NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

F A C T S H E E T
(Pursuant to NAC 445A.874)

Permittee Name:	**Mr. Jack Oman, Atlantic Richfield**	Type of Project:	**Remediation**
Project Name:	**Atlantic Richfield Station # 1878**	Address:	**2801 W.Washington Ave.**
Permit Action:	**UIC Draft Permit Issuance**		**Las Vegas, Nevada 89107**
Permit Number:	**UNEV2008200**	Injection Wells (#):	**two (2)**

A. Description of Injection

Location: Atlantic Richfield Station #1878, located at 2801 West Washington Avenue, Las Vegas, Nevada in the SW ¼ of Section 29, T.20S, R.61E. There are two (2) injection wells, IW-1 and IW-2B The wells are approximately 25 feet deep with a screened interval between 9 feet and 25 feet.

Characteristics: The injectate consists of 3% hydrogen peroxide solution injection for petroleum hydrocarbon remediation of benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tertiary butyl ether (MTBE).

B. Synopsis

Historically the property was a fueling facility operated by Atlantic Richfield Station. At this time, the underground storage tank (UST) system has been removed from the property, the property has been sold, and it is currently being operated as a check cashing store. During the time the property was a gas station, a release occurred from the UST. The hydrogen peroxide remediation at the Atlantic Richfield Station 1878 will address petroleum hydrocarbons in the groundwater beneath the facility.

In August and December 1992 environmental characterizations performed by Broadbent and Associates, Inc. (BAI) showed there were dissolved petroleum hydrocarbons in the near surface aquifer below Station 1878. A Remedial Action Plan (RAP) submitted to Clark County Health District proposed extraction of groundwater from wells GAMW-1 and GAMW-2, treatment by air stripping and carbon adsorption, and re-injection of the treated ground water into the near surface aquifer via well GAMW-6.

In July 1995, benzene was detected in an offsite up-gradient well (GAMW-4). The pump and treat system was shut down temporarily to determine if another party should initiate remedial activities at the offsite location. During third quarter 1995, the benzene concentration increased in GAMW-4. As a result, the remediation system was permanently shut down.

In 1997, the Nevada Division of Environmental Protection (NDEP) concurred with a plan to install Oxygen Release Compound (ORC®) filter socks into wells GAMW-1 and GAMW-2, and to cease sampling of wells GAMW-3 and GAMW-5 due to low benzene levels. During the first two quarterly sampling events of 1999, wells GAMW-1 and GAMW-2 had increases in benzene, which prompted

NDEP to require submittal of a revised RAP. The new RAP proposed injection of hydrogen peroxide into wells GAMW-1 and GAMW-2, and was approved by NDEP . Subsequently, free product was detected in both wells, and a program of bailing free product from the wells was initiated.

In August 2003 a revised RAP proposed use of high vacuum fluid recovery to remove the free product from GAMW-1, GAMW-2, and from proposed well GAMW-8. In September 2003, NDEP approved the new plan, and from September 2003 to October 2003, nine high vacuum fluid recovery events were performed in GAMW-1, GAMW-2, and GAMW-8. A total of 3,040 gallons of groundwater and free product were removed, and no free product has been observed since that time.

In December 2003, BAI proposed a pilot test to evaluate the use of hydrogen peroxide for remediation of the site. On March 2, March 9, March16, and March 23, 2004, 500 gallons of 3% H_2O_2 were injected into GAMW-1. The rate of infiltration was recorded, with the average determined to be 14.8 gpm.

A *Revised Remedial Action Plan* was submitted to NDEP's Bureau of Corrective Actions on May 26, 2004. An *Additional Characterization and Fourth Quarter 2004 Groundwater Monitoring and Remediation Status Report* was submitted dated January 28, 2005. The Bureau of Corrective Actions, in a letter dated April 29, 2005, concurred with the recommendation to submit an Underground Injection Control permit application for the proposed hydrogen peroxide injection.

C. Receiving Water Characteristics

Groundwater sampling at this site has demonstrated the presence of BTEX and MTBE in excess of the State and Federal action levels.

The aquifer that will be affected by injection at this site is the near surface aquifer. The consultant states that it is highly unlikely that the first drinking water aquifer will be affected by injection activities because of the presence of impermeable soils between the near surface aquifer and the first drinking water aquifer.

The geology encountered during well construction at the site consists of silty sand with trace gravel from the ground surface to 8 feet below ground surface (bgs), caliche from 8 feet to 14 feet bgs, and silty clay with and without trace sand from 14 to 25 feet bgs. (All depths are approximate.) The depth to ground water is approximately 13.5 feet bgs. The groundwater generally flows in the southeasterly direction, with a hydraulic gradient of 0.1 ft/ft.

D. Procedures for Public Comment

The Notice of the Division's intent to issue a permit authorizing the facility to discharge to groundwater of the State of Nevada was sent to the Las Vegas Review Journal on March 6, 2008. The notice was mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit may do so for a period of 30 days following the date of the public notice.

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.

Any public hearing determined by the Administrator to be held must be conducted in the

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geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will 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 445.274.

E. Proposed Determination

The Division has made the tentative determination to issue the proposed permit.

F. Proposed Effluent Limitations and Special Conditions

Table 1

PARAMETER	FREQUENCY	LOCATION	LIMITATIONS
Benzene, Toluene, Ethyl benzene, total Xylenes (BTEX), and Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8260B	Quarterly	GAMW-1, GAMW-3, GAMW-4, GAMW-5, GAMW-6, GAMW-8B, GAMW-9, and GAMW-10	Monitor and Report
Nitrate and Sulfate by EPA method 300.0	Quarterly	GAMW-1, GAMW-3, GAMW-4, GAMW-5, GAMW-6, GAMW-8B, GAMW-9, and GAMW-10	Monitor and Report
Methane by EPA Method RSK SOP-175	Quarterly	GAMW-3 and GAMW-8B	Monitor and Report
Dissolved Oxygen, Temperature, pH, conductivity, ferrous iron and Redox	Quarterly	GAMW-1, GAMW-3, GAMW-4, GAMW-5, GAMW-6, GAMW-7, GAMW-8B, GAMW-9, GAMW-10, IW-1, and IW-2B	Field Parameters
Hydrogen Peroxide: Concentration, Volume and Date Injected	Each Injection Event	IW-1 and IW-2B	3% H_2O_2 maximum rate of 4,500 gallons per quarter.
Groundwater Elevation (amsl) and Depth to Groundwater	Quarterly	All on-site monitoring and injection wells	Monitor and Report

G. **Rationale for Permit Requirements**

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime.

Prepared by: Russ Land
Date: March 6, 2008

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APPENDIX A

PARAMETER	GAMW-3	DRINKING WATER STANDARDS (MCL)
Total Dissolved Solids, mg/L	***1400***	1000
pH	7.37	6.5 - 8.5
Chloride, mg/L	110	400
Fluoride, mg/L	0.27	4
Sulfate, mg/L	***550***	500
Nitrate (as nitrogen), mg/L	***50***	10 (NO_3-N) & 45 (NO_3)
Nitrite (as nitrogen), mg/L	ND	1
Aluminum, mg/L	***3300***	0.2 (Advisory)
Antimony, mg/L	ND	0.006
Arsenic, mg/L	***3.8***	0.05
Barium, mg/L	***87***	2
Beryllium	ND	0.004
Cadmium, mg/L	ND	0.005
Chromium, mg/L	***3.7***	0.1
Copper, mg/L	***3.4***	1.3
Lead, mg/L	***6.8***	0.015
Iron, mg/L	***0.96***	0.6
Magnesium, mg/L	140	150
Manganese, mg/L	***61***	0.1
Mercury, mg/L	ND	0.002
Nickel, mg/L	***4.1***	0.1
Selenium, mg/L	***15***	0.01
Silver, mg/L	ND	0.05
Thallium, mg/L	ND	0.002
Zinc, mg/L	***46***	5

***Concentrations reported for MW-1 listed in *bold italics* exceed drinking water standards (MCLs.)**

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