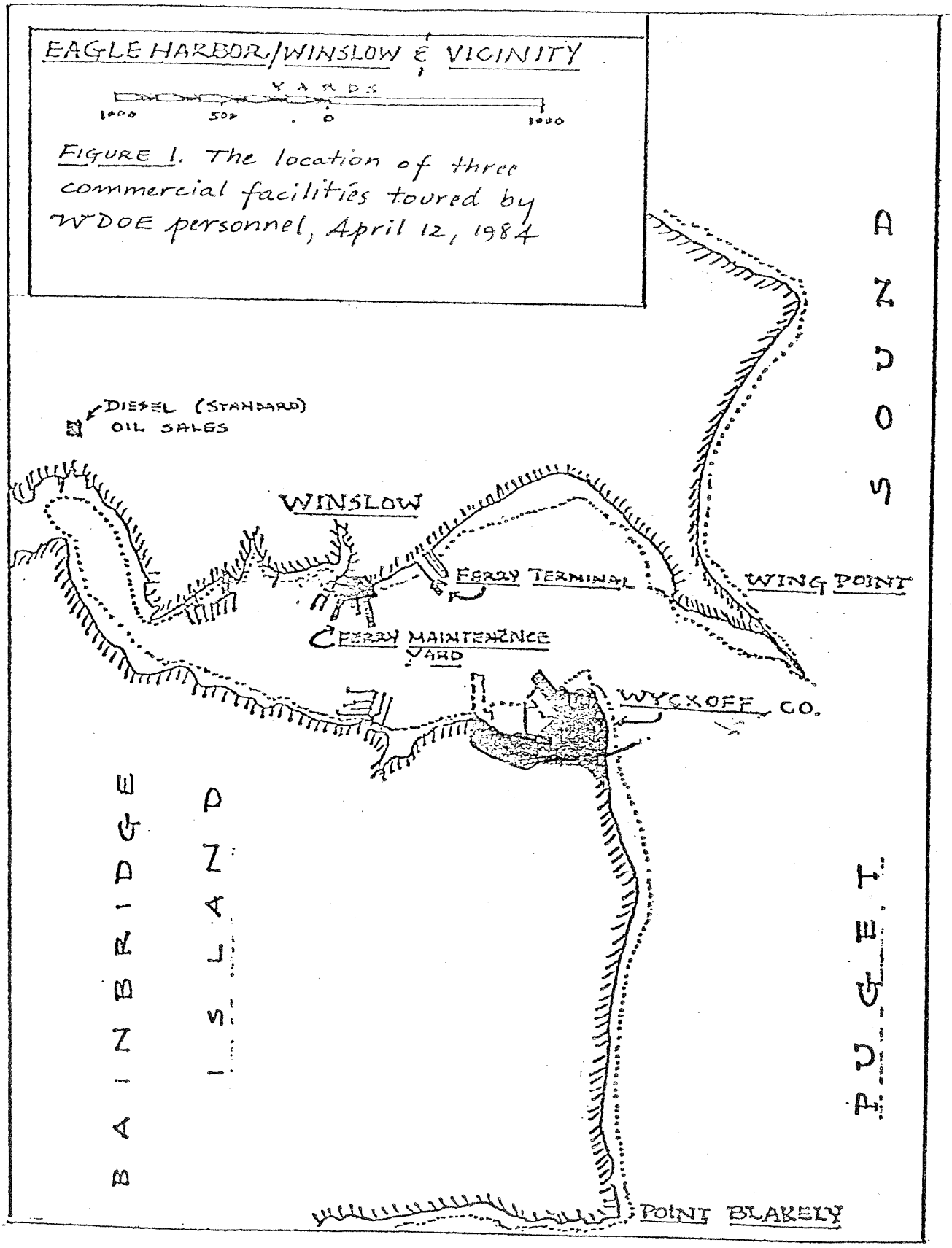

FIGURE 1. The location of three commercial facilities toured by WDOE personnel, April 12, 1984

Memo to Bill Yake
Eagle Harbor Facilities Tours and Historical Review - Part II: The Washington State Ferries Maintenance Facility

In addition to the on-site tours, I have reviewed NWRO files and other materials pertaining to the facility sites and Eagle Harbor in general. The purpose of this review was to identify any past events that may have contributed to the current contamination problem in the harbor.

FINDINGS

The WDOE party was met by Gene Nelson of the WSF Maintenance Facility. Mr. Nelson is the paint foreman. He showed us around the site and explained operational procedures. In addition, he had foremen of other areas explain their operations and field our questions.

Layout and Operations

The Washington State Ferries (WSF) Maintenance Facility is located on approximately three acres on the north shore of Eagle Harbor (Figure 1). The facility is used for routine repair and maintenance of the state's ferry fleet. The facility includes (Figure 2):

- A carpenter shop
- A machine shop
- A paint, solvent, and oil storage area
- Two docks with multiple berths

Repainting (above the water line), minor deck and cabin repairs, and minor engine maintenance and repair are performed at the facility. Major repair work and bottom-painting are contracted out to shipyards in Seattle or Tacoma.

Repainting involves removal of cracked and peeled coats of paint and application of new paint. Removal is all performed by scraping and chipping; no sand-blasting equipment is used. Paint sprayers are used to apply fresh coats of paint. All paint work is performed at the docking berths (Figure 2).

Deck, cabin, and mechanical repairs are accomplished by the machinists and carpenters. Parts are fabricated, repaired, or brought within specified tolerances using equipment in the shops. The machine shop also contains a sink for small plating jobs and a degreasing tank. A high pH inorganic solution is used for degreasing.

Waste Generation

The WSF facility has no wastewater treatment system or discharge. Wastes are disposed of through contractors. The waste types and contractors are:

- Bilge water - Vacuum Tank Services, Seattle
- Spent degreaser - Baker Septic Service, Winslow

The ultimate fate of these wastes was unknown.

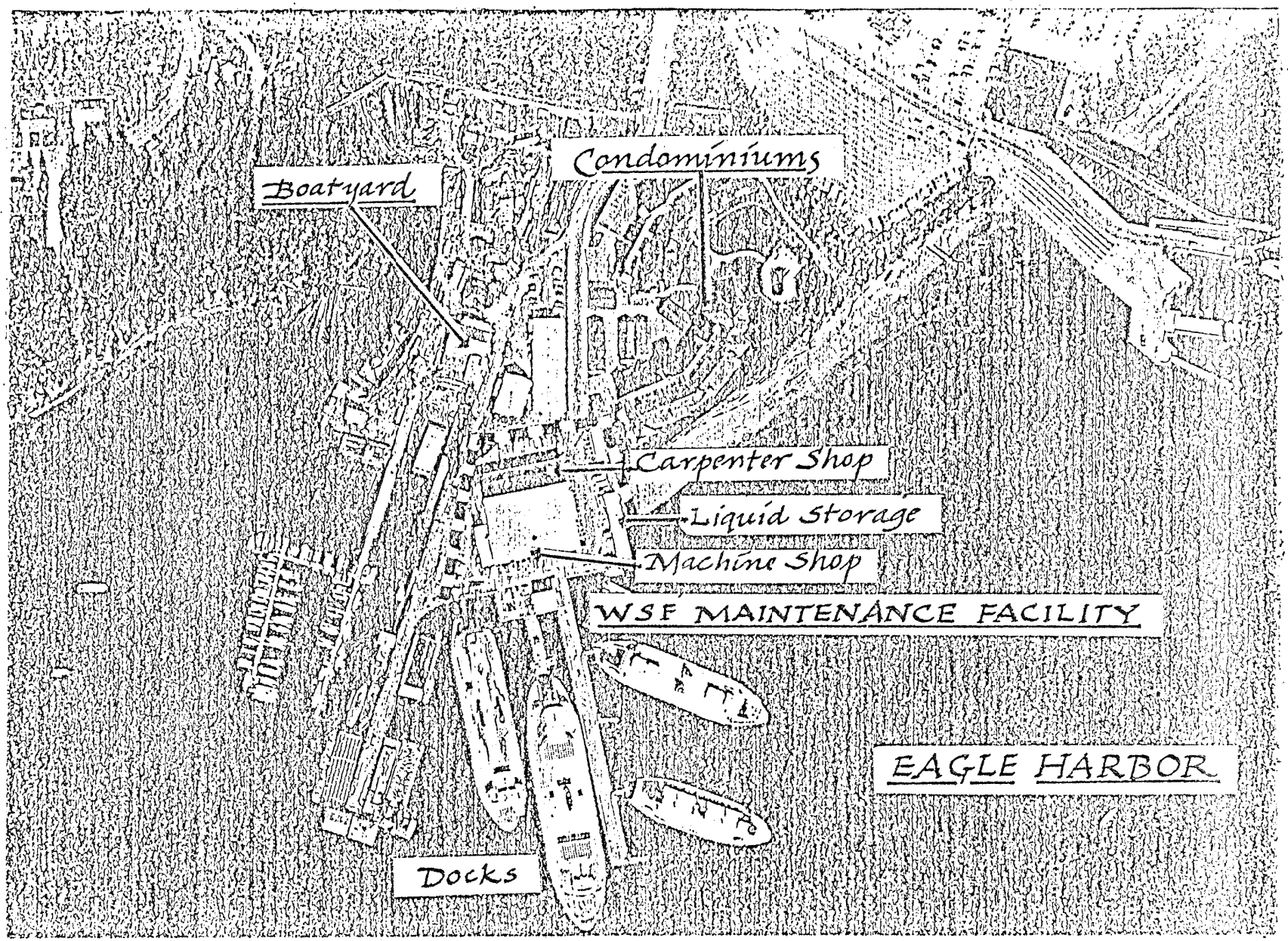

FIGURE 2: Site plan of Washington State Ferries Maintenance Facility and nearby properties, Eagle Harbor, WA.. March 1984 USEPA aerial photograph.

The chemical storage area is covered and enclosed. However, the area has no containment curbing. Paint, degreaser, and lube oils are stored in original 10- to 55-gallon (approximate) containers.

Historical Review

This historical review includes the WSF Maintenance Facility site and the adjoining areas occupied by a private boatyard to the west and a condominium complex to the east (Figure 2). The entire area of approximately fifteen acres was first a park and pavillion site (1890 to 1902), then a large shipyard (1902 to 1959) (Bowen, et al., 1971).

The name of the shipyard changed several times between 1902 and 1959 (Merriott, 1941; Bowen, et al., 1971):

- 1902-1916 -- Hall Bros. Marine Railway and Shipbuilding Co.
- 1916-1947 -- Winslow Marine Railway and Shipbuilding Co.
- 1947-1953 -- Commercial Ship Repair
- 1953-1959 -- Commercial Ship Repair, Div. of Pacific Car and Foundry

In 1903 the operation included: "a marine railway, machine shops, power house, sawmill and joiner loft for cutting ship timbers, a large gridiron, warehouse, and various other buildings and equipment" (Merriott, 1941). Other piers and smaller drydocks were added over the years (Bowen, et al., 1971).

Tar, creosote, and oakum (oil-soaked hemp) were used in large quantities for wooden shipbuilding. For example, much of the one-building "the oakum shed" was used to soak, spin, and store oakum (Bowen, et al., 1971).

Many wooden and metal ships were built or repaired at the site. By 1916, 119 wood vessels had been built. Several metal boats were built during both world wars, including nine mine sweepers in 1942-43 (Bowen, et al., 1971).

Although it was common practice to pump oil-contaminated water from the bilges of ships directly into harbors and bays, only one documented reference was made of this concerning the Eagle Harbor shipyard. Nielson (1955) noted in his inspection report of the West Coast Wood Preserving Co. plant in Eagle Harbor, "The ship repair concern across the bay has often been accused of causing oil spills."

DISCUSSION AND CONCLUSION

No potential sources of contamination to Eagle Harbor were observed at the WSF Maintenance Facility. However, past shipbuilding operations at the site (1902-1959) and adjoining areas may have contaminated the site with oils and phenolic substances.

Memo to Bill Yake
Eagle Harbor Facilities Tours and Historical Review - Part II: The Washington State Ferries Maintenance Facility

Creosote, tar, and oil used in wood boatbuilding could have easily been spilled on nearshore and intertidal areas. Large volumes of these materials were necessary for the many wooden ships built and repaired at the shipyard since 1902.

Oils, greases, solvents, and paints common in shipyards fabricating metal vessels may have also been spilled at the site. Also, repair of such vessels involves pumping oil-contaminated water from bilges. Bilge discharges may have been discharged directly to Eagle Harbor.

Only one document specifically mentions the shipyard's reputation in regard to oil spills in the past (Nielson, 1955). However, the volume of business at the yard (1902-1959) and the technology available at the time suggest spills may have been a common occurrence.

In addition, the present boatyard to the west of the WSF facility may have had some more recent spills of liquid material. Aerial photographs from 1972 and analyzed by EPA (1984) showed spill stains in the boatyard at that time. The yard has not been investigated by WDOE, but it should be included in any further investigation.

Further investigations at the WSF site and adjoining areas would be necessary to discern the following:

- The location, extent, and transport of any contamination in subsoils on the nearshore, intertidal, and subtidal areas.
- The environmental hazard posed by any contamination identified.

These investigations should be carried out based on results from the WDOE and EPA shellfish and sediment sampling performed in April (Joy, 1984).

JJ:cp

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