

### **3. SITE LOCATION, DESCRIPTION, AND HISTORY**

This section describes the site location, description, and operational history of the former landfill.

#### **3.1. SITE LOCATION**

The NTC landfill site is located in San Diego, California, west of the SDIA (Figure 1). The landfill is bordered to the northwest by MCRD and the Boat Channel; the SDIA to the north-east and east; McCain Road and the Boat Channel to the west; and Harbor Drive and San Diego Bay to the south (Figure 2).

#### **3.2. SITE HISTORY AND OPERATIONAL STATUS**

The site was owned and used by the U.S. Navy since 1923. The United States Marine Corps (USMC) operated a municipal landfill at the site between 1950 and 1971 (SCS 1986). According to the United States Environmental Protection Agency (EPA) presumptive remedy document (1996a), "municipal landfills are those facilities in which a combination of household, commercial, and to a lesser extent, industrial wastes have been co-disposed." The MCRD was a training facility and reportedly did not generate large quantities of hazardous wastes (Bechtel 1997b).

Based on review of aerial photographs (Ninyo & Moore 1998) and subsurface investigations (Ninyo & Moore 1998, 2001), it appears that wastes initially were disposed along the northern margin of San Diego Bay, and then south, in the area that currently corresponds to the northern portion of the landfill site. Subsurface assessments and interpretation of limited aerial photographs indicate that these wastes were burned (Ninyo & Moore 1998, 2001b, 2006f). The estimated extent of burned waste is shown on Figure 3.

Subsequent to this, wastes (MSW) were disposed using the trench and fill disposal method. The trenches appeared to have been approximately 100 to 175 feet in width, with portions excavated below the depth to groundwater. The aerial photographs suggested that, in general, waste disposal trenches proceeded in rows from north to south. Within each row, the trenches were generally excavated from west to east. The trenches observed in the aerial

photographs appeared to have been excavated such that the MSW was filled in from the west to the east (Figure A-1). Aerial photographs available for review and dates on papers recovered from within the MSW suggest that the trench and fill method of waste disposal occurred from about 1960 to 1971, subsequent to disposal and burning of wastes to the north.

According to a partial report (Marlil & Pomeray 1966), refuse was deposited at the MCRD disposal site using a cut-and-fill operation. Pre-compacted material was reportedly deposited in crane dug trenches approximately 8 feet by 60 feet by 120 feet, covered by 8 to 12-inches of fill material, and compacted by a crawler tractor.

SCS Engineers, Inc. (SCS 1986) performed an initial assessment study of NTC, MCRD, and the Fleet Anti-Submarine Warfare Training Center, which included information on the types and methods of waste disposal at the NTC landfill. The following anecdotal information regarding the methods of operation and types of buried wastes was taken from their report.

*"From approximately 1950 until 1971, the Marines operated a refuse disposal area on reclaimed salt marsh land between Lindbergh Field and the boat channel. This land was transferred to NTC in 1975.*

*The fill area lies exclusively between McCain Road on the west and Puerto Rico Street on the east. The northern limit of the fill is about 700 feet south of the Lindbergh Field approach lights. The fill extended southward about 1,400 feet. The total surface area was less than 1,400,000 square feet (approximately 32 acres). Present surface use of this area includes a golf driving range, playing field and track, playing courts, California least tern protected area, and rubble disposal area.*

*Prior to 1960, material was randomly disposed along the northern edge of the salt marsh, gradually extending southward into the marshy area. By 1960, dredge material was being used to reclaim the salt marsh and wastes were being buried in east-west trenches (8 feet by 60 feet by 120 feet) dug into the fill material. It is estimated that approximately 5 million cubic feet of waste was put into the site.*

*The disposal area primarily received dumpster wastes (refuse) from MCRD with some dumpster wastes from NTC during the middle years of operation. Prior to 1971, however, hazardous wastes were regularly placed in the dumpsters, notably infectious wastes, paint wastes, and empty pesticide containers. In addition, several potentially hazardous wastes (such as pentachlorophenol sludge) were disposed at the site. It is estimated that 9,000 to 15,000 gallons of liquid hazardous wastes from MCRD San Diego were put into the site.*

*Transformers were taken out to the site and drained at an average rate of about one per month. If not drained directly into the fill, they were drained into waste oil tanks subsequently used to oil the surface of the disposal area for dust control. It is known that MCRD used a number of polychlorinated biphenyls (PCBs)-filled transformers in those days.*

*Prior to 1970, MCRD pest control used pentachlorophenol in dip tanks for wood preserving. When the pentachlorophenol became too dirty for further use, the sludge was drummed and taken out to the site and disposed of. As much as 200 to 500 gallons were disposed in this fashion annually. The practice began in the mid-1950 when pest control programs were instituted on MCRD. Hazardous wastes were also received at the site from NTC. The wastes are known to have included methyl isobutyl ketone, xylene, methyl ethyl ketone, gasoline, and metal plating wastes, possibly containing cyanides. It is estimated that 3,000 to 4,000 gallons of liquid hazardous wastes from NTC San Diego were put into the site.*

*Following cessation of disposal activities, the site was covered with clean soil and graded. Some demolition debris has been disposed south of the fill area in recent years; recreational facilities have been built atop the actual fill area. Planted grasses grow well, and there is no evidence of toxic seeps at the surface. The fill itself lies within the tidal flat area and may leach materials to San Diego Bay. Soils are moderately to highly permeable ( $10^{-3}$  to  $10^{-1}$  cm/sec)."*

The volume of waste disposal at the landfill was previously estimated to be 5 million cubic feet (SCS 1986); an estimate of 1.3 to 2 million cubic feet was made for waste disposal in the trenches previously identified by the geophysical surveys (Jacobs Engineering Group 1992, Bechtel 1996a). Revised estimates of the landfill wastes are provided below. These estimates

are based on observations of limited exploration at the locations shown on Figure 5. The presence, depth, thickness, and types of buried wastes, and soil and groundwater conditions will vary from those observed at the explored locations. The extent and estimate of wastes described in this plan and illustrated on Figures 3 through 6, 11, 12, and 13 are rough estimates and should not be used for design or for bidding purposes.

- The in-place volume of burned waste is estimated at approximately 675,000 cubic feet (25,000 bcy).
- The in-place volume of MSW is estimated at approximately 3.0 to 3.2 million cubic feet (112,000 to 120,000 bcy).

The burned waste was observed to extend off site, beneath portions of the SDIA operational area, including the runway, apron, and critical infrastructure. Based on observations of excavations during construction of the Engineered Materials Arresting System (EMAS) and utility installation in July and August 2006, it is estimated that approximately 6,800 bcy of burned waste extends into this area (Figure 4). This volume estimate is based on visual observations of burned waste within utility trenches and an assumed average thickness of 2.5 feet in the area of burned waste (Figure 4). As part of the EMAS and utility projects, approximately 1,300 bcy of this residual burned waste was removed for off-site disposal. Therefore, the remaining residual burned waste is estimated at 5,500 bcy. The residual burned waste in this area will not be removed as part of this closure project.

In general, the MSW exists south of the burned waste area and does not appear to extend further south than the east-west trending fence, which is just south of the former playing field and track (Ninyo & Moore 1998 and 2001b). This is further supported by information provided by SCS (1986) indicating the area of buried wastes as less than 32-acres, extending only 1,400 feet south of the airport runway. This conclusion is additionally supported by the observed absence of MSW in exploratory trenches excavated south of the east-west trending fence (Ninyo & Moore 1998) (Figure 3). Twenty-two groundwater monitoring events conducted from April 1995 to October 2006 (Ninyo & Moore 2002a, 2002b, 2005d, 2005g, 2006c, and 2006g) in the vicinity of the inert construction debris fill indicate groundwater

does not appear to be adversely impacted in the area where burned waste underlies portions of the SDIA. Groundwater samples from wells closest to the burned waste at the SDIA (ES13-S and ES-13D) do not appear to have been impacted by COPCs from buried wastes.

Based on exploratory trenching and drilling (Ninyo & Moore 1998), dredged fill with areas of inert construction debris fill exist south of the MSW area (south of the former playing field and track) (Figure 3). The SCS report (1986) indicated that inert construction debris fill was placed south of the waste area after cessation of disposal activities in 1971. Soil samples collected from within the inert construction debris fill generally indicate minimal COPCs impacts which are not related to the waste disposal at the site (Appendix A).

The 24 groundwater monitoring events indicate groundwater in wells located in this area (ES-13S, ES-13D and ES-10S, DMW-5, ES-8S, ES-8D, ES-11D, and ES-11S) are minimally impacted by COPCs. Relatively low benzene concentrations were detected in groundwater samples from two wells and metals have been detected intermittently at concentrations that exceed Enclosed Bay and Estuaries Criteria (Water Quality Criteria) (Marschack, 2003) (Tables A-9 through A-11 in Appendix A). Benzene is not considered a COC associated with the buried wastes at the landfill and is likely the result of past fuel releases in the vicinity. The reported dissolved metal concentrations above the Water Quality Criteria are not at concentrations that would constitute a significant threat to groundwater quality in the area.

Based on the inert nature of the inert construction debris fill and the period of placement, the fill is not considered a waste or part of the landfill, and will be excluded from this closure project. This area was recently developed into a taxi waiting area and a long-term parking lot for the airport.

Burned waste underlying portions of the SDIA and inert construction debris-fill located south of the MSW are not expected to generate significant landfill gas due to the absence of organic materials. The landfill gas monitoring probes located throughout the entire site were sampled quarterly from September 2004 to November 2006 (Ninyo & Moore 2004b, 2005c,

2005e, 2005f, 2006a, 2006d, 2006e, and 2006h). These 8 landfill gas monitoring events indicate landfill gas does not appear to be migrating off-site.

The landfill was reportedly covered with soil after it ceased operations in 1971 (Bechtel 2000). This cover soil and the underlying soil, adjacent to the waste, was sampled and analyzed during previous site investigations. For the purposes of this plan, the cover soil is differentiated from the underlying soil as “surface soil” and “subsurface soil” in the soil chemistry data summarized in tables and figures in Appendix A. It should be noted that there has been subsequent localized re-grading of the landfill surface, which has resulted in placement of additional imported fill soil over the previous cover. Since 2001, soil from various off site locations has been imported to the landfill under LEA oversight after review of the environmental conditions of the source area by an environmental consultant. Notification of soil import and letters of concurrence from the LEA are provided in Appendix B. Maintenance of the landfill cover is an on-going process and is performed in compliance with maintenance requirements of RWQCB-adopted Order No. 97-11, “General Waste Discharge Requirements for Post-Closure Maintenance of Inactive Nonhazardous Waste Landfills within the San Diego Region” (97-11), as amended. This soil, placed with LEA concurrence, is considered to have been characterized and further re-characterization is not intended prior to re-use on site.

Currently, semi-annual groundwater monitoring and quarterly landfill gas monitoring is conducted to monitor potential impacts to groundwater quality and whether landfill gas is present at the site perimeter (Ninyo & Moore 2006g, 2006h)

### **3.3. BASE REALIGNMENT AND CLOSURE PLAN**

The final Base Realignment and Closure Plan (BCP) for NTC was released in March 1999 (Department of the Navy [DON] 1999) and included the status, strategies, and action items for former NTC environmental restoration and compliance programs. The programs were intended to support the environmental restoration of the base property necessary to meet the requirements for property transfer and reuse. At the time, the program involved two main in-