

*Dike 14 is a former disposal site that has become naturalized. This 88-acre wildlife haven provides unique access to Lake Erie. Because of its strategic coastal location and varied habitats, a remarkable diversity of birds, native Ohio plants and trees, and animals make their home on Cleveland's Dike 14 Nature Preserve.*



*Dike 14, an 88-acre site adjacent to Cleveland's Gordon State Park, presents a unique opportunity for public access to Lake Erie*

## 1. What is a Confined Disposal Facility (CDF)

From the early 1800s until the 1960s, dredged materials from the Cuyahoga River and the Cleveland Harbor were disposed of offshore into Lake Erie, placed as artificial fill in the area that is now the Burke Lakefront Airport, or placed on the north side of the Cleveland East Breakwater.

After the River and Harbor Act was passed in 1970, engineered structures called Confined Disposal Facilities (CDFs) were constructed in the Great Lakes for dredged materials that are unsuitable for open lake dumping or beneficial use because of contamination. The

U.S. Army Corps of Engineers (USACE) has constructed 45 CDFs around the Great Lakes. The size and design of each CDF is site-specific. Since 1968, all government-dredged materials in Cleveland have been placed in CDFs named Dike 9, Dike 12, Dike 13, Dike 14 and Dike 10B.

## 2. What is Dredging

Dredging is the removal of excess sediments from navigation channels and harbors. The USACE is responsible for the majority of navigational dredging projects in the Great Lakes and dredges 3-5 million cubic yards of sediments annually. About half of the dredged material is considered polluted and requires disposal at CDFs.

Since the Cuyahoga River has a natural depth of 6 feet the USACE dredges the 5.5 miles of the lower Cuyahoga to maintain a navigation channel to a depth of 27 feet. Dredging provides Cleveland businesses with access to the St. Lawrence Seaway and the Great Lakes for international commerce.

Between 200,000 to 300,000 cubic yards of dredged sediments from the Cuyahoga river and harbor

require CDF disposal each year. The dredged sand and clays can be polluted with various heavy metals, chemicals, organics, oil and grease. Much of the sediments come from upstream erosion and runoff of the Cuyahoga River watershed, an 813 square mile area.

## 3. What is Dike 14

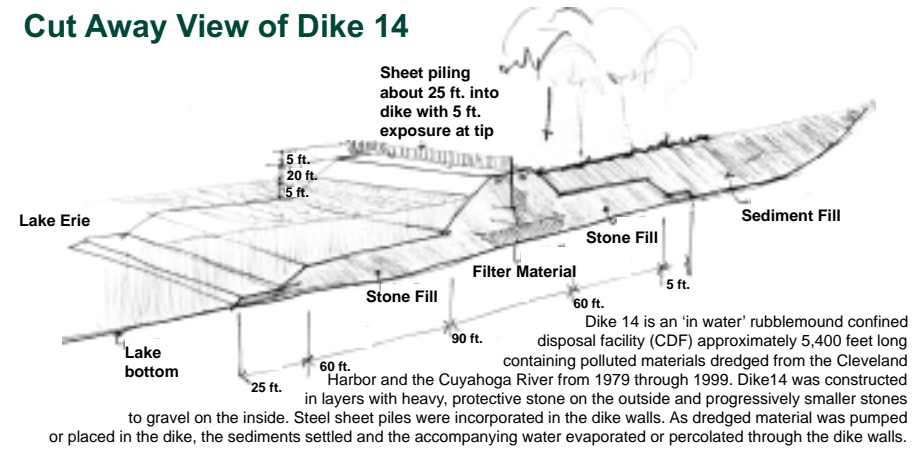
Dike 14 is a CDF located 4.5 miles east of the Cuyahoga River and downtown and is adjacent to the the northern end of Cleveland Lakefront State Park at the end of Martin Luther King Jr. Boulevard. From 1979 to 1999, sediments dredged from the Cuyahoga River and Cleveland Harbor filled the dike. It is now closed as a disposal site.

Dike 14 is an 'in water' rubblemound 88-acre structure with an approximate 5,400 foot perimeter that is 15 feet wide and 39 feet high. The walls were constructed in layers with heavy, protective stone on the outside and



smaller stones on the inside. These act as a filter and were designed to retain a high percentage of the disposed sediments (99.9%). Steel sheet piles are incorporated in the dike walls. The construction of Dike 14 included an existing 8-acre hook-

## Cut Away View of Dike 14



shaped existing landfill at Gordon Park. Dike 14 was originally designed to contain 6,130,000 cubic yards of sediment at a cost of approximately \$29 million.

Dike 14, like most existing in-lake CDFs, has no liner. As dredged sediments are pumped or placed in the dike mechanically by crane or truck or hydraulically by pipeline, the water evaporates or percolates through the walls and the sediments consolidate.

The Doan Brook empties into Lake Erie in a concrete twin box culvert that runs through Dike 14. The culvert currently runs under Interstate 90.

#### 4. Monitoring

There is no system wide, continual monitoring program for Great Lakes CDFs. However, water quality monitoring generally occurs during dredging and disposal operations, and periodically in the vicinity of the CDF during and after disposal activities. Among the 45 Great Lakes CDFs, twelve have monitoring devices in their dike walls, but Dike 14 does not. USACE mandates the annual inspection and maintenance of CDF structural walls and components as well as inspections after major storms.

#### 5. Environmental Permits

Permits for the disposal of dredged or fill materials into US waters are issued through the Army Corps 404 permit program. The Ohio EPA also issues a 401 permit for the disposal of dredged materials into Lake Erie and for the discharge of effluent from CDFs. National 404

Guidelines and a specific Great Lakes dredging materials testing criteria and evaluation manual provide basic protocols and standards.

#### 6. Local Sponsor

A local sponsor is identified for every federal CDF project and provides land, easements, right-of-way to the USACE and 25% of the funding for CDF construction. The local sponsor is responsible for structural maintenance. All dikes require routine maintenance. The local sponsor of Dike 14 is the Cleveland-Cuyahoga County Port Authority.

Local sponsors have planned or implemented beneficial uses for CDFs like recreation areas or wildlife refuges. Development must be compatible with the environmental integrity of the CDF. The transfer of CDF lands must have the approval of the USACE.

#### 7. Modification

In 1994 Dike 14 was raised seven feet above its original elevation providing an additional 880,000 cubic yards of capacity and allowing time to site and build a new CDF in Cleveland Harbor-Dike 10B located north of Burke Airport.

#### 8. Future of Dike 14

Environmental testing and risk assessments will help determine if the site is safe for controlled public access and environmental education use. The U.S. Environmental Protection Agency has granted funds for a

brownfield assessment and risk analysis.

Dike 14 can be protected and used as a natural area for environmental education for Cleveland residents and school children. This has already been done successfully at a former CDF disposal site in Buffalo, New York, called Times Beach Nature Preserve.

Over the years, Dike 14 has become a naturalized with diverse habitats such as forest, grasslands, meadows and wetlands. Dike 14 is now home to an remarkable array of birds (including 23 of Ohio's 29 Endangered Species), butterflies, native plant, tree and shrub species, and mammals. This remarkable site can provide a unique opportunity for public access to Lake Erie and a natural oasis right in the heart of Cleveland. Cleveland's Dike 14 has earned the title, "Nature Preserve."

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#### CDF Dike 14 Quick Facts:

Perimeter: 5,400 feet  
Height: 39 feet  
Capacity: 6,130,00 cubic yards of sediment

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For information from the Dike 14 Environmental Education Collaborative please click [www.dike14.org](http://www.dike14.org).

Or contact:

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Photos: U.S. Army Corps of Engineers & Earth Day Coalition



## Confined Disposal Facility (CDF) Dike 14 Cleveland, Ohio

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