

DOCKET NO. D-1996-006 CP- 2

DELAWARE RIVER BASIN COMMISSION

**Six Flags Great Adventure
Ground and Surface Water Withdrawal and Importation
Jackson Township, Ocean County
and Millstone Township, Monmouth County, New Jersey**

PROCEEDINGS

This docket is issued in response to an Application submitted by Hatch Mott MacDonald on behalf of Six Flags Great Adventure (SFGA or docket holder) to the Delaware River Basin Commission (DRBC or Commission) on September 18, 2014 for renewal of an allocation of groundwater and surface water and review of a groundwater and surface water withdrawal and importation project (Application). The groundwater and surface water withdrawals were approved by the New Jersey Department of Environmental Protection (NJDEP) on September 4, 2014 (Water Allocation Permit No. 2504P). In accordance with Section III.B.3 of the March 2015 DRBC/NJDEP Administrative Agreement, the docket holder's existing groundwater and surface water withdrawals will continue to be regulated by NJDEP in accordance with the NJDEP Water Allocation Permit No. 2504P issued on September 4, 2014 with an expiration date of September 30, 2024. Upon the permittee's submission of an application for renewal of its NJDEP water withdrawal permit, the renewal request will be administered under the One Process/One Permit Program ("One Permit") approved by the Commission on December 10, 2015.

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. In addition the application was reviewed for the inclusion of the importation of water from Well No. IR-1 (located outside the Basin) into the Commission's Comprehensive Plan in accordance with Section 2.30.4 of the Commission's Water Code. The Ocean County Planning Board and Monmouth County Planning Board have been notified of pending action on this docket. A public hearing on this project was held by the DRBC on February 10, 2016.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to approve the renewal of an existing import of up to 11.59 million gallons per month (mgm) of groundwater from the Atlantic Basin to the Delaware River Basin (DRB) from existing Well No. IR-1 for irrigation purposes at the docket holder's amusement park. The import of water occurs only when surface water withdrawals used for irrigation are not permitted because the flow in Lahaway Creek is insufficient to meet NJDEP passing flow requirements. The Application also requested to renew the approval to withdraw a combined total of up to 11.59 mgm of surface water from two (2) intakes, groundwater from 19 existing small capacity groundwater wells (16 in the Delaware River Basin) and the import from withdrawals at Well No. IR-1 described above for irrigation, animal washdown and non-public

domestic uses. The total and individual DRB well allocations correspond to the allocations in NJDEP Permit No. 2504P. The import of water remains reviewable by the Commission.

2. Location. The Six Flags Great Adventure theme park is located in Jackson Township, Ocean County, New Jersey. The majority of the project area and water supply sources are located within the Delaware River Basin. The divide between the Delaware River Basin and the Atlantic Basin is located in the southern and eastern parts of property. Four of the 20 wells utilized by the docket holder are located in the Atlantic Basin (Wells Nos. IR-1, W-14 APH-2 and APH-5). The remainder of the project wells and surface water intakes are located in the Delaware River Basin.

The project wells are screened in the Red Bank Sand, Vincentown, Mount Laurel Wenonah and Englishtown aquifers and the surface water withdrawals are from the Lahaway Creek and Irrigation Lagoon which are within the Middle Crosswicks Creek Watershed in Jackson Township Ocean County and Millstone Township, Monmouth County, New Jersey. At the withdrawal location, the NJDEP water classification of Lahaway Creek is FW2-NT. Specific location information has been withheld for security reasons.

3. Area Served. Withdrawals from Lahaway Creek, Storage Lagoon and Well No. IR-1 supply the docket holder's irrigation system for a large portion of the Grasslands Area of the Six Flags Great Adventure theme park. The other wells are utilized year round for washing animals and structures, amusement ride makeup, and non-public domestic supply. The service area is outlined on a plan entitled "Water Allocation Permit 2504P" submitted with the Application. For the purpose of defining Area Served, the Application is incorporated herein by reference consistent with conditions contained in the DECISION section of this docket.

4. Physical features.

a. Design criteria. SFGA obtains its non-potable water supply from surface and groundwater sources including surface water intakes on Lahaway Creek and the Storage Lagoon for irrigation of the Safari Grasslands, a backup irrigation well (Well No. IR-1) located in the Atlantic Basin for use when insufficient flows in Lahaway Creek occur and a series of 16 existing non-interconnected smaller-capacity wells located in the DRB that are used for animal washdown, ride makeup, landscape and non-public domestic purposes at various remote outbuildings and attractions on the park property.

Potable water and ride makeup water supply for the Six Flags Amusement park is provided by the Jackson Township Municipal Utilities Authority under DRBC Docket No. D-1994-018 CP-3, approved on December 9, 2015. Up to approximately 0.792 million gallons per day (mgd) of water is provided to Six Flags by the Jackson Township Municipal Utilities Authority.

Irrigation System

The docket holder's Six Flags Wild Safari Animal Park Grasslands Area consists of approximately 100 acres (of which 12 acres are in the Atlantic Basin) including blends of fescue, rye, and blue grass, and native vegetation indicative of Uplands Pine Barrens species. The Safari Grasslands is irrigated on an as-needed basis by an existing spray irrigation system. Irrigation

water is primarily supplied by an intake on Lahaway Creek and precipitation captured by a 3.5 million gallon capacity irrigation lagoon, with groundwater supply (Well No. IR-1) serving as a back supply only during low stream flow periods. Water is pumped from Intake 1 on the Lahaway Creek at a rate of up to 1,000 gpm and is discharged to the storage lagoon or directly to the irrigation system. Use of the Lahaway Creek intake is discontinued if the flow in Lahaway Creek drops below 0.5 cubic feet per second (cfs) as required by the NJDEP Permit No. 2504P. Under low flow conditions, the docket holder utilizes Well No. IR-1, which discharges up to 400 gpm to the irrigation storage lagoon. Water from the irrigation lagoon is then discharged via Intake No. 2 into the irrigation system. Based on withdrawal records provided by the docket holder to the State of New Jersey, Well IR-1 was utilized during a total of 6 months (May, June and September 2005; September and October 2007 and August 2008).

The irrigation season traditionally lasts from April 1 to October 1, with an average irrigation cycle of six hours. The irrigation system is divided into zones, each with approximately seven spray nozzles with a maximum capacity of 1,000 gpm. The irrigation demand necessary to supply approximately 1 inch to 1.5 inches of irrigation per week to the grassland areas is 0.48 mgd and 11.04 mgm. These demands represent a maximum use as a result of extreme high temperature and low to no precipitation conditions. From 2008 through the present, the peak monthly irrigation use was recorded at approximately 5.7 million gallons (August 2008). No changes to the irrigation system are anticipated in the foreseeable future and no increase in the peak demands are projected.

Lahaway Creek is a tributary of Prospertown Lake, whose outlet becomes a tributary of Crosswicks Creek. At the intake, Lahaway Creek is part of a surface water impoundment on the Six Flags property. The impoundment is contained by a check dam. The impoundment has a drainage area of approximately 1.6 square miles and an estimated storage capacity of 3.2 million gallons. The Lahaway Creek impoundment drains to Switlik Lake, an impoundment contained by a check dam. Switlik Lake then drains to Prospertown Lake, an impoundment contained by an outlet spillway adjacent to Monmouth-Ocean County Route 537. Flow monitoring of Lahaway Creek is at the intake via a stream level gauge which is calibrated against the calculated flow at the check dam approximately 1,000 feet downstream of the intake. The NJDEP Water Allocation Permit requires that the withdrawal from Lahaway Creek must cease when the flow measured at the Lahaway Check dam is less than 0.5 cubic feet per second.

Small Capacity Wells

The docket holder currently uses 16 existing smaller capacity wells for animal washdown, ride makeup, landscape and non-public domestic purposes at various remote outbuildings and attractions on the park property. The docket holder has 3 additional smaller capacity wells, but these wells are located on park property outside of the Delaware River Basin and do not provide water to facilities in the Basin. The individual wells range in capacity from 10 to 50 gpm. The combined current average and peak demands of the smaller capacity wells are reported to be 0.7 mgm and 1.3 mgm, respectively. The docket holder does not anticipate an increase in the water demands.

b. Facilities. The existing project wells and intakes have the following characteristics:

WELL ID	DEPTH (FEET)	PUMP CAPACITY (GPM)	YEAR DRILLED
Elephant Barn	250	50	2010
W-4 (Safari Admin Well)	200	50	1974
W-16 (Tiger Well)	94	10	1974
W-15 (Brown Bear Well)	108	10	1974
W-7 (Leopard Well)	104	10	1974
W-9 (Kangaroo Well)	61	10	1974
W-10 (Black Bear Well)	147	10	1974
W-17 (Black Buck Well)	69	10	1974
Butch's House Well	165	10	1974
STP Blower House Well	193	15	1974
Hydro Flume Well	101	10	1975
Log Flume Well	156	50	1976
Holding Area Well	210	20	2010
Park Entrance Well	190	20	1995
W-8R (Jordan House Well)	120	15	2001
W-11 (Switlick House Well)	60	10	1974
IR-1 Well *	389	400	1998

* Well is located in the Atlantic Basin

INTAKE NO.	WITHDRAWAL WATER BODY	PUMP CAPACITY	7Q10 FLOW AT INTAKE (CFS)	YEAR CONSTRUCTED
1	Lahaway Creek	1,000	0.5	1974
2	Irrigation Lagoon	1,000	NA	1974

All wells and intakes are metered.

Water is not treated prior to use.

The project facilities are above the 100-year flood elevation.

c. **Other.** Wastewater is conveyed to the Ocean County Utilities Authority sewage treatment facility which is located in the Atlantic Basin. The NJDEP issued its most recent NPDES Permit No. NJ0026018 on July 1, 2015 for this treatment facility. The exportation of wastewater was approved by the Commission in Docket No. D-93-70 CP on September 28, 1994. Approximately 0.318 mgd of wastewater is generated and exported from the Six Flags Great

Adventure Theme Park complex to the Ocean County Utilities sewage treatment plant in the Atlantic Basin. The treatment facility has adequate capacity to continue to receive wastewater from the existing project.

d. Cost. There are no construction costs associated with this renewal project.

e. Relationship to the Comprehensive Plan. In accordance with Section 2.30.4 of the Commission’s Water Code, SFGA’s importation of water of up to 11.59 mgm from Well No. IR-1 located outside the Basin is hereby added to the Commission’s Comprehensive Plan. Any change in the quantity or source of water imported under this docket will require Commission approval of a modification to the CP (see Condition C.II.e.).

B. FINDINGS

The project is designed to conform to the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC. In accordance with Section III.B.3 of the March 2015 DRBC/NJDEP Administrative Agreement, the docket holder’s existing groundwater and surface water withdrawals will continue to be regulated by NJDEP in accordance with the NJDEP Water Allocation Permit No. 2504P issued on September 4, 2014 with an expiration date of September 30, 2024. Upon the permittee’s submission of an application for renewal of its NJDEP water withdrawal permit, the renewal request will be administered under the One Process/One Permit Program (“One Permit”) approved by the Commission on December 10, 2015. Please be aware that your surface water withdrawals remain subject to DRBC’s Basin Regulations – Water Supply Charges, 18 CFR § 420.41. Quarterly payments may be made electronically at <http://www.state.nj.us/drbc/programs/supply/charging/>.

Groundwater Importation

The Six Flags Great Adventure Theme Park is located on the basin divide of the Delaware River and Atlantic Basins. The docket holder also operates several smaller capacity wells (W-14, APH-2 and APH-5) that are not included in this docket since they are located in the Atlantic basin and serve only portions of the property that are also located in the Atlantic basin (i.e. the withdrawal and use occurs outside of the DRB and does not involve an import of water). Water from Well No. IR-1 is imported into the basin and used for irrigation only when the docket holder’s surface water supply is not available due to low flow conditions in Lahaway Creek. Pumping records provided by the docket holder show that since 2005, the well has been used during only 6 separate months at rates ranging from 0.8 mgm to 1.7 mgm. The continued importation of water to the DRB from sources outside the DRB reduces reliance on in-basin sources. No other significant benefit or impairment is incurred to the basin from the occasional importation of water from Well IR-1 located in the Atlantic Basin.

The NJDEP water allocation is valid for a period of 10 years from the effective date of October 1, 2014. Water Allocation Permit No. 2504P expires on September 30, 2024. The allocations for the DRB sources included in the NJDEP permit are provided in Decision Condition II.d. in the Decision Section of this docket.

The docket holder estimates that the project withdrawals, used for the purpose of irrigation, animal washdown and non-public domestic uses, result in a consumptive use of 100 percent of the total water use. The DRBC definition of consumptive use is defined in Article 5.5.1.D of the *Administrative Manual – Part III – Basin Regulations – Water Supply Charges*.

Surface Water Charges

The docket holder shall continue to pay for surface water use in accordance with Administrative Manual – Part III Basin Regulations – Water Supply Charges as described in Condition C.f. in the DECISION section. The surface water volume subject to water charges is the total amount of surface water discharged to the irrigation system through Intakes Nos. 1 and/or 2 less the amount of water diverted from Well No. IR-1.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

C. DECISION

I. Effective on the approval date for Docket No. D-1996-006 CP-2 below, Docket No. D-96-6 is terminated and replaced by Docket No. D-1996-006 CP-2.

II. The project and appurtenant facilities as described in the Section A “Physical features” are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the NJDEP in its Water Allocation Permit, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission’s.

b. The wells and operational records shall be available at all times for inspection by the DRBC.

c. The wells shall be operated at all times to comply with the requirements of the *Water Code* and *Water Quality Regulations* of the DRBC.

d. During any month, the combined withdrawal from all sources including the import of water from Well No. IR-1 shall not exceed 11.59 million gallons or 78.4 million gallons per year. No source shall be pumped above the maximum instantaneous rate as indicated below:

SOURCE ID	MAXIMUM INSTANTANEOUS RATE (GPM)
Intake No. 1 (Lahaway Creek)	1,000

SOURCE ID	MAXIMUM INSTANTANEOUS RATE (GPM)
Intake No. 2 (Irrigation Lagoon)	1,000
W-4	50
W-16	10
W-15	10
W-7	10
W-9	10
W-10	10
W-17	10
Butch's House	10
Blower House	15
Hydro Flume	10
Log Flume	50
Park Ent.	20
W-11	10
W-8R	15
Holding Area	20
Elephant Barn	50

Additionally, during any month the Surficial Aquifer Sources (Red Band Sand and Vincentown Aquifers) shall not exceed 2.5 million gallons and the Mount Laurel Aquifer Sources shall not exceed 2.5 million gallons. The import of water from Well No. IR-1 shall only be used when the flow in Lahaway Creek is insufficient to meet the passing flow.

e. In accordance with Section 2.30.4 of the Commission's Water Code, SFGA's importation of water of up to 11.59 mgm from Well No. IR-1 located outside the Basin is hereby added to the Commission's Comprehensive Plan. Any change in the quantity or source of water imported under this docket will require Commission approval of a modification to the CP.

f. The wells shall be equipped, where possible, with readily accessible capped ports and minimum ½ inch inner diameter (ID) drop pipes as repairs or modifications are made at each existing well so that water levels may be measured under all conditions.

g. The docket holder shall pay for surface water use in accordance with Administrative Manual – Part III Basin Regulations – Water Supply Charges.

h. The project withdrawal must not cause the streamflow at the Lahaway Creek Check Dam to be less than 0.5 cubic feet per second. Whenever the streamflow is less than this amount, no withdrawal shall be made and the entire natural streamflow must be allowed to pass.

i. The project withdrawals shall be metered with an automatic continuous recording device that measures to within 5 percent of actual flow. An exception to the 5 percent performance standard, but no greater than 10 percent, may be granted if maintenance of the 5 percent performance is not technically feasible or economically practicable. A record of daily withdrawals shall be maintained, and monthly totals shall be reported to the NJDEP quarterly and shall be available at any time to the Commission if requested by the Executive Director.

j. Each new water service connection shall include a water meter in accordance with the DRBC's Resolution No. 87-7 (Revised).

k. The docket holder shall implement to the satisfaction of the NJDEP, the continuous program to encourage water conservation in all types of use within the facilities served by this docket approval. The docket holder will report to the NJDEP on the actions taken pursuant to this program and the impact of those actions as requested by the NJDEP.

l. No water service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

m. The docket holder shall implement to the satisfaction of the NJDEP, a drought or other water supply emergency plan.

n. Sound practices of excavation, backfill and reseedling shall be followed to minimize erosion and deposition of sediment in streams from any new facilities or repair related construction.

o. No new water service connections shall be made to premises connected to sewerage systems which are not in compliance with all applicable effluent limits contained in State permits and the *Water Quality Regulations* of the Commission.

p. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

q. The docket holder is permitted to provide the water approved in this docket to the areas included in Section A.3. Area Served of this docket. Any expansion beyond those included in Section A.3. Area Served is subject to DRBC review and approval in accordance with Section 3.8 of the *Compact*.

r. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and

complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

s. The issuance of this docket approval shall not create any private or proprietary rights in the water of the Basin, and the Commission reserves the rights to amend, alter or rescind any actions taken hereunder in order to insure the proper control, use and management of the water resources of the Basin.

t. If the monitoring required herein or any other relevant data or information demonstrates that the operation of this project is interfering with or otherwise impairing existing uses of ground or surface water, or if the permit holder receives a complaint from an existing ground or surface water user within the zone of influence of the withdrawal alleging such interference or impairment, the permit holder shall immediately notify the Executive Director, and unless excused by the Executive Director, shall investigate the demonstrated or alleged impacts. For purposes of this condition, notification shall mean either (a) electronic transmittal of written notice to the Executive Director via email (using addresses posted on the DRBC website); or (b) written notice to the Executive Director and a telephone call to the Project Review Section at 609-883-9500, ext. 216. (Oral notification must always be accompanied by immediate written notification directed to the Executive Director.) In addition, the permit holder shall provide written notice to all potentially affected water users of the permit holder's responsibilities under this condition. **Any well or surface water supply that is impaired as a result of the permit holder's project withdrawal shall be repaired, replaced or mitigated at the permit holder's expense.** The scope of the options to consider for repair, replacement and/or mitigation shall not be limited solely to those that are owned, operated, or controlled by the project sponsor. An investigation report and/or mitigation plan prepared and certified by a licensed professional engineer and/or a licensed professional geologist shall be submitted to the Executive Director as soon as practicable following notice of the demonstrated or alleged impairment consistent with this paragraph. The Executive Director shall make the final determination regarding the scope and sufficiency of the investigation and the extent of any mitigation measures that may be required. Where ground and surface waters are rendered unavailable, unusable, or unsuitable for the pre-existing use, the Executive Director may direct the permit holder to take interim actions to mitigate such impacts, pending completion of the investigative report and any long-term repair, replacement or mitigation.

u. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

v. During any water emergency or other non-emergency declaration by the Governor of New Jersey, NJDEP or the Commission, water service or use by the project docket holder pursuant to this docket approval shall be subject to any order or restriction governing those

non-essential uses specified by the NJDEP to the extent that they may be applicable, and to any other emergency resolutions or orders adopted by the Commission.

w. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the *Rules of Practice and Procedure*. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

BY THE COMMISSION

APPROVAL DATE: March 16, 2016

EXPIRATION DATE: March 16, 2026