

GW-11 Pond Monitoring Plan
NERT Groundwater Extraction and Treatment System
Henderson, Nevada

April 12, 2013

Prepared for:



Veolia Water North America – West, LLC
510 South Fourth Street
Henderson, Nevada 89015

Prepared by:



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12-01-201-201

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1.0 POND MONITORING PLAN

Project Name: NERT Groundwater Extraction and Treatment System

Project Location: BMI Complex
Henderson, Nevada

Owner: Nevada Environmental Response Trust (NERT)

Operator: Veolia Water North America – West, LLC

Operator Address: 510 South Fourth Street
Henderson, NV 89015

Operator Phone: (702) 566-6001

Person Responsible For

Implementing the Plan: Operator

Inspections and Recordkeeping: Operator

2.0 OWNER CERTIFICATION STATEMENT

Owner Approval and Certification of Monitoring Plan

NERT Groundwater Extraction and Treatment System

I certify that this document and all attachments submitted to Air Quality were prepared at the request of, or under the direction or supervision of the Nevada Environmental Response Trust. I also confirm that a pond monitoring plan (Plan) has been completed and that the Plan will be implemented as described herein. Based on my own involvement and/or inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information or prepared document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Nevada Environmental Response Trust (NERT) Representative Certification

Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as President of the Nevada Environmental Response Trust Trustee

Jay A. Steinberg, not individually but solely as President 4-17-13
Signature Date

Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

3.0 OPERATOR CERTIFICATION STATEMENT

Plan Acknowledgement

NERT Groundwater Extraction and Treatment System

The Operator(s) responsible for implementing this Plan acknowledges by signing below that they have read this Plan and are familiar with its content, requirements, and their responsibility thereunder.

Company: VEOLIA WATER

Print Name and Title: STEVE KUBACKI - PROJECT MANAGER

Signature and Date: SK - 4/19/13

4.0 INTRODUCTION AND SITE LOCATION

This Pond Monitoring Plan (Plan) has been developed to manage nuisance odors associated with the GW-11 pond, a containment pond located at the Nevada Environmental Response Trust (NERT) Groundwater Extraction and Treatment System (Facility). Veolia Water North America – West, LLC (Veolia) operates the groundwater treatment plant located in Henderson, Nevada. The primary purpose of the plant is to remove perchlorates from groundwater and return treated water to the Las Vegas Wash.

An application for a Minor Source permit for the Veolia Henderson facility was submitted to the Clark County Department of Air Quality (Air Quality) on October 31, 2012. During the application review process, concerns were raised regarding the GW-11 pond. The GW-11 pond is a large on-site storage pond. In addition to collecting stormwater, the pond may also act as emergency diversion storage in the event that treated groundwater does not meet discharge standards or during plant maintenance. In late 2012, Air Quality received odor complaints from nearby residents. Upon investigation, it was determined by the compliance inspector that the pond was a potential source of nuisance odors. As such, Air Quality has requested a Pond Monitoring Plan as a condition of permit issuance.

Small amounts of dissolved sulfides are occasionally present in the GW-11 pond. During the period of December 14 through December 28, 2012, Veolia collected samples from the pond twice daily. Samples were analyzed for total dissolved sulfides. In addition, pH, water temperature, air temperature, and wind speed were recorded. This information is presented in Table 1: *Pond Sampling Results*.

5.0 ODOR CONTROL MEASURES

Best management practices will be implemented to prevent or minimize odors associated with the GW-11 pond. It is believed that sediments in the pond are responsible for odor issues associated with the pond; therefore the primary step in odor control will be water level management.

5.1 Water Level Management

As mentioned above, it is believed that nuisance odors associated with the GW-11 pond are due to the exposure of sediments that have accumulated at the bottom of the pond. When the water level drops, sediments are exposed and there is potential for odors. In order to prevent this occurrence, operators will ensure that the water level in the pond is adequate to prevent sediment exposure.

It has been determined that a water depth of 10 feet (based on the diagonal marker) should meet this requirement. It should be noted that 10 feet on the diagonal marker corresponds to a vertical pond depth of 2.16 feet. Operators will monitor the pond depth on the 1st and the 15th of each month. Should the water level fall below the 10 foot mark, clean effluent will be diverted to the pond until the pond depth reaches an acceptable level.

5.2 Other Best Management Practices

In addition to managing water depth, operators will ensure to the extent practicable that water entering the pond does not contain a high dissolved sulfide concentration. As part of plant operations, dissolved sulfides are measured at Separators 3 & 4 approximately every four hours, and dissolved sulfides at the effluent is measured monthly. Dissolved sulfide concentrations at these points typically do not exceed 8 mg/L and 0.01 mg/L, respectively. Should operators note an unusual spike in dissolved sulfide concentration at either point, the cause will be investigated to ensure that excess sulfides are not being discharged to the pond.

6.0 INSPECTION AND MONITORING PROCEDURES

Informal inspections occur throughout each day at the Facility. The sections below describe the inspections required under this Plan.

6.1 Responsible Parties

Parties responsible for implementation of this Plan are listed in Sections 2.0 and 3.0. Efforts will be made to keep those responsible for implementation elements in their respective roles and inhibit turnover of the positions to ensure continuity of the program. If an authorization is no longer accurate due to changes in position or individual, a new written certification of compliance will be completed, and the Plan will be amended accordingly.

6.2 Inspection Procedures

Inspections shall ensure that the odor control measures specified in Section 5.0 are followed. Inspections will be documented, including those that do not identify conditions requiring correction. Inspections shall also include a review of the Plan to ensure that required record keeping elements are current and correct.

Inspections will be performed according to the schedule provided in Table 2: *Inspection Schedule*.

Site inspections shall be conducted using the *GW-11 Pond Checklist* and records retained within Attachment A: *Inspection Records*. Records shall be retained for a period of at least 3 years.

6.3 Pond Water Level

The water level of the GW-11 pond will be checked and documented on the 1st and 15th of every calendar month. In addition, if during an informal inspection plant operators note that the water level appears low, the pond depth will be measured and logged.

6.4 Pond Water Analytical

Pond water will be sampled for dissolved sulfides once per month. The sample will be a composite grab sample taken from not less than four locations. These samples will be analyzed on-site, and results will be documented. The following parameters will be recorded during each sampling event:

- date
- time
- pH
- water temperature
- air temperature
- wind conditions

Facility operators will maintain a log of sampling events and associated results. In addition, it will be recorded whether or not odor issues were noted at the time of sampling. Should operators note excessive odors between sampling events, an interim sample shall be taken, and results shall be recorded as described above.

6.5 Visual and Olfactory Inspection

Facility operators will perform weekly visual and olfactory inspections. These inspections shall consist of an operator driving around the perimeter of the pond and noting whether any unusual odors or conditions are present (such as algae, etc.) These will be logged, and the following information shall be recorded:

- Date
- Time
- Air temperature
- Wind conditions
- Odors (if any)

During high wind events, operators will perform the above inspection once per shift until the winds remain below 20 miles per hour for a period of 8 hours. These inspections shall be logged as described above.

TABLES

**Table 1: Pond Sampling Results
GW-11 Pond**

Date	Time	Composite Sample					Wind		Comments
		Sulfide Results	Sulfide Units	pH Results	Water Temp (C)	Air Temp (F)	Speed*	Direction	
12/14	12:14 PM	0	ug/L	8.16	12.2	52	15	N/NE	Alge smell, alge visible in the NE corner
12/14	8:20 PM	23	ug/L	8.19	11.6	43	30	SW	Foam buildup in the NE corner
12/15	10:45 AM	3	ug/L	8.14	11.4	49	3	W/SW	Foam buildup in the NE corner
12/15	9:00 PM	0	ug/L	8.11	13.9	41	C	-	Foam buildup in the NE corner
12/16	12:20 PM	0	ug/L	8	11.9	48	2	S/SE	Alge visible
12/16	9:00 PM	37	ug/L	7.89	13.9	43	C	-	Alge visible
12/17	2:15 PM	0	ug/L	8.28	11.6	52	6	SE	Foam in NW corner, alge visible
12/17	8:00 PM	0	ug/L	8	13.8	49	C	-	
12/18	9:05 AM	5	ug/L	8.05	14.4	51	22	S/SW	Foam in NW corner
12/18	11:30 PM	0	ug/L	8.03	9	46	16	N/NW	Foam in SE corner
12/19	9:30 AM	0	ug/L	7.42	12.7	39	7	N/NW	
12/19	-	-	-	-	-	-	-	-	No reading taken
12/20	12:45 PM	0	ug/L	7.39	10.1	40	C	-	
12/20	10:30 PM	0	ug/L	7.21	12.7	40	2	W	
12/21	12:00 PM	13	ug/L	7.21	16.5	41	C	-	Alge visible
12/21	7:30 PM	6	ug/L	7.43	10.6	32	C	-	
12/22	10:00 AM	12	ug/L	7.28	15.9	40	C	-	

**Table 1: Pond Sampling Results
GW-11 Pond**

Date	Time	Composite Sample					Wind		Comments
		Sulfide Results	Sulfide Units	pH Results	Water Temp (C)	Air Temp (F)	Speed*	Direction	
12/22	11:30 PM	2	ug/L	7.33	9.9	49	11	S/SW	
12/23	11:00 AM	8	ug/L	7.21	14	44	B	N/W	
12/23	8:30 PM	1	ug/L	7.21	9.7	49	C	-	
12/24	12:00 PM	8	ug/L	7.22	10.9	45	C	-	
12/24	9:15 PM	5	ug/L	7.49	10	46	C	-	
12/25	11:15 AM	13	ug/L	7.31	10.7	52	B	SW	
12/25	10:45 PM	3	ug/L	7.34	8.1	42	3	S	
12/26	4:45 PM	7	ug/L	7.38	10.1	50	B	SE	
12/26	8:30 PM	1	ug/L	7.4	7.7	39	4	W/NW	
12/27	3:30 PM	0	ug/L	7.43	13.8	51	C	-	
12/27	8:48 PM	0	ug/L	7.39	8.8	41	7	N/NW	
12/28	9:50 AM	0	ug/L	7.37	13	43	C	-	
12/28	7:45 PM	0	ug/L	7.41	9.5	40	3	N/NW	

*Wind Speed:

C = Calm

B = Breezy

S = Strong

VS = Very Strong

**Table 2: Inspection Schedule
GW-11 Pond**

Inspection	Parameter(s)	Schedule	Additional inspection is required when...
Pond Water Level	Diagonal Depth (ft)	1st and 15th of every month	Water level appears low between scheduled inspections
Pond Water Analytical	Composite sample from at least 4 locations	Once per month	Odor issues are noted
Visual and Olfactory	Appearance and odor	Weekly	Once per shift during high wind events

ATTACHMENT A: INSPECTION RECORDS

GW-11 Pond Checklist

Facility: **NERT Groundwater Extraction and Treatment System**
GW-11 Pond

Procedure	Month/Year:				
	Week 1	Week 2	Week 3	Week 4	Week 5
Date					
Time					
Inspector Initials					
Ambient temperature (°F)*					
Approximate wind speed (mph)*					
Approximate wind direction*					
Odor issues observed? (Y/N)					
Visible issues (algae, etc.) (Y/N)					
If yes, please describe conditions below:					
Pond Depth	Diagonal (ft)				
vertical depth = diag x 0.216	Vertical (ft)				
Water samples taken (Y/N)					
(please attach water analytical results)					
If yes, water temperature (°F)					
Other Notes (additional inspections, concerns, or issues):					

Note: Please file a copy of this inspection record with the GW-11 Pond Monitoring Plan.

**Data may be obtained from the National Weather Service <http://weather.noaa.gov/>*