



North Indian Bend Wash Superfund Site

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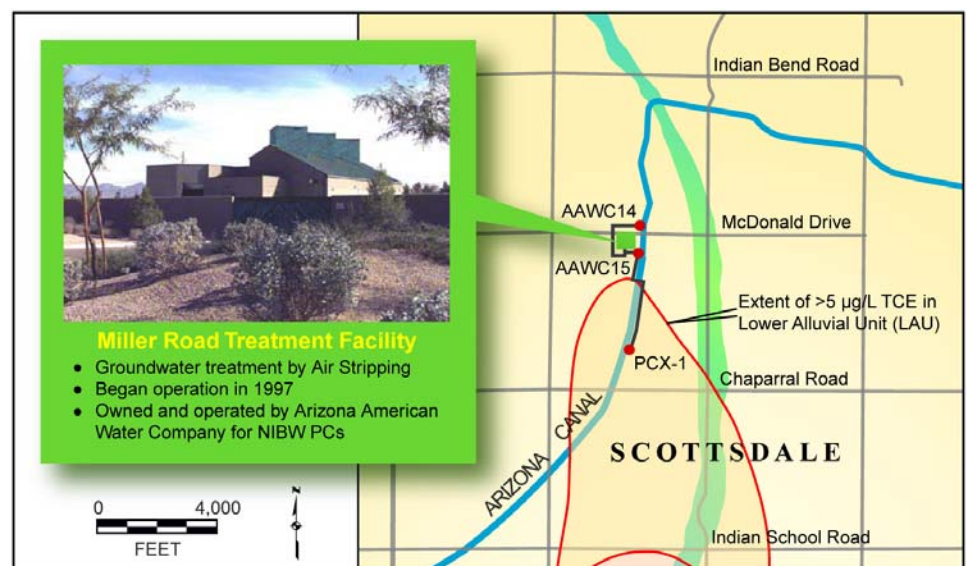
Update on Incidents at Miller Road Treatment Facility

This fact sheet is being sent by the U.S. Environmental Protection Agency (EPA) to those on the mailing list for the North Indian Bend Wash (NIBW) Superfund site. We will also have a supply of the fact sheet available at the Scottsdale Civic Center Library where the site Information Repository is located.

The purpose of this fact sheet is to inform the NIBW community about the recent failures at one of the plants that treats contaminated water from the NIBW site. Groundwater connected to the NIBW site is contaminated with trichloroethylene (TCE). The Miller Road Treatment Facility (MRTF), located at Miller Road and McDonald Drive in Scottsdale, removes TCE from groundwater wells located in the northern section of the NIBW plume. Treated water from the MRTF would then enter the Arizona American Water Company's (AAWC) drinking water distribution system (see graphic). AAWC operated the MRTF through an arrangement with the NIBW Participating Companies (PCs). The MRTF had a failure in one of three treatment towers this past October and then a more serious failure on January 15, 2008. This fact sheet will explain what happened in both instances and what EPA is doing in terms of investigations and future actions.

Background on Relationship Between NIBW Site and MRTF

EPA and the NIBW PCs signed a Consent Decree (CD) in 1991, which was then amended in 2003, to implement the remedy (Record of Decision or ROD) at NIBW. The PCs are required to prevent the TCE groundwater plume from continuing northward as well as pump and treat the groundwater at the MRTF so it meets the maximum contaminant level (MCL) for TCE. MCLs are developed through the Safe Drinking Water Act and are designed to be protective based on a long-term exposure scenario. The PCs entered into an agreement with the AAWC to operate and maintain a treatment facility to remove TCE in groundwater at impacted AAWC production wells. Treated water is then discharged to the Paradise Valley Arsenic Removal Facility (PVARF), which is also operated by AAWC, prior to discharge into the drinking water system.



North Indian Bend Wash Superfund Site
Miller Road Treatment Facility

October 2007 Event

Incomplete remediation of TCE-contaminated water in one of three treatment towers occurred during a maintenance procedure. This water was discharged from the MRTF to the PVARF. Based on information provided to EPA, the maintenance procedure lasted from October 9-17, 2007. The effluent (water leaving the facility) was sampled on October 15, but EPA was not notified of the sample results of 9.3 and 14 micrograms per liter of TCE until November 8, 2007. This water then traveled to the PVARF where, according to AAWC, it was blended with clean water from other sources at a ratio of approximately 1 to 3 before entering the distribution system. Due to the dilution of the TCE, the water served to the public was below the 5 micrograms per liter MCL for TCE in drinking water.

As stated above, EPA was notified of this event by the NIBW PCs on November 8th. The reason given to EPA as to why it took so long for the Agency to be notified of a treatment failure was that there was a problem at the laboratory that regularly analyzes the water. EPA was very concerned about what happened at the MRTF and the amount of time it took for the data to be reported to us. A representative of the NIBW Community Involvement Group (CIG) was contacted on November 9, 2007 and told of the incident. Since a CIG meeting was scheduled for the following week in Scottsdale, this occurrence was discussed with residents at that time. The CIG meeting, held on November 15, had a very full agenda based on community requests for a discussion of air emissions controls and a guest speaker on TCE and health. Realizing that any failure at a treatment facility would cause community concern, the NIBW team decided to continue with the planned agenda but add a discussion about the MRTF.

Following the October failure at the MRTF, EPA began working toward new requirements for the PCs to revise treatment plant operating procedures during "startup" and maintenance periods and promptly notify EPA of potential sampling problems. After extensive "startup" sampling requirements were put in place, the MRTF was brought back into normal operation in December. Once in operation, tighter sampling procedures were implemented to increase protectiveness.

January 2008 Event

The January 15, 2008 failure at the MRTF was far more serious than the previous occurrence because TCE-contaminated water entered the drinking water system at levels greater than the MCL. In addition, this incident showed severe problems with the electrical safeguards that were in place to prevent just such a thing from happening when the plant was supposed to be operating under normal conditions.

EPA is currently investigating both incidents, but based upon the information we currently have the incident occurred as follows: The blower on one of the three treatment towers shut down for unknown reasons the afternoon of January 15 after the operator had left for the day. The problem was not discovered until early the next morning when the operator returned to duty. The operator restarted the blower but then completely shut down the system several hours later. AAWC notified the PCs who then notified federal and State authorities. Water leaving the treatment systems and entering the distribution system showed TCE levels in the range of 11-23 micrograms per liter in the first round of samples.

The following provides information on potential health effects from the January event. Once EPA toxicologists understood the amount of TCE released and the length of possible exposure, the following press release was issued on January 18:

U.S. EPA advises that due to the short-term duration of the exposure, the public should not experience any adverse health effects from tap water that was consumed in the 24 hour period prior to notification and shutting down the system. This would apply to both children and adults consuming up to 6 liters of water per day when TCE levels may have exceeded federal drinking water standards. Nonetheless, residents with concerns regarding their particular health condition should consult their medical provider.

Besides the fact that such levels of TCE entered the drinking water system, the most disturbing issue related to this release is that both primary and secondary (redundant) controls and safeguards that were in place did not work. The control system that should have recognized a change in pressure in the blower that shut down failed. Redundant operator notification procedures in the event of certain alarms and shutdowns also failed. The MRTF remains shut down until EPA, the State and the County are satisfied it can operate safely and reliably.

What Is EPA Doing About These Incidents?

Following the January failure, EPA ordered a full investigation into both incidents and an evaluation of the full range of options to address the problems. These analyses were due by February 22, 2008 and are currently under review.

EPA has asked the PCs to evaluate interim measures and long-term options for the MRTF. These include:

- § A detailed engineering evaluation of all three treatment towers based on the original design of the MRTF including extraction wells and their associated

mechanical, electrical, instrumentation and control systems;

- \$ A detailed work plan for an engineering evaluation of the entire MRTF facility and extraction well systems. This should include a comprehensive and rigorous evaluation and assessment of key equipment, instrumentation and control systems similar in scope to an initial plant startup after construction (e.g. each instrumentation element and control loop is tested individually as well as part of the overall system). This type of evaluation should help us understand what caused the system to fail and what repairs are necessary;
- \$ The work plan should review and reassess all operation and maintenance plans and associated procedures to make sure O&M is being properly implemented. All necessary maintenance on Towers 1, 2 and 3 and extraction wells should be performed to reflect the original design specifications. This will include: 1) Conducting monthly inspections of the treatment towers and extraction well systems, verifying alarms and responses to any problem and providing a summary report; 2) Continuing bi-weekly sampling at the effluents from each tower for a minimum of 30 days after each tower is noted compliant. During the startup of each tower, daily samples with fast turnaround time should be considered for the first five days of operation, then switching to bi-weekly sampling.

Re-evaluate the discharge of treated water from the MRTF by looking at the following long-term options:

- \$ Re-injection: Re-inject water back into the aquifer after treatment at the MRTF (requires installation of new injection wells);
- \$ Discharge to canal: Discharge all water treated at the MRTF to the Arizona canal. This would be under a Clean Water Act Arizona Pollution Discharge Elimination System permit with an effluent limit of 5 micrograms per liter for TCE;
- \$ Operate more towers at reduced capacity: Operate at least two towers at approximately half capacity each instead of just one tower at near full capacity. This would reduce by approximately 50% contamination leaving the plant if one system were to fail;
- \$ Redundant treatment: Reconfigure the plant plumbing to put two towers in a series, with the second tower a repeat treatment to the first tower. Both towers would have to fail in order to cause a release of untreated water (this would be in addition to the recommended compliance requirements above);
- \$ Secondary treatment: Use Liquid Granular Activated Carbon to treat the groundwater after it's gone

through the air strippers to remove any remaining TCE;

- \$ Continuous monitoring of volatile organic compounds (VOCs): Install VOC monitoring sensor to monitor TCE concentrations at a higher sampling frequency. This option would detect any TCE exceedances in what leaves the air strippers, shutting down the entire system.

Besides the possible remedy changes listed above, a long-term goal will be to improve plant operations as well as improve sampling frequency and lab turnaround time.

Now what?

The treatment plant remains shut down and will remain so until all levels of government are confident the system will operate as designed and approval is formally granted by EPA, the State and Maricopa County. In the meantime, the system that extracts water from that area of the plume is also shut down, not capturing the contaminated groundwater. We are currently doing a technical review of how long that system can remain off without jeopardizing capture and would like to see the system turned back on as soon as possible to prevent the plume from spreading while we evaluate long-term options. BUT, during this interim period the treated groundwater will not be discharged to the AAWC connection at the MRTF.

EPA will continue to report on this situation to the NIBW community as more information becomes available. As EPA gathers more information and develops more detailed plans, we will hold a CIG meeting and send out a notice of the specifics to our mailing list. In the meantime, please do not hesitate to contact any of the EPA staff listed on the back page if you have questions or concerns.

Information Repository

The Administrative Record and other documents related to the NIBW site can be found at:

Scottsdale Civic Center Library

3839 N. Drinkwater Blvd.

(480) 312-2320 (Southwest Room)

Mon-Thurs 9 am to 9 pm

Fri, Sat 10 am to 6 pm

Sunday 1 pm to 5 pm



Update on Incidents at Miller Road Treatment Facility

For More Information

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Both Jamey and Vicki can be reached toll-free at (800) 231-3075. Please leave a message and your call will be returned.

EPA website: www.epa.gov/region09/northindianbendwash



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