

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(pursuant to NAC 445A.236)

Applicant: 7-Eleven Incorporated
P.O. Box 711
Dallas, Texas 75221-0711

Permit: NV0023396

Location: 7-Eleven Store Number 20826
1600 North Decatur Drive
Las Vegas, Clark County, Nevada 89108
Latitude: 36° 11' 17" N, Longitude: 115° 12' 21" W
Township 20S, Range 61E, Section 19 MDB&M

General: The Applicant has applied for a National Pollutant Discharge Elimination System (NPDES) permit, NV0023396, to discharge treated groundwater to the Las Vegas Wash via the City of Las Vegas stormdrain system. 7-Eleven Store No. 20826, a convenience store that formerly included a fueling station, is located on the northeast corner of North Decatur Drive and Vegas Drive. Prior leakage of gasoline from the underground storage tank system has contaminated the shallow groundwater with petroleum hydrocarbon contaminants. This system was removed in February 2003.

Groundwater remediation will be accomplished by using a high vacuum dual-phase pump-and-treat system. The on-site groundwater recovery and monitoring system includes five groundwater remediation wells, twelve monitoring wells, eight air sparging wells, four vapor extraction wells, four nested air sparge/soil vapor extraction wells, three vapor monitoring wells, and two vapor monitoring points. A remediation system comprised of two parts will be installed at the site. Part one, a mobile trailer, will consist of a liquid ring pump, a liquid knockout tank, and a transfer tank. Part two, the permanently mounted system, will include a transfer pump, a chemical tank with a metering pump, a low profile air stripper with a blower, a liquid knockout tank, and two vapor-phase carbon vessels. An anti-scaling chemical, Anlytix™ AN-310FG, containing copolymers and organic phosphorus compounds, is proposed to be added to the groundwater prior to being processed through the air stripper. The treated groundwater will be discharged via a three-inch PVC pipe to a City of Las Vegas stormdrain inlet on Vegas Drive.

Petroleum hydrocarbon contaminants of concern in the affected groundwater include benzene, ethylbenzene, toluene, and total xylenes (BTEX), methyl tertiary butyl ether (MTBE) and total petroleum hydrocarbons (TPH). The Division's Bureau of Corrective Actions regulates the on-site cleanup activities and final site closure requirements.

Flow: The permitted discharge flow rate, 30-day average and daily maximum, of this groundwater remediation system is specified as 15 gallons per minute (gpm), which is equivalent to 0.0216 million gallons per day (MGD). This flow rate is based on the treatment capacity of the groundwater remediation system.

Site Groundwater: The third quarter 2004 average depth to groundwater at the facility was approximately 13.0 feet below ground surface (bgs). The groundwater monitoring and extraction system includes nine monitoring wells and four air sparging wells. The third quarter 2004 local groundwater flow was southeast at a gradient of approximately 0.016 ft/ft toward the Las Vegas Wash.

Based on a single August 2004 sample from MW-1, the shallow groundwater at the facility is of poor quality with elevated concentrations of aluminum, 1.57 mg/L; barium, 2.70 mg/L; iron, 4.27 mg/L; and manganese, 0.087 mg/L; and a reported total dissolved solids concentration of 1,040 mg/L. Antimony, arsenic, beryllium,

cadmium, nitrate, mercury, silver, and thallium were not detected in an ICP total metals analysis of this water.

1,2,4-trimethylbenzene, 602 µg/L; benzene, 301 µg/L; ethylbenzene, 368 µg/L; MTBE, 14 µg/L; n-propylbenzene, 70 µg/L; naphthalene, 141 µg/L; toluene, 120 µg/L; BTEX, 494 µg/L; and gasoline, 13,200 µg/L, were present in the August 2004 MW-1 sample at the listed concentrations. No other volatile organic compounds were detected.

Receiving Water Characteristics: The receiving water for the treated groundwater is the Las Vegas Wash via the City of Las Vegas stormdrain system. Water quality standards for the Upper Las Vegas Wash are specified in NAC 445A.199, Las Vegas Wash from Telephone Line Road to confluence of discharges from City of Las Vegas and Clark County wastewater treatment plants. NAC 445A.199 includes requirements to maintain existing higher quality (RMHQ) temperature, $\Delta T 0^{\circ}\text{C}$; total inorganic nitrogen, 20 mg/L; and total dissolved solids (TDS), 1,900 mg/L; and water quality standards for beneficial uses pH, range 6.5 – 9.0 SU; nitrate, 100 mg/L; nitrite, 10 mg/L; total suspended solids, 135 mg/L; TDS 3,000 mg/L; and fecal coliform, log mean of 200 MPN/100 ml based on a minimum of not less than five samples taken over a 30-day period.

The beneficial uses of the Upper Las Vegas Wash, as designated in NAC 445A.198, are propagation of aquatic life, excluding fish; propagation of wildlife; irrigation; recreation not involving contact with water; maintenance of a freshwater marsh; and watering of livestock.

The Division does not monitor the upper Las Vegas Wash water quality. The Las Vegas Wash above Lake Las Vegas, monitoring station CL3A, has been monitored since early 2001. The temperature RMHQ only applies at the boundary of an approved mixing zone. The total nitrogen concentration has averaged 14.1 mg/L over this timeframe with a maximum value of 17.7 mg/L in January 2003. The TDS concentration has averaged 1,587 mg/L over this timeframe with a maximum value of 1,900 mg/L in June 2003. pH has ranged from 7.0 SU in July 2004 to 8.7 SU in May 2001. The total suspended solids concentration has averaged 102 mg/L over this timeframe with a maximum value of 535 mg/L in May 2002 and two other exceedances of the upstream standard in mid-2003.

The CL3A average chloride and sulfate concentrations were 320 mg/L and 630 mg/L, respectively.

Proposed Effluent Limitations: Samples taken in compliance with the monitoring requirements specified below shall be taken from:

- i. the sample port on the discharge line from the treatment system, Outfall 001; and
- ii. the sample port on the influent line to the treatment system.

Table 1: Discharge Limitations

PARAMETER	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS		
	30-DAY AVERAGE	DAILY MAXIMUM	SAMPLE LOCATION(S)	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow (MGD)	0.0216 (15 gpm)	0.0216 (15 gpm)	i. Effluent	Continuous ¹	Totalizing Flow Meter
VOC EPA Method 624 (report all parameters), (µg/L)	Monitor & Report		i. Effluent	Quarterly	Discrete
			ii. Influent	Annually ³	
Benzene (µg/L)	---	5	i. Effluent	Weekly/Monthly ²	Discrete
Ethylbenzene (µg/L)	---	100	i. Effluent	Weekly/Monthly ²	Discrete
Toluene (µg/L)	---	100	i. Effluent	Weekly/Monthly ²	Discrete

Xylenes, Total (µg/L)	---	200	i. Effluent	Weekly/Monthly ²	Discrete
MTBE ³ (µg/L)	---	20	i. Effluent	Weekly/Monthly ²	Discrete
TPH EPA SW-846 Method 8015 (modified to detect "purgeable fuel hydrocarbons") (mg/L)	---	1.0	i. Effluent	Weekly/Monthly ²	Discrete
	Monitor & Report		ii. Influent	Annually ³	
pH (SU)	6.5 ≤ pH ≤ 9.0		i. Effluent	Weekly/Quarterly ⁴	Discrete
Total Dissolved Solids (mg/L)	Monitor & Report		i. Effluent	Quarterly	Discrete
Total Inorganic Nitrogen –N (mg/L)	---	20	i. Effluent	Quarterly	Discrete
Total Phosphorus –P (lb/day)	< 1.0		i. Effluent	Quarterly	Discrete
Total Ammonia –N (lb/day)	< 1.0		i. Effluent	Quarterly	Discrete
Iron ⁵ (mg/L)	Monitor & Report		i. Effluent	Quarterly	Discrete
Manganese ⁵ (mg/L)	Monitor & Report		i. Effluent	Quarterly	Discrete
Barium ⁵ (mg/L)	Monitor & Report		i. Effluent	Annually ³	Discrete
Aluminum ⁵ (mg/L)	Monitor & Report		i. Effluent	Annually ³	Discrete

NOTES:

1. Monitor and record daily discharge flow in million gallons per day and report on a weekly basis for the first two months of operation, followed thereafter by monthly monitoring and recording.
2. The Permittee shall characterize the discharge weekly for the first two months of operation, followed thereafter by monthly characterization. If the treated effluent exceeds any permit limit, the Permittee shall make appropriate treatment system adjustments and resample the discharge within 72 hours after lab notification of exceedance. The first sample shall be taken within three days of commencing system operation.
3. To be sampled in the fourth quarter and submitted to the Division with the Annual Report.
4. The Permittee shall characterize the discharge weekly for the first two months of operation, followed thereafter by quarterly characterization. If the treated effluent exceeds any permit limit, the Permittee shall make appropriate treatment system adjustments and resample the discharge within 72 hours after lab notification of exceedance. The first sample shall be taken within three days of commencing system operation.
5. Total recoverable.

MGD: Million gallons per day.

µg/L: Micrograms per liter.

mg/L: Milligrams per liter.

VOC: Volatile organic compounds.

MTBE: Methyl tertiary butyl ether.

EPA: U.S. Environmental Protection Agency.

TPH: Total petroleum hydrocarbons.

SU: Standard units.

lb/day: Pounds per day.

gpm: Gallons per minute.

Rationale for Permit Requirements: Monitoring requirements for the parameters specified in Table 1: Discharge Limitations are being proposed to ensure that the receiving water, the Las Vegas Wash, is not degraded as a result of the Applicant's groundwater remediation discharge.

Flow: The rationale for the 30-day average and daily maximum discharge rate was explained in the Flow section of this fact sheet.

Volatile Organic Compounds (VOC): The shallow groundwater in the immediate area of the facility was impacted by a release of petroleum hydrocarbons containing VOCs. Discharge limitations for the VOCs

associated with hydrocarbon releases have been included in Table 1. Benzene, BTEX, ethylbenzene, and toluene were detected at levels above the daily maximums in the August 2004 groundwater analysis.

In October 1998, the Division adopted an interim action level for MTBE of 20 µg/L for sites in close proximity to receptors and/or sensitive receptors. This groundwater standard is being used for all surface waters. MTBE was detected in the August 2004 analysis at a concentration of 14 µg/L.

Total Petroleum Hydrocarbons (TPH): The shallow groundwater in the vicinity of the facility was contaminated by a petroleum hydrocarbon release. In August 2004, gasoline was detected at a concentration of 13,200 µg/L in the groundwater.

pH: NAC 445A.199 includes a single value pH water quality standard for beneficial uses within the range of 6.5 – 9.0 SU. The pH of the shallow groundwater is reported to be 6.95 SU.

Total Dissolved Solids (TDS): NAC 445A.199 includes a single value at 180°C TDS standard for beneficial uses of ≤ 3,000 mg/L and an RMHQ of 95% of the samples ≤ 1,900 mg/L. The TDS concentration of the groundwater was 1,040 mg/L in August 2004. The shallow groundwater with naturally occurring elevated TDS levels would flow to the Wash, if it was not intercepted by the dewatering system, therefore, the TDS standard is not applied to remediation discharges in this area. Quarterly monitoring is proposed in the draft permit.

This permit is for the interception and passage of groundwater and thus is exempted under the Colorado River Basin Salinity Control Forum's policy on groundwater interception.

Total Inorganic Nitrogen as Nitrogen (TIN): NAC 445A.199 includes a requirement to maintain existing higher quality TIN standard of 95% of the samples ≤ 20.0 mg/L. The TIN concentration in the groundwater was not reported in the permit application. Nitrate was not detected in the groundwater at a reportable detection limit of 0.1 mg/L; the August 2004 groundwater sample was not analyzed for any other forms of nitrogen. Quarterly monitoring is proposed in the draft permit.

Total Phosphorus as Phosphorus (TP): In 1987, a TP total maximum daily load (TMDL) of 434 lb/day was established for the Las Vegas Bay/Wash. The waste load allocations (WLAs) set are applicable for only April through September and were based on a target concentration of 0.64 mg/L. WLAs have been assigned only to the Cities of Las Vegas and Henderson and the Clark County Sanitation District.

Based on the State's de minimis policy of exempting discharges of less than 1 lb/day TP from the TMDL analysis, a WLA has not been assigned to this Applicant. At the maximum permitted flow of 0.0216 MGD and the August 2004 TP concentration of 0.16 mg/L, the Applicant would discharge 0.029 lb/day TP. Quarterly monitoring is proposed in the draft permit.

Total Ammonia as Nitrogen: A total ammonia TMDL of 970 lb/day has been established for the Las Vegas Bay/Wash. The August 2004 groundwater sample was not analyzed for total ammonia. Based on the low concentrations of total ammonia in groundwater and the State's de minimis policy of exempting discharges of less than 1.0 lb/day total ammonia from the TMDL analysis, the total ammonia load is not expected to be an issue. Quarterly monitoring is proposed in the draft permit.

Iron – Per NAC 445A.144, the aquatic life standard for total recoverable iron is 1.0 mg/L. Iron was detected in the groundwater at a concentration of 4.27 mg/L in August 2004. The shallow groundwater with naturally occurring elevated iron levels would flow to the Wash, if it was not intercepted by the dewatering system, therefore, the metals standards are not applied to this remediation discharge. Quarterly monitoring without a discharge limitation is proposed.

Manganese – Per NAC 445A.144, the irrigation standard for total recoverable manganese is 0.20 mg/L. The manganese secondary drinking water standard is 0.05 mg/L. Manganese was detected in the groundwater at a

concentration of 0.087 mg/L in August 2004. The shallow groundwater with naturally occurring elevated manganese levels would flow to the Wash, if it was not intercepted by the dewatering system, therefore, the metals standards are not applied to this remediation discharge. Quarterly monitoring without a discharge limitation is proposed.

Barium – NAC 445A.144 does not include barium standards for the listed beneficial uses. Barium was detected in the groundwater at a concentration of 2.70 mg/L in August 2004. Annual monitoring without a discharge limitation is proposed.

Aluminum – NAC 445A.144 does not include aluminum standards for the listed beneficial uses. Aluminum was detected in the groundwater at a concentration of 1.57 mg/L in August 2004. Annual monitoring without a discharge limitation is proposed.

Schedule of Compliance: The Permittee shall submit the following items to the Division for review and approval:

Within ninety (90) days of the permit effective date, the Permittee shall submit to the Division, for review and approval, an Operations & Maintenance (O&M) Manual for the groundwater extraction and treatment system.

Proposed Determination: The Division has made the tentative determination to issue the proposed permit for a period of five (5) years.

Procedures for Public Comment: The Notice of the Division's intent to issue a permit authorizing the facility to discharge treated groundwater to surface waters of the State, subject to the conditions contained within the permit is being sent to the **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the notice of proposed action in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is 5:00 PM March 15, 2005.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by: Bruce Holmgren
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