

Health Consultation

OUTBOARD MARINE CORPORATION/WAUKEGAN HARBOR:
OMC PLANT 2 AND POLYCHLORINATED BIPHENYL-
CONTAINMENT CELLS

WAUKEGAN, LAKE COUNTY, ILLINOIS

CERCLIS NO. ILD000802827

Prepared by
Illinois Department of Public Health

JANUARY 7, 2014

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Summary

INTRODUCTION	<hr/> <p>At the Outboard Marine Corporation Plant 2 site (OMC Plant 2), the Illinois Department of Public Health (IDPH) and US Agency for Toxic Substances and Disease Registry's (ATSDR) top priority is to ensure that the community and nearby residents have the best information possible to safeguard their health.</p> <p>In response to the release of the remedial investigation, feasibility study, and third five-year-review of the OMC/Waukegan Harbor site, this health consultation was prepared to summarize the health-based evaluation of the recent data regarding OMC Plant 2 and polychlorinated biphenyl (PCB) Containment Cell portions of this site.</p> <hr/>
OVERVIEW	<hr/> <p>IDPH and ATSDR reached two important conclusions about the OMC Plant 2 site in Lake County, Illinois.</p> <hr/>
CONCLUSION 1	<hr/> <p>The removal of surface soil contamination and contaminated building surfaces has eliminated the exposure of any trespassers at OMC Plant 2.</p> <hr/>
NEXT STEPS	<hr/> <ul style="list-style-type: none">• USEPA will continue to investigate contamination of OMC Plant 2 and pursue cleanup of the property. <hr/>
CONCLUSION 2	<hr/> <p>Exposure to contaminants at the PCB Containment Cells is currently not occurring, so adverse health effects are not expected. However, proposed construction of a building for boat storage on the Slip 3 PCB Containment Cell may require institutional controls to ensure that this construction does not compromise the integrity of the cap, potentially resulting in exposure to PCBs.</p> <hr/>
CONCLUSION 3	<hr/> <p>Trichloroethylene (TCE) contamination in groundwater poses a potential vapor intrusion hazard for any future buildings constructed on or near the OMC Plant 2 property</p> <hr/>
BASIS FOR DECISION	<hr/> <p>OMC Plant 2 is currently unused, located more than 1 mile from the nearest residential area and trespassing at OMC Plant 2 probably is infrequent.</p> <hr/>
NEXT STEPS	<hr/> <ul style="list-style-type: none">• The City will continue operating and maintaining the PCB Containment Cells.• USEPA should implement institutional controls to prevent future development plans involving the PCB Containment Cells from compromising their integrity. <hr/>

Background and Statement of Issues

The OMC/Waukegan Harbor site (Figures 1 and 2) contains four sections or Operable Units designated by USEPA:

- Waukegan Harbor
- the Waukegan Manufactured Gas and Coke Plant (WCP),
- the Polychlorinated Biphenyl (PCB) Containment Cells, and
- OMC Plant 2.

This health consultation discusses OMC Plant 2 and the PCB Containment Cells. Separate health consultations that will be completed in the future will discuss the other parts of the site, one for Waukegan Harbor and another for the Waukegan Manufactured Gas and Coke Plant.

Under a cooperative agreement with the ATSDR, IDPH prepared an initial public health assessment (PHA) for the OMC/Waukegan Harbor site in 1989 and a final PHA for the site in 1994. IDPH concluded that the site was a public health hazard because humans had probably been exposed to PCBs in fish at levels that could result in adverse health effects. For the public, the consumption of contaminated fish was the main exposure pathway.

In 1998, ATSDR released a site review and update on the OMC/Waukegan Harbor site (IDPH 1998). In June 2004, ATSDR released a health consultation on OMC Plant 2 and the PCB Containment Cells (IDPH 2004). This document concluded:

Currently, OMC Plant 2 poses no apparent public health hazard. Because OMC Plant 2 is currently unused, is over 1 mile by road from the nearest residential area, and probably has infrequent trespassing, present exposure probably is negligible. Even if proposed residences are built near OMC Plant 2 before an adequate cleanup, exposure of trespassers should remain infrequent, resulting in negligible exposure.

The recommendations of this document included:

- USEPA will continue to investigate contamination of OMC Plant 2 and pursue cleanup of the property.
- USEPA or Illinois EPA will continue operating and maintaining the PCB-containment cells.
- USEPA will continue to pursue implementing institutional controls to prevent possible future construction on the PCB-containment cells.

OMC Plant 2

The OMC Plant 2 site is at 100 E. Seahorse Drive in Waukegan, Lake County, Illinois. The site is about 65 acres in size and includes the former OMC Plant 2 manufacturing building, which is 1,036,000 square feet in size (Figure 2). The North Ditch and the North Shore Sanitary Districts border the site on the north, a public beach and dunes border the site to the east, Seahorse Drive borders the site to the south, and the Elgin, Joliet, and Eastern railroad tracks and the A.L. Hanson Manufacturing Company (formerly OMC Plant 3) border the site on the west (USEPA 2006b).

The OMC Plant 2 building was built in several phases between 1949 and 1975. Manufacturing activities in OMC Plant 2 included smelting, die casting, electroplating, machining, polishing, and finishing of aluminum. Spray painting, parts assembly, parts washing, chromate conversion coating, and wastewater pre-treatment were also done. OMC Plant 2 used hydraulic fluids with PCBs during 1951–1972. These fluids were collected and reused after aluminum chips were removed in the “chip wringer” room of the metal working area (USEPA 2007, USEPA 2006b, USEPA 2002c).

USEPA divided the building into the following five large areas: the new die cast area, the grit blasting area, the metal working area, the parts storage area, and the old die cast area. The southwestern corner of OMC Plant 2 also has an attached chemical storage building.

Between 1969 and 1988, OMC Plant 2 used large amounts of TCE in degreasers, mainly to support plating activities. They also had a distiller to reclaim used TCE and a 5,500-gallon tank that was partially below grade. Before an initiative to reduce the use of chlorinated solvents in 1979, OMC used an estimated 130,000 gallons of TCE throughout its history. Annually, they sent up to 50,000 gallons of waste solvent off the site for disposal.

OMC Plant 2 had seven PCB-containing transformers inside the building, as well as others on the outside of the building and on the roof. There are a set of pipe chases (tunnels with pipes and gas lines) under the flooring of the eastern end of the plant and another set under the western end of the plant. The west end pipe chases of the old die cast area transported hydraulic oil containing PCBs to die cast machines until 1975, when OMC moved them to the eastern part of the building. OMC dismantled those machines in 1977. Other chemicals used by OMC in smaller amounts included chromic acid, hydrofluoric acid, and mercury (USEPA 2007, USEPA 2006b, USEPA 2002c).

OMC Plant 2 had about 20 underground storage tanks, mainly around the perimeter of the building. They stored #2 fuel oil, hydraulic fluid, lubricants, oils, and other chemicals. Some of these tanks leaked in the past and were subject to cleanup under Illinois Environmental Protection Agency (Illinois EPA) oversight. The tanks have been abandoned in place or removed.

The facility also had 17 above ground storage tanks for storing PCBs and PCB wastes, mainly in the parking lot area north of the building. These tanks were removed in 1984. Other above ground

storage tanks on the property contained coolants, gasoline, soaps, lubricants, oils, nitrogen, soap, and other chemicals.

In July 1998, USEPA awarded the City of Waukegan a Brownfield Redevelopment Grant to bring abandoned and contaminated properties back to use, including properties near Waukegan Harbor (USEPA 2007).

OMC filed for Chapter 11 bankruptcy (reorganization) in December 2000 and Chapter 7 bankruptcy (liquidation) in August 2001. After limited cleanup by the bankruptcy trustee, the bankruptcy court declared OMC Plant 2 abandoned on December 10, 2002. On that date, USEPA assumed security for the building. In spring 2003, USEPA performed additional interior cleanup work to prevent the release of PCBs and other chemicals into the environment. USEPA added OMC Plant 2 to the Waukegan Harbor National Priorities List (NPL) site as Operational Unit 4. In July 2005, the City of Waukegan became the owner of OMC Plant 2 (USEPA 2010, USEPA 2007, USEPA 2006b, Theisen 2003, and USEPA 2002a).

In April 2006, USEPA released the Remedial Investigation and in December 2006, USEPA released the Feasibility Study for the former OMC Plant 2 (USEPA 2006a).

In February 2006, USEPA notified the City that parts of the OMC Plant 2 building were tested and free of contamination. The City demolished and removed these parts of the building in the summer of 2008, and removed the foundation in the fall of 2008 (USEPA 2010).

In January 2007, USEPA removed 25 PCB-containing transformers to prevent vandals from breaking them open and dispersing the PCBs. They also removed large amounts of copper wire and electrical connectors to discourage scavengers (USEPA 2010).

In September 2007, USEPA issued a Record of Decision (ROD) that specified the cleanup methods for OMC Plant 2. The cleanup plan included the demolition of the building and off-site disposal of the debris. The cleanup plan also included the excavation and off-site disposal of soil and sediment with greater than 1 part per million (ppm) of PCBs or 2 ppm of polycyclic aromatic hydrocarbons (PAHs) (USEPA 2010).

On May 19, 2008, the City passed an ordinance prohibiting the potable use of groundwater from the OMC Plant 2 site. Prohibited uses include bathing, drinking, garden watering, lawn watering, swimming, and washing dishes (City of Waukegan 2008).

In February 2009, USEPA issued a ROD for the cleanup of groundwater and an underlying, dense non-aqueous phase liquid (DNAPL), with the DNAPL consisting of TCE. The design phase for cleanup remedies was completed in January 2010. Groundwater cleanup is scheduled to begin in the spring of 2013.

In June 2009, USEPA received funding through the American Recovery and Reinvestment Act of 2009 for the site. The money will accelerate the hazardous waste cleanup already underway,

including the demolition of OMC Plant 2 and the removal and the disposal of contaminated soil and sediment. USEPA started demolition work in January 2010 which was completed in the summer of 2010. Five thousand tons of steel were recovered, and most was recycled locally. By April 2012, most of the contaminated soil and sediment had been removed. However, EPA was unable to clean up certain portions of the site due to difficulties encountered while performing the remedy. In some areas, buried utilities prevented excavation. At the former Old Die Cast Building area located in the southwestern portion of the site, contamination was too deep to excavate as planned. Additionally, the north ditch area had contamination below the designated excavation depth. The remaining contamination is relatively deep underground or under utilities. These and other areas will be addressed through potential changes to the 2007 ROD.

PCB Containment Cells

Figure 2 shows the location of the three PCB containment cells (with one being in former Slip 3). A vertical subsurface barrier wall surrounds each cell; each cell has an impermeable cap. OMC installed several groundwater extraction wells in each cell. Water is periodically pumped from the cells to create an inward gradient. If a leak occurs, groundwater will flow into the cell instead of out of it. This will retain contaminants in the cell and prevent their escape. The water pumped from the containment cells is treated to remove PCBs and then released into Waukegan Harbor (USEPA 2003b). Illinois EPA performed operation and maintenance on the containment cells from 2005 until 2007. The City took then assumed this responsibility (USEPA 2007).

The City has proposed permitting Larsen Marine to construct a building for boat storage on the containment cell in former Slip 3. The City plans to use the other two containment cells for park land. These proposed uses may require institutional controls to prevent compromising the integrity of the containment cells (USEPA 2007).

Demographics

Current land use around OMC Plant 2 is commercial and industrial. Businesses south of OMC Plant 2 include Larsen Marine (marina and boat service), Bombardier Recreational Products Incorporated (on former OMC Plant 1, make outboard motors and other recreational products), Gold Bond Building Products (a division of the National Gypsum Company, LaFarge Corporation) and St. Mary's Concrete. A City of Waukegan municipal drinking water plant, which obtains surface water from about two miles offshore, also is south of the site. Waukegan Harbor serves commercial shipping and barge and tug mooring. It is a designated safe harbor for ships during storms. It also provides access to marinas and maintenance facilities for recreational boating. A public beach is east of the site. Fishing charter boats also operate out of the harbor.

The nearest residences are about 0.3 miles from the site; however, by road, they are about 1 mile from the site. According to the 2010 U.S. Census, Waukegan had 89,078 people. Of those people, 53.4% were Hispanic or Latino origin, 46.6% were white, 21.7% were whites not of Hispanic descent, 19.2% were African American, 1.2% were native American, 4.3% were Asian, 0.1% were

Hawaiian or Pacific Islander, and 4.1% were of two or more races (U.S. Bureau of the Census 2013) USEPA reported low-income levels for 44% of the residents within 1 mile of Waukegan Harbor (Theisen 2003).

On August 25, 2003, the Waukegan City Council accepted a master redevelopment plan by Skidmore Owings and Merrill LLP (City of Waukegan 2003a). Details of the plan have yet to be developed (Blazer 2003). This plan includes a park for the northern part of the property, and marine commercial services and high-density housing on the other part of the property (USEPA 2006b). Other proposals included:

- establishing a permanent, continuous, parkland edge to the lakefront, including the harbor;
- relocating industry along the harbor to an area near Interstate 94;
- developing a marina village with housing for boat owners;
- adding 2,500 residential housing units;
- developing 100,000 square feet of retail services;
- building a new hotel with meeting rooms;
- building a modern train station, and
- linking the downtown with the lakefront property in a pedestrian friendly manner.

The city projected that residential development near the harbor would begin along with harbor clean up. Of the estimated \$1 billion cost of the proposed redevelopment plan, 70% to 80% would come from individual developers. The rest would come from public funding through an existing tax (City of Waukegan 2003b, City of Waukegan 2003c). Beyond cleanups of contaminated properties, implementing this plan requires financial commitments from private developers.

Community Concerns

To date, concern about contamination in Waukegan Harbor has been expressed by businesses that depend on the harbor, including charter fishing boat operators and businesses that use the harbor for shipping. Many of these businesses are members of the Waukegan Community Advisory Group (CAG). IDPH is not aware of any concerns from the general public. Historically and presently, the consumption of PCBs in fish from Waukegan Harbor has been the only exposure pathway of concern. In the past, IDPH attempted talking to anglers at Waukegan Harbor, and the one who spoke English was unconcerned about PCBs in fish. IDPH also developed English and Spanish fact sheets and put ads in local papers for a public meeting on the fish contamination in Waukegan Harbor. No one from the public came to the meeting.

USEPA staff attended the October 2006 CAG meeting and told them that the third OMC Five-Year Review was beginning. USEPA informed the general community by placing a notice in a local newspaper. USEPA has begun the fourth OMC Five-Year Review and it is due in September 2012. Because Waukegan has a large Hispanic community, USEPA also placed a notice in Spanish in a Hispanic newspaper. In all these notifications, USEPA invited community members to submit comments. USEPA received no comments regarding the third Five-Year Review for the OMC

sites (USEPA 2007). As cleanup continues, USEPA and IDPH will continue to follow community concerns in the area.

Discussion

Chemicals of Interest

IDPH compared the maximum level of each contaminant detected with appropriate screening comparison values. A detailed discussion of each of the comparison values is found in Attachment 2. If a chemical exceeds its comparison value, it is not necessarily a health risk. Although some of these chemicals may exist at levels greater than comparison values, the contaminants can affect only someone exposed to sufficient doses. The amount of the contaminant, the duration and route of exposure, and the health status of exposed individuals are important factors in determining the potential for adverse health effects. These factors will be evaluated to determine if any of these chemicals pose a health risk for carcinogenic or noncarcinogenic effects.

Building Surfaces and Pipes of OMC Plant 2

The removal of the OMC Plant 2 building eliminated contaminated building surfaces.

Air

The removal of OMC Plant 2 eliminated indoor air contaminated by PCBs. TCE contamination under the OMC Plant 2 site may pose a future hazard via vapor intrusion if buildings are constructed on or near the site. (USEPA 2010, USEPA 2007). Although off-site sampling for TCE in Larsen Marine, east of the site, did not find evidence of vapor intrusion, it is unknown if other areas off-site might be at risk of vapor intrusion if buildings are constructed.

Groundwater

The city obtains its water from Lake Michigan, and no one drinks groundwater from the site.

Soil

By April 2012, all surface soil contamination had been removed. The only contamination remaining was in the subsurface, under buried utilities on the western part of the site, near the PCB containment cells, and below the water table.

Exposure Pathways

People can be affected by hazardous chemicals only if they come into contact with them through an exposure pathway at a sufficient concentration and duration to cause a toxic effect. This requires (1) a source of exposure, (2) an environmental transport medium, (3) a route of exposure, (4) point of exposure, and (5) a receptor population.

A pathway is complete if all its components are present and exposure of people occurred in the past, is occurring, or will occur in the future. If parts of a pathway are absent, if data are insufficient to decide whether the pathway is complete, or if exposure may have occurred at some time in the past, may be occurring in the present, or may occur in the future, then it is considered to be a potential pathway. If part of a pathway is not present and will never exist, the pathway is considered to be incomplete and is given no further consideration.

OMC Plant 2

USEPA will not permit the residential or commercial reuse of the OMC Plant 2 property without an adequate cleanup. An adequate cleanup would eliminate the potential for excessive exposure to contaminants and render all exposure pathways at the OMC Plant 2 site incomplete. This document discusses current exposure conditions at OMC Plant 2. The property is surrounded by a chain-link fence, in good condition, which is topped with barbed wire. Because residences are about 1 mile from the site by road, trespassing probably is infrequent. The fencing would inhibit exposure to any physical hazards (slips, trips, falls, cuts). Removal of the OMC Plant 2 building likely considerably reduced physical hazards at the site.

Air

TCE in groundwater may pose a vapor intrusion hazard for buildings built on or near the OMC Plant 2 site, should the construction occur before cleanup of the groundwater. This may require institutional controls to ensure that any buildings constructed on-site have engineering controls to inhibit vapor intrusion.

Contaminated Building Surfaces in OMC Plant 2

The removal of the building eliminated contaminated building surfaces, ending this exposure pathway.

Surface Soil

The removal of contaminated surface soil eliminated exposure to contaminated surface soil on-site.

Waukegan Harbor Fish

PCBs in Waukegan Harbor have contaminated fish populations. The building of residential housing near the harbor, including on the OMC Plant 2, likely would increase the number of people exposed to contaminated fish from the harbor. The risks of eating contaminated fish from the harbor are discussed in a separate health consultation on Waukegan Harbor (IDPH 2012).

PCB Containment Cells

The PCB Containment Cells are capped and lined with clay. Consequently, they should not contribute appreciably to airborne PCBs in the vicinity. Even before the initial PCB cleanup of the harbor, airborne PCB concentrations were below levels that would be expected to cause adverse health effects (IDPH 1994). Groundwater monitoring has shown that the containment cells have successfully contained their PCB contaminants. Therefore, human exposure to PCBs from the containment cells is not occurring.

PCBs are very persistent in the environment. Continued operation and maintenance of the PCB Containment Cells will be needed to ensure their long-term effectiveness.

The City has proposed permitting Larsen Marine to construct boat storage buildings on the Slip 3 containment cell. This may require the implementation of institutional controls to prevent compromising the integrity of this containment cell.

Toxicological Evaluation

Because contamination presently is in the subsurface, human exposure to contaminants on-site is not presently occurring.

Trichloroethylene (TCE)

TCE in groundwater poses a potential vapor intrusion hazard if buildings are constructed on or near the site before the groundwater is remediated. Because the potential concentrations of TCE in any future buildings are unknown, the risks cannot be estimated.

Child Health Considerations

IDPH recognizes that children are especially sensitive to some contaminants. Given the same contaminant concentrations, children are more likely to receive larger doses than adults. This is because children play in soil, wash hands less frequently than adults, and commonly exhibit hand-to-mouth behavior. Children also have a smaller body size, meaning that they receive a greater dose from the same amount of absorbed contaminant.

Because surface soil contamination and contaminated building surfaces were removed, exposure of children at OMC Plant 2 is not occurring. Furthermore, trespassing by young children is unlikely. TCE in groundwater poses a potential vapor intrusion hazard if buildings are constructed on or near the site before the groundwater is remediated. Because the potential concentrations of TCE in any future buildings are unknown, the risks cannot be estimated.

IDPH recommends that USEPA not permit the reuse of OMC Plant 2 without an adequate cleanup. This would eliminate the possibility of children being exposed to site-related contaminants.

Conclusions

Currently, OMC Plant 2 poses no apparent public health hazard. The removal of surface soil contamination and contaminated building surfaces eliminated current exposure of any trespassers on-site.

If buildings are constructed on the OMC Plant 2 site, they may be at risk of vapor intrusion from TCE.

The PCBs in Containment Cells currently pose no apparent public health hazard, because exposure is not occurring. Continued maintenance of the containment cells is needed to prevent possible future exposure. The City of Waukegan has proposed the construction of a building on the PCB Containment Cell in Slip 3, which could compromise the integrity of the disposal cells and result in the dispersal of contaminants and subsequent human exposure through surface soil or contaminated fish.

Recommendations

IDPH recommends that:

- USEPA investigate contamination of OMC Plant 2 and continue to pursue cleanup of the property.

- USEPA evaluate potential vapor intrusion by TCE if buildings are constructed on or near the OMC Plant 2 site. Institutional controls may be needed to require engineered controls to prevent vapor intrusion into these buildings.
- The City continue operating and maintaining the PCB Containment Cells.
- USEPA implement institutional controls to prevent future development plans involving the PCB Containment Cells from compromising their integrity.

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Figure 1

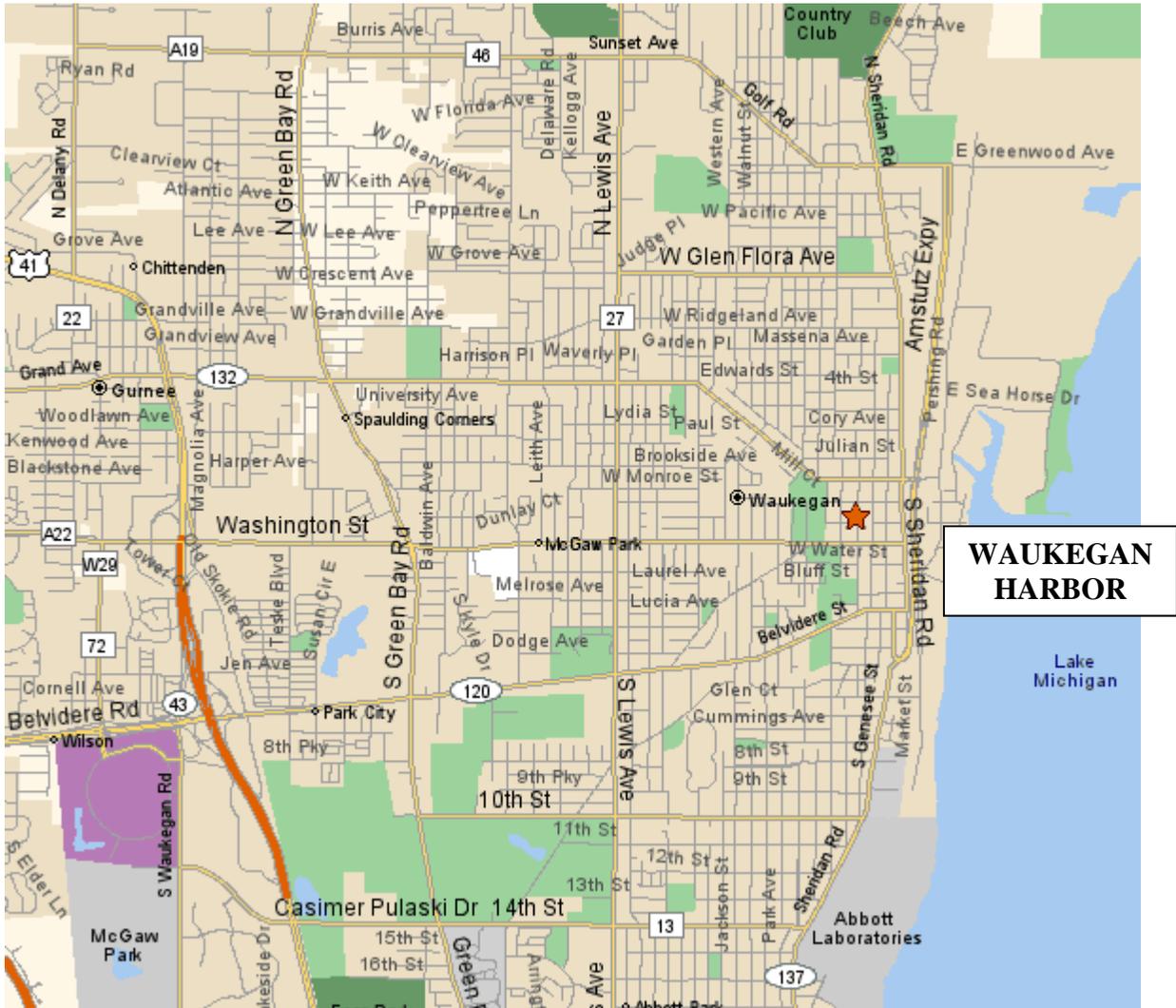
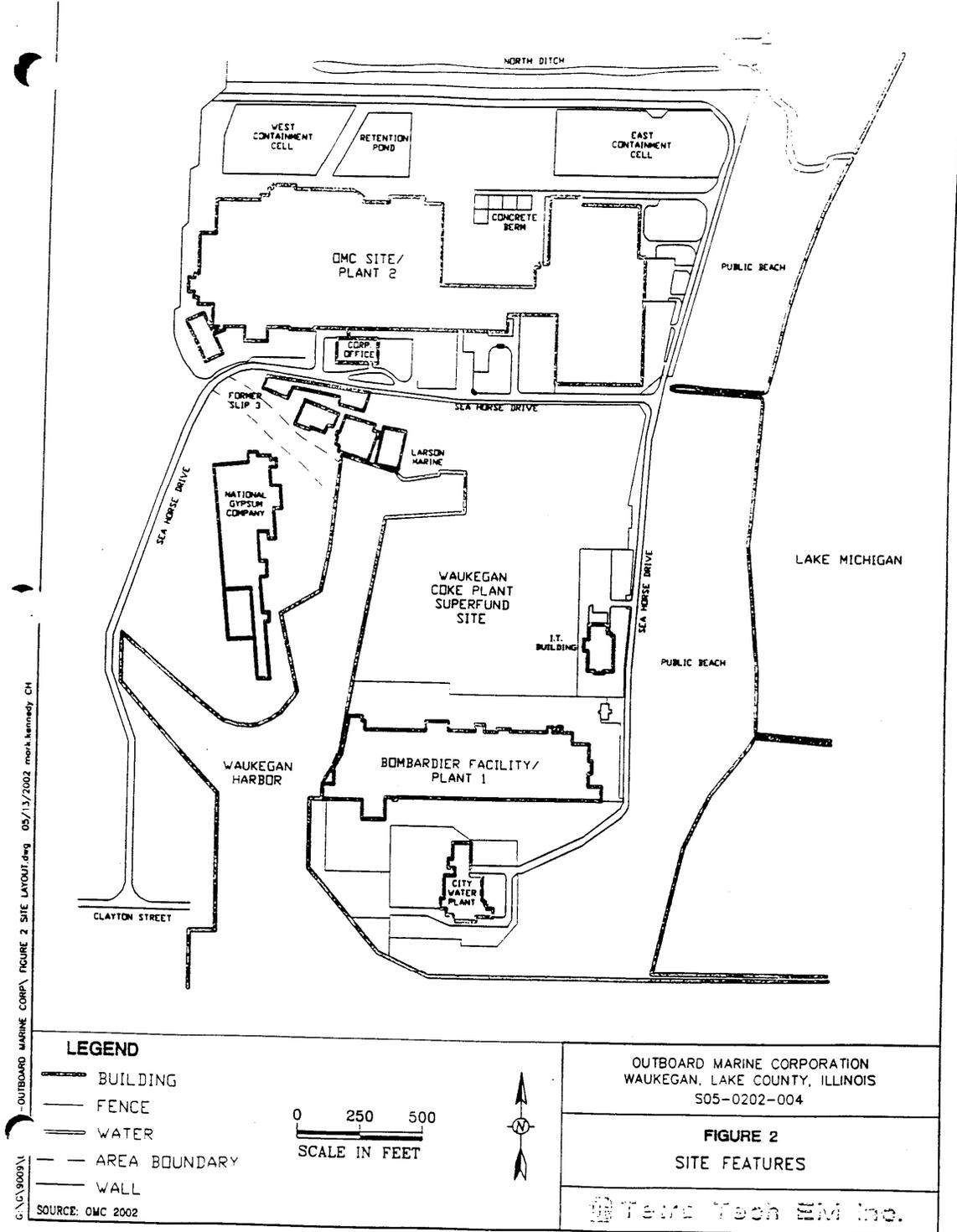


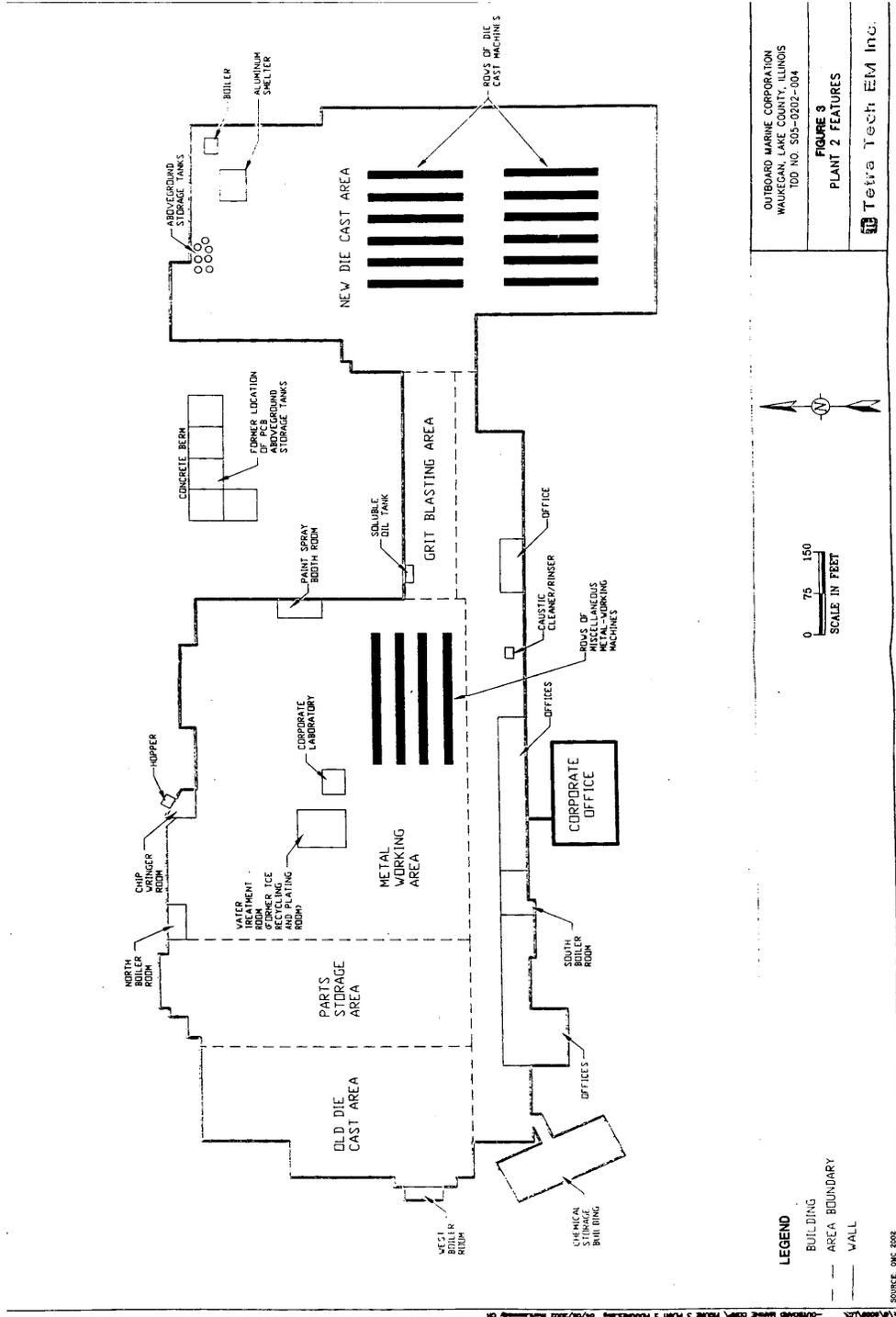
Figure 2



G:\AC\9003\1 -OUTBOARD MARINE CORP\ FIGURE 2 SITE LAYOUT.dwg 05/13/2002 mark.kennedy CH
 SOURCE: OMC 2002

(USEPA 2002c)

Figure 3



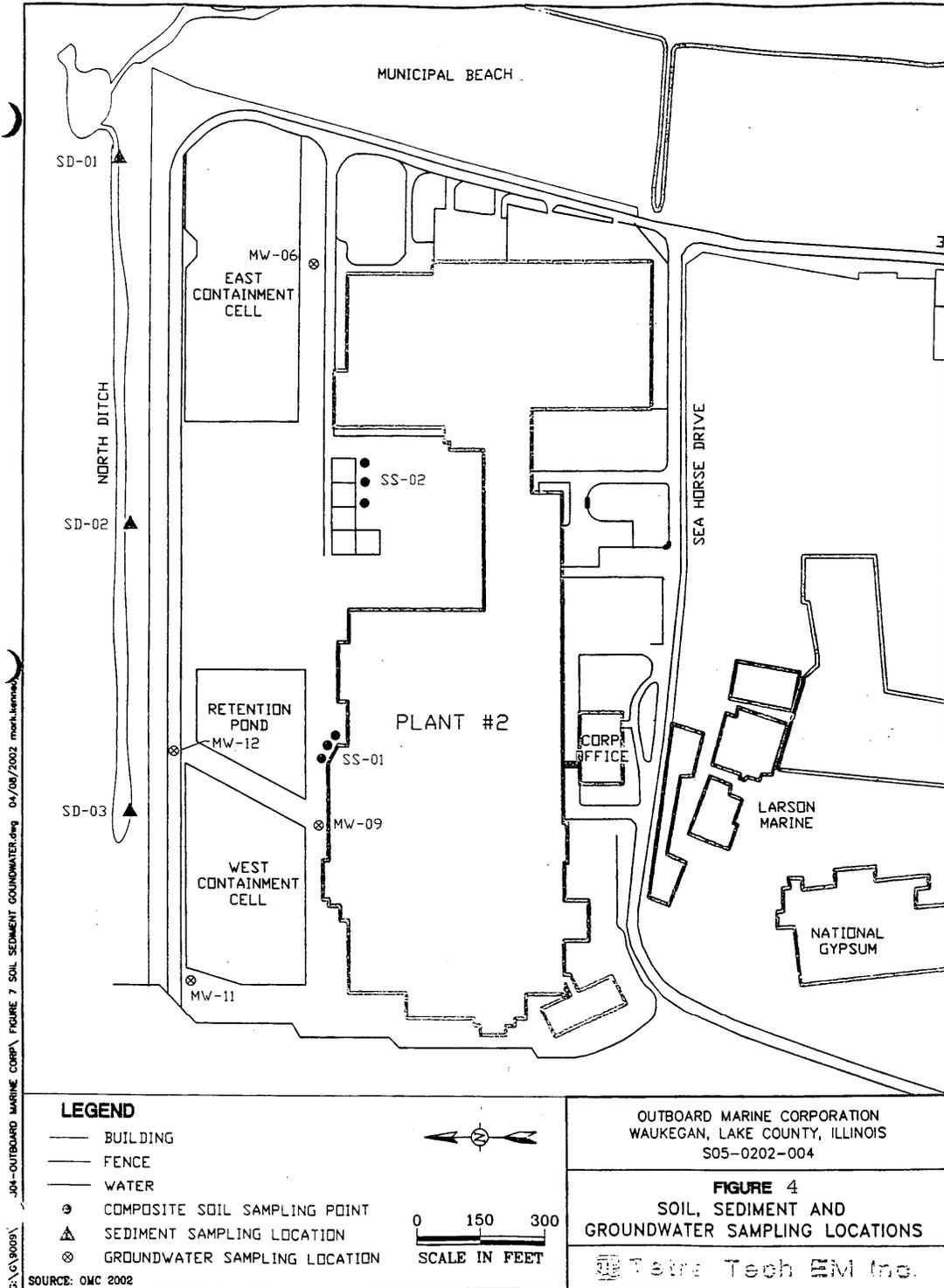
OUTBOARD MARINE CORPORATION
 WAUKEGAN, LAKE COUNTY, ILLINOIS
 TDD NO. 505-0202-004

FIGURE 3
 PLANT 2 FEATURES

Tetra Tech EM Inc.

SOURCE: OMC 2008

Figure 4



(USEPA 2002c)