APPENDIX E

PARCEL C RADIATION INVESTIGATIONS

CONTENTS

1.0 INTRODUCTION 1
1.1 HISTORY OF NAVAL RADIOLOGICAL DEFENSE LABORATORY AT HPS 1
1.2 PHASE I RADIATION INVESTIGATION AT PARCEL C 2
1.3 PHASE II RADIATION INVESTIGATION AT PARCEL C 3
1.4 PHASE III RADIATION INVESTIGATION AT PARCEL C 3

REFERENCES 5

1.0 INTRODUCTION

Radiation investigations at Hunters Point Shipyard (HPS) consist of Phases I, II, and III. Phase I was a surface confirmation radiation survey (SCRS) that included air and soil sampling. Phase II evaluated the subsurface distribution of radioactive point sources detected during the SCRS. Phase III has not been performed, but will address the radiological issues regarding former operations at Naval Radiological Defense Laboratory (NRDL) sites at HPS, and the licensing of radioactive material by the Nuclear Regulatory Commission (NRC) in support of NRDL activities.

1.1 HISTORY OF NAVAL RADIOLOGICAL DEFENSE LABORATORY AT HPS

HPS was a center of shipbuilding and ship repair during World War II, where pure and applied radiological research was conducted. In 1948, scientists at HPS formed the NRDL as a subgroup of HPS. The mission of the NRDL was to study the effects of nuclear weapons and, based on their findings, develop effective countermeasures against radiation. HPS was selected as the preferred West Coast site for NRDL because of its proximity to the University of California (U.C.) Clocker Radiation Laboratory, other Navy facilities, and its drydock capacity. NRDL activities at HPS required the use of a cyclotron, a Van de Graaff generator, X-ray machines, radiological laboratories, support offices, and kennels for animals used in radiological studies.

In 1946, U.C. personnel and Navy scientists were tasked to identify methods of decontaminating ships that had returned from nuclear weapon tests near Bikini Atoll in the Marshall Islands, known collectively as Operation Crossroads (Cook 1988 and U.S. Navy 1949). In 1951, the laboratory became a separate Navy command. To support its mission to study the effects of nuclear weapons and to develop countermeasures for them, staffing was increased to over 100 military and approximately 600 civilian personnel.

During the early years of the NRDL, and until about 1955, laboratory operations were conducted at various buildings and sites located throughout HPS. These former NRDL sites are within the four areas currently designated as Parcels B, C, D, and E.

On April 25, 1969, the Navy announced the dis-establishment of NRDL with an approximate closure date of December 31, 1969. Part of the dis-establishment of the NRDL was the termination of the radioactive material licenses issued to the Navy by the Atomic Energy Commission (AEC), which was the agency

responsible for tracking radioactive material, and later by the NRC. The radioactive material was licensed by the AEC under three byproduct material licenses, (License Nos. 04-00487-03, 04-13488-01, and 04-00487-09). Also, the Navy obtained a source material license (License No. SNB-376) authorizing possession of natural uranium and thorium. The fifth license issued was a Special Nuclear Material License (License No. SNM-35) that authorized possession of plutonium and other radionuclides. All licenses issued to HPS by the AEC and NRC have been terminated.

1.2 PHASE I RADIATION INVESTIGATION AT PARCEL C

Radiation surveys performed during the Phase I SCRS within Parcel C included Room 105 in Building 214 and Building 253.

Room 105 in Building 214 (located within IR-28) was used by the NRDL as a Health Physics Counting Room. This room was adjacent to a records storage area associated with the industrial hygiene laboratory operations conducted in the building. Wipe sampling performed in August of 1974 found no detectable radioactive activity in the counting room (AEC 1959-1970; AEC 1954-1970a; and AEC 1959-1970b).

Building 253 was known as the Electronics, Optical and Ordnance shop. This building was generally used for machining, welding, assembly, and painting operations. The building has six floors where these various operations were performed. Repair, testing, and fabrication of a variety of electronic, optical, and ordnance-related equipment occurred in Building 253. A main production floor was shared by Buildings 253 and 211, and contained one large and two small paint booths, two large dip tanks, one large vapor degreaser, resin impregnation tanks, and a parts washer. Radiological activities were carried out in a small detached room on the sixth floor in Building 253. This room was used by NRDL for instrument calibration. The only radioactive materials used and stored in this calibration laboratory were sealed check sources used to calibrate instrumentation.

Building 253 is currently being used as a naval storage area. Most of the original equipment, sinks, and tanks have been removed from the building. The calibration laboratory on the sixth floor is unoccupied and all equipment and materials associated with operations in this room have been removed.

The survey activities performed within Building 253 on August 21, 1974 found no evidence of residual radioactive contamination (AEC 1959-1970; AEC 1954-1970a; and AEC 1959-1970b).

1.3 PHASE II RADIATION INVESTIGATION AT PARCEL C

No sites within Parcel C were included during the radiation investigations conducted as part of the Phase II investigation at HPS.

1.4 PHASE III RADIATION INVESTIGATION AT PARCEL C

The purpose of Phase III of the radiation investigation at HPS is to complete the SCRS in IR-02 at Parcel E, implement recommendations detailed in the SCRS preliminary draft report (PRC 1992), and address radiological concerns regarding the former use, storage, and disposal of radioactive material associated with past NRDL operations at HPS. The intent of this phase of the radiation investigation is to eventually release all remaining buildings/sites for unrestricted use.

Based on the recommendations of Radiation Affairs Support Office (RASO) representative Lino Fragoso, a radiation survey was recommended at sites where residual contamination is known to exist or where radiation surveys were not performed as part of the AEC's license termination process (for example, outside the buildings where radioactive material was used or stored).

During Phase III, buildings/sites would not be surveyed under the following conditions:

- The building/site was surveyed by NRDL, RASO, AEC, or NRC personnel and released for unrestricted use.
- The radioactive material license was terminated.

Listed on the table below are the NRDL sites and buildings in Parcel C that were investigated for potential radiological contamination.

Site	Building	Former or Current Use	Proposed Investigation
IR-28	Bldg. 214	Room 105 - Health Physics Counting Room	No survey required
IR-28	Bldg. 253	Former Shipyard Instrument Calibration Building	No survey required

The two buildings listed above were proposed for radiological surveys in Phase III; however, upon further investigation, the surveys were determined not to be required because no evidence of residual radioactive contamination was found as a result of previous AEC surveys and inspections (AEC 1959-1970; AEC 1954-1970a; and AEC 1959-1970b).

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