December 2008 Informational Meeting Regarding the Status of Ground Water Cleanup Activities Undertaken by Nor-Lake, Inc.





Welcome!

Site Investigation and Remediation Activities Update

Chuck Dullea, President, Nor-Lake, Inc. James A. Anklam, PE, Ayres Associates Lori A. Rosemore, PG, Ayres Associates





History of Ground Water Investigation and Remediation Activities in the Town of Hudson

- Junker Landfill Investigation and Remediation
- Town of Warren TCE Investigation and Remediation
- Nor-Lake Investigation and Remediation

Junker Landfill Investigation and Remediation

Located approximately 3.5 miles east of Daily Road
 The landfill operated for approximately 16 years

- The landfill was closed and capped in the late 1980's
- The remediation system on site is an active landfill gas system and leachate collection system
- Has documented ground water contamination extending from the landfill westward
- Potentially co-mingles with the Nor-Lake plume and continues westward
- Residential water supplies within the Junker's Area of Concern all have carbon filter systems paid for by the Junker's Landfill Trust

Town of Warren TCE Investigation and Remediation

- Located approximately 4.5 miles east of Daily Road
 Discovered in 1999
- Investigation activities occurred in 2000, no soil contamination
- Remediation of ground water by injection of sodium permanganate
- Ground water contamination extending from 80th Avenue west/northwest
- Potentially co-mingles with the Junker's plume and continues westward
- Residential water supplies can have carbon filter systems if residents pay for them

Nor-Lake Investigation and Remediation

- Located approximately 1 mile east of Daily Road
- Discovered in the mid 1980's
- Documented soil contamination and elevated levels of trichloroethene (TCE) and other compounds in groundwater
- Investigation activities occurred in late 1980's until mid 1990's
- Ground water contamination extends from Co. Rd. U west/northwest
- Active ground water and soil remediation systems
- Residential water supplies that qualify have carbon filter systems provided by Nor-Lake, Inc.

Special Well Construction Areas



Nor-Lake: Site Investigation

30 monitoring wells
Over 250 private wells
Volatile Organic Compounds (VOCs) primary compound is trichloroethene (TCE)

Nor-Lake: Remediation

Pump and treat began 1986 Well testing completed on RW-1 in 1991 Modified ground water pump and treat began operation on November 24, 1992 SVE began operation on September 22, 1993 Extensive private water supply sampling program began in 1995. Over 250 private wells sampled. 175 carbon filters offered

Nor-Lake: Pump and Treatment System Modifications

Refined pumping of RW-1 based on well testing completed in 1991
 Added second recovery well to increase capture and remediation

Nor-Lake: Tower Construction Complete with Treatment Building



Nor-Lake: Treatment Tower With Packing Material



Nor-Lake: Installation of Soil Vapor Extraction (SVE) System

- Extensive soils investigation beneath plant and former drain field
- Vapor extraction system pilot testing
- Design and construction of a 12-vent well system
- Start-up in September 1993

Nor-Lake: Schematic of SVE System



2-tank Carbon Filtration System

- 2-tank system, first tested from 1988 to 1990 on 13 water supplies
- Currently, 173 water supplies are treated
- Changed and sampled annually for VOCs and bacteria



Historic Ground Water Contours



Nor-Lake Pre-remediation VOC Plume



2008 VOC Plume



Remediation Success- MW-6 (600 ft away)



Remediation Success- MW-9 (5,000 ft away)

 A 97.3%
 reduction of TCE from a preremediation
 high
 concentration
 of 71 ug/L TCE
 in 1989



Remediation Success- Water Supply Wells



Remediation Success-Daily Road Area

A 97.9%
 reduction from
 a pre remediation
 high
 concentration
 of 100 ug/L
 TCE in 1986



Remediation Success-Wert Road Area

■ A 93.2% 50 45 reduction from a 40 pre-remediation 35 Concentration (ug/L 30 high 25 concentration of 20 15 44 ug/L TCE in 10 - TCE 1991 5



Remediation Success-Sherman Road Area

A 83.8%
 reduction from
 a pre remediation
 high
 concentration
 of 3.9 ug/L
 TCE in 1991



Pump and Treat Performance

Total Combined Influent VOCs



SVE Performance



Proposed Ground Water Management (Phase 1)



Ground Water Management (Phase 1)

- Reduction in Area of Concern
- Reductions of monitoring frequency
- Reductions of monitoring points
- Reductions of filter systems

- Continuation of both ground water pump and treat and SVE systems
- Continuation of monitoring well sampling
- Additional sampling of select water supply sentry wells

Ground Water Management (Phase 1): No Changes

- Continue operation of ground water pump and treatment system
- Continue operation of SVE treatment system
- Continue collection of ground water samples from ground water monitoring well network

Ground Water Management (Phase 1): Proposed Changes

- Addition of sentry water supply wells to monitoring network
- Removal of approximately 60 carbon filtration systems- will be sampled annually for 2-years
- Criteria for removal of filter:
 - Current TCE concentration less than 0.5 ug/L
 - The average of last four TCE concentrations less than 0.5 ug/L
- Discontinuation of sampling for approximately 90 water supply wells
- To occur within 90-days of Nor-Lake/WDNR signed agreement

Beyond 2009: Proposed

Phase 1 to continue for two years with a review by WDNR after one year
Phase 2 to be proposed after one year review
Phase 2 may include removal of more filtration units and further sample reductions
Future notification of filter removals and/or sampling changes will be sent in a letter to those residences that apply

Contacts for Questions

- Wisconsin Department of Natural Resources: Patrick Collins 715-684-2914 ext. 117 Patrick.Collins@Wisconsin.gov
- Wisconsin Department of Health: Henry Nehls-Lowe 608-266-3479 nehLshL@dhfs.state.wi.us
- Ayres Associates on behalf of Nor-Lake: Lori Rosemore 715-834-3161 rosemorel@AyresAssociates.com

Thank You!

Questions?



