

903-F-04-007

FACT SHEET

NPDES PERMIT NO. DC0000345

NAME AND ADDRESS OF APPLICANT:

Vikki Keys, Acting Superintendent   
National Park Service   
National Capital Parks- Central   
900 Ohio Drive, SW   
Washington DC 20024

FACILITY LOCATION:

National World War II Memorial   
National Mall   
Washington DC 20001

PERMIT COVERAGE:

The 1987 Clean Water Act (CWA) Section 402(p) requires certain facilities which discharge storm water to obtain National Pollutant Discharge Elimination System (NPDES) permits. Implementing regulations at 40 CFR 122.26 designate the categories of industries and municipalities that are required to obtain storm water permits.

The individual NPDES storm water permit being proposed for the National World War II Memorial covers storm water discharges from the Memorial site including but not limited to storm water from the main plaza, access ways, and vehicle parking. Storm water discharges associated with construction activities are covered under the national construction storm water general permit and are not part of the this permit document. The permit also covers discharge of pumped and treated groundwater from the Memorial site and periodic pool and fountain water flushings and discharges and filter backwash that have been treated prior to discharge.

FACILITY DESCRIPTION:

The National World War II Memorial is a roughly 8 ½ acre site, located on the National Mall west of 17<sup>th</sup> Street NW being built to commemorate all who served in the US armed forces during the Second World War. The site contains a Main Plaza with statues and large stone commemorative plaques as well as a large shallow pool and fountain. The site also includes walkways, vehicle parking, a comfort station and an information center.

The lower level of the Main Plaza is built a few feet below the groundwater table. Beneath this plaza lies the south vault, which collects all the storm water discharge at the site prior to discharge from outfall 001. Due to these site conditions, there is low-permeability subsurface wall around the south vault and a permanent groundwater pumping system and which prevents groundwater from flooding the Memorial substructures.

The receiving stream, the Tidal Basin to the Potomac River, is listed on The District of Columbia's 1998 Section 303(d) list of impaired waters for bacteria and organics and on the 2002 Section 303(d) list of impaired waters for pH.

## DISCHARGE DESCRIPTION

The discharge will be comprised of a mixture of storm water, treated groundwater and intermittent discharges of filter backwash and pool flushings and fountain wash waters. A pump station with a wet well (south vault) is located at the site to collect and convey the combined discharge to outfall 001.

### Storm Water

Storm water that accumulates on the Main Plaza of the Memorial and any overflow from large rain events from vehicle parking and access ways, drains to a sedimentation basin below grade then into the pump station wet well prior to discharge to the Tidal Basin. Storm water runoff from the vehicle parking and access ways generated during smaller storm events ( 2-year, 1-hour storm event or smaller) receives treatment in a solids and oil separator device prior to entering the pump station wet well.

### Groundwater

An underground, low-permeability wall adjacent to the substructures and an underdrain system below the plaza floor, divert and collect groundwater beneath the Memorial. Collected groundwater is pretreated to remove chemicals that exist in the subsurface including iron, manganese and arsenic, then is routed to the pump station wet well. In the pump station well, it mixes with any fluids that exist in the well including storm water, pool and fountain water. From the wet well the combined discharge is pumped to outfall 001.

#### Pool Flushing and Fountain Wash Water

Pools are expected to be drained as many as four times a year for cleaning and servicing. The pool/fountain water is expected to be treated with biocides and algaecides to prevent biogrowth and therefore may contain trace amounts of chlorine, copper, and silver which are present in these additives. According to the permittee, these substances will be added at levels below the District of Columbia's water quality standards. However, the draft permit requires the monitoring and reporting of concentrations of these parameters with each discharge. EPA may amend the permit to add effluent limits for any or all of these parameters upon a determination that the discharges have a reasonable potential to violate water quality standards. Water to fill the pools will be supplied by the city water.

#### Fountain Water Backwash

Water, which is recycled through the pools and fountains, will pass through sand filters to remove solids prior to reuse. These sand filters will be backwashed approximately once a week and the backwash directed to the wet well prior to discharge through outfall 001.

#### Iron Prefilter and Arsenic Adsorption Column Backwash

Iron prefilter and arsenic column will be backwashed three times a week and once a month respectively to remove solids from the adsorption media. This backwash will be directed to the sediment chamber for solids removal prior to conveyance to the wet well and ultimate discharge through outfall 001. This backwashing of the arsenic columns is not expected to release arsenic but is intended to release solids that would otherwise clog the filter media. As a precaution, however, the draft permit requires the permittee to monitor and report concentrations of iron and arsenic in the discharge from outfall 001. EPA may amend the permit to add effluent limits for these parameters upon a determination that the discharges have a reasonable potential to violate water quality standards.

#### Preliminary Groundwater Discharge Monitoring Results

American Battle Monuments Commission contracted for monitoring of the groundwater discharge prior to and during construction beginning in the fall of 2000. On average, three samples a year were collected prior to construction and monthly samples collected during construction and analyzed for the chemical parameters of potential concern namely arsenic, iron, TSS, and pH.

The results indicated the following parameters at low concentration levels:

average Arsenic concentration range = Nondetect to 0.012 mg/l (DC WQS = 0.00014 mg/l)

average Iron concentration range = 0.06 to 14.87 mg/l (DC WQS = 1.0 mg/l)

average pH range = 6.45 to 7.08 (DC WQS pH range = 6 to 8.5 standard units)

Arsenic is the principal metal of concern because it is a human carcinogen. EPA Region III conducted a reasonable potential analysis for arsenic in accordance with the guidance found in EPA 505/2-90-001, Technical Support Document for Water Quality-Based Toxics Control (TSD) and 40 CFR 122.44(d)(1)(i). The analysis included conservative modeling of the Tidal Basin using geometry of the basin and allowing for daily flushing of the basin in a 24-hour period. EPA's analysis indicated that the levels of arsenic found in the groundwater did not have the reasonable potential to cause or contribute to an exceedance of the DC water quality standard.

Iron is a very common mineral found in groundwater and at the low levels monitored at the site, there is no identified human health risk. Further, most of the mineral concentration in the sample is associated with the solids portion of the groundwater, the physical separation of the solids and liquid component of the discharge at the site prior to discharge to the Tidal Basin, is anticipated to remove most of the iron. Reasonable potential analysis for iron indicated that the levels of iron found in the groundwater discharges did not have reasonable potential to cause or contribute to an exceedance of the national water quality standard.

#### BASIS FOR PERMIT CONDITIONS

In general, the permit was developed based on the Clean Water Act, implementing regulations at 40 CFR part 122 - 449. The permit was also developed based on a review of the National World War II Memorial's permit application and Draft Storm Water Pollution Prevention Plan (SWPPP) sent November 3, 2003, site visits and meetings with National World War II Memorial environmental managers, and discussion with the District of Columbia Department of Health officials. Additional documents were also used as guides, which include:

1. Federal Model NPDES General Permit for Discharges from Small Municipal Separate Storm Sewer Systems, and
2. Federal NPDES Storm Water Multi-Sector General Permit for Industrial Activities, October 30, 2000

More specifically, EPA determined an individual storm water permit was needed per 40 CFR 122.26(a)(1)(v) because the WWII memorial site has the potential to be a "significant contributor of pollutants" to waters of the U.S. Subsurface investigations at the site conducted by US Army Corps of Engineers (Final Geotechnical Report, June 1997) and TAMs Engineers (Report on Supplemental Subsurface Investigation, June 2000) indicate fill materials to depths of over 6 meters below ground surface which contain elevated levels of organic compounds and arsenic but not at levels which are determined to be hazardous as per 40 CFR Sub-chapter I Part 261.

Groundwater monitoring conducted as part of these investigations indicated arsenic above District of Columbia water quality standards and visual evidence of oil substances. Groundwater monitoring conducted during construction of the WWII Memorial has shown elevated levels of arsenic and to a lesser extent, iron. While the reasonable potential analysis indicated no current potential to exceed water quality standards for arsenic, iron, and oil and grease, monitor and report requirements have been included in order to gauge future concentration levels of these parameters and allow for permit revision should concentration levels increase such that reasonable potential to exceed water quality standards occurs.

Regarding the remaining parameters listed in the Part I, A Effluent Limitations and Monitoring Requirements, Total Suspended Solids (TSS) is a common pollutant in storm water and prone to bond with other pollutants such as nutrients and bacteria. The outfall discharges to the Tidal Basin, which is listed on the District of Columbia's 1998 Section 303(d) list of impaired waters for bacteria and organics and therefore, TSS is included as a discharge parameter to monitor with effluent limitations equal to the District of Columbia's water quality standards. Silver and copper and total residual chlorine are included in the effluent limitations and monitoring requirements because these parameters are expected at the site as components of algaecides and biocides and are known to be toxic to aquatic life. pH is included in the effluent limitations and monitoring requirements because it is a parameter that can vary with the changing characteristics of storm water and because pH is listed on the District of Columbia's 2002 Section 303(d) list of impaired waters.

## OVERVIEW OF PERMIT CONDITIONS

Storm water characteristics vary according to characteristics of land use and ground surface (paved, forest, grass, etc.), topography, climate, and characteristics of precipitation event. Storm water permit requirements entail the use of Best Management Practices (BMPs) to control the quality, and to a certain extent quantity, of storm water runoff discharging to the Tidal Basin. Chemical specific monitoring has been incorporated in this permit to provide an indication of the effectiveness of the BMPs and the sedimentation basin.

Regarding the groundwater and other discharges including pool and fountain water and filter backwash, these discharges will receive treatment prior to combining with storm water and discharging through outfall 001. Chemical specific monitoring has been incorporated in this permit to provide an indication of the effectiveness of the treatment devices.

### 1. Part I, Section 2, Effluent Limitation Tables

As provided in Permit Section 7.1, EPA is requiring monthly monitoring of one storm event a month and for dry weather months, a minimum of one sample during non storm events which is representative of the discharge. No fewer than twelve (12) samples are to be taken each calendar year for each of the listed parameters, namely:

Flow, Total Suspended Solids (TSS), Arsenic, Iron, Silver, Copper,  
Total Residual Chlorine, pH, Oil and Grease

Parameters selected and monitoring frequency were derived from information provided in the permit application related to ground water sampling and algaecide/biocide chemical parameters described in the product specifications and from EPA-833-B-96-003, US EPA NPDES Permit Writer's Manual. The parameters have a monitor and report requirement with numeric effluent limitations imposed for pH and TSS in accordance with District of Columbia water quality standards. Furthermore, chlorine has a "no discharge" limit based on additional requirements established by the District of Columbia to protect aquatic life.

## 2. Part II, Standard Conditions

### Section 3.16 Endangered Species

EPA Region III contacted The United States Fish and Wildlife Service (FWS) regarding Section 7 of the Endangered Species Act. The FWS responded that no species Federally-listed or  proposed for listing as endangered or threatened are known to exist in the project area.

EPA requires that on a yearly basis, the permittee submit to NMFS copies of the Discharge  Monitoring Reports (DMRs) that it has already submitted to EPA in accordance with Part I of  this permit. If these data indicate it is appropriate, requirements of this NPDES permit may be  modified to prevent adverse impacts on habitats of proposed for listing endangered and  threatened species.

### Section 3.22 Reopener Clause

If discharge monitoring indicates a potential to violate water quality standards, the permit may be  reopened and reissued with more stringent controls in order to assure no reasonable potential to  cause or contribute to an exceedance of water quality standards.

## 3. Part III, Special Conditions

### Section 5.1, Discharges to Water Quality Impaired Waters

As described above, the receiving water at the National World War II Memorial site, the Tidal  Basin, is listed on the District of Columbia's Section 303(d) list of impaired waters for bacteria  and organics and pH. While pH is required to be monitored as part of the permit requirements,  bacteria and organics are not required to be monitored because the District of Columbia  Municipal Separate Storm Sewer System (MS4) NPDES permit requires this monitoring in the  Tidal Basin and any additional monitoring would be redundant.

These permit conditions make it clear however, that after a Total Maximum Daily Load (TMDL)  has been developed and approved by EPA, the permit conditions will be changed at the next

permit reissuance in accordance with any requirements set forth in the TMDLs. □

Sections 5.2, 5.3, and 5.4 Discharge Specific Requirements for: Storm Water, Groundwater, and Pool and Fountain Water. □

The permit requires a storm water management program outlined in a Storm Water Pollution Prevention Plan (SWPPP) that includes best management practices; control techniques and systems, design and engineering methods; and such other provisions for the control of potential pollutants. The SWPPP must include at a minimum, a management program that incorporates the following □

Storm Water from Vehicle Parking and Access Ways: Management techniques for collection, conveyance and treatment such as a solids and oil and water separator device.

Storm Water from Main Plaza and overflow from Vehicle Parking and Access Ways: Management techniques for collection, conveyance and treatment such as a sedimentation basin.

Other runoff from Main Plaza, Vehicle Parking, and Access Ways: Management techniques for collection, conveyance and treatment from periodic wash down activities and deicing during winter storm events.

Groundwater Collected in Memorial Underdrain: Management techniques for collection, conveyance and treatment to remove iron, manganese and arsenic prior to disposal. Also incorporate necessary provisions to protect water quality during periodic treatment device backflush events. Finally, include contingency plan for handling and disposal of untreated groundwater in the event that the groundwater treatment system or portions thereof are not functioning properly

Pool Water: Management techniques for collection, conveyance and treatment or minimization of algaecides and biocides prior to disposal.

Fountain Water: Management techniques for collection, conveyance and treatment or minimization of algaecides and biocides prior to disposal.

Fountain Water Filter Backwash: Management techniques for collection, conveyance and treatment or minimization potential pollutants contained in periodic fountain water filter backwash events.

## PUBLIC NOTICE AND COMMENT

The Public Notice was published on December 22, 2003 in the WASHINGTON POST, WASHINGTON CITY PAPER, and TIEMPOS DEL MUNDO, and it announced the draft

permit, solicited comments, and stated where the draft documents could be obtained for review and how to request a public hearing. The Public Comment Period extended 30 days from the issuance of the Public Notice. Comments on the draft permit were submitted to the US Environmental Protection Agency, Region III Office.

Any interested person has the right to request a public hearing in accordance with 40 CFR 124.11.

Following all input from the public and interested parties, EPA reviewed all comments and responded to comments. Public comments and responses are available at the Martin Luther King Library, Room 307, which is located on 901 G Street, Washington DC 20001. No permit changes resulted from these comments.