U.S. Environmental Protection Agency
Pacific Southwest Region 9

Cyprus Tohono Mine Site

75 Hawthorne Street, San Francisco, CA 94105 | June 2014

# U.S. EPA Completes Review of Groundwater Remedial Investigation Report and Plans a Community Meeting

The purpose of this Fact Sheet is to provide a brief overview of the Remedial Investigation (RI) Report provided to the U.S. Environmental Protection Agency (USEPA) by the Cyprus Tohono Corporation (CTC) for the Cyprus Tohono Mine Site located in the Sif Oidak District on the Tohono O'odham Nation (TON). This Fact Sheet also provides historical information on CTC activities that have been overseen by the USEPA and effects on the Remedial Investigation/ Feasibility Study (RI/FS) process created by the proposed Mine reopening plan.

The mine site is located within two miles of the village of North Komelik in the Sif Oidak District of TON, which is located south-east of Phoenix, approximately 25 miles from the town of Casa Grande off of Interstate 10 in Arizona (see Figure 1).

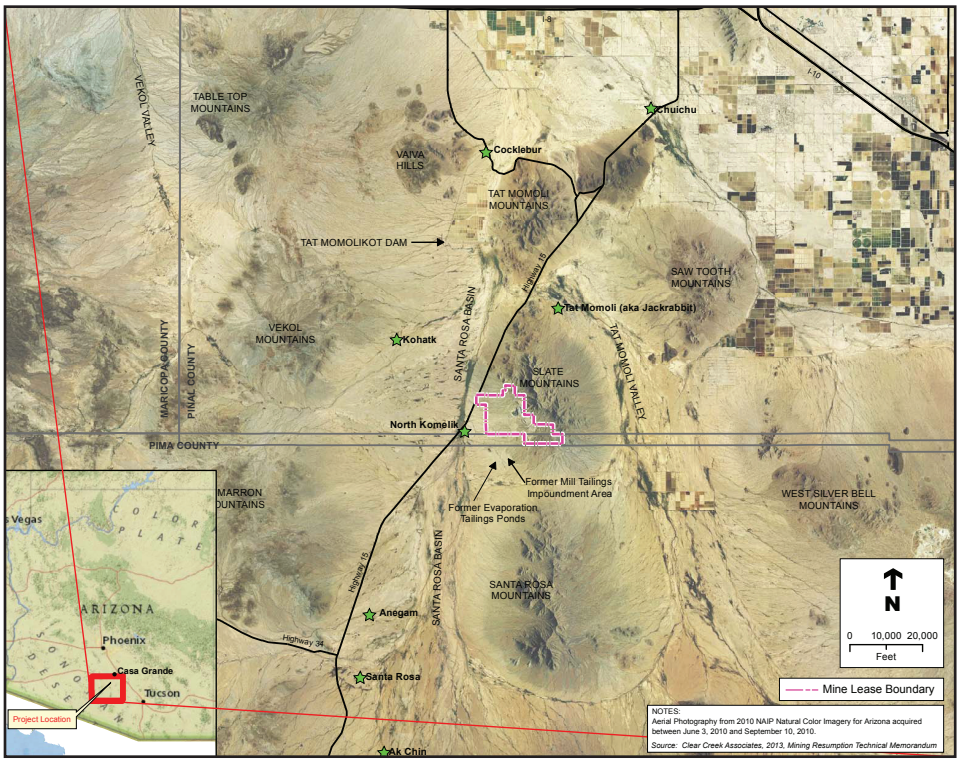



**Figure 1.** Location of Mine Site

## Community Meeting – North Komelik

### Tuesday, June 17, 6:30 PM

USEPA will hold a community meeting with members of the village of North Komelik on Tuesday evening, June 17, 2014, at 6:30 pm. The purpose of this meeting will be to review the findings of the RI Report and explain the elements of the Feasibility Study, the next phase of the RI/FS process.

# Current Status

## Alternative Superfund Site Designation

In 2009, the mine site was identified as a Superfund Alternative Approach site, and USEPA entered into an Administrative Settlement Agreement and Order on Consent with CTC to conduct a RI/FS for the unaddressed contaminated groundwater.

## RI/FS Process

The remedial investigation process began in September 2009. The first phase of the process is the remedial investigation or "RI". During this phase, under USEPA's oversight, CTC investigated current groundwater conditions, potential risks and completed a draft RI Report documenting their results.

The second phase is the feasibility study, or "FS", which has not yet started. During this phase, CTC will identify and evaluate potential clean-up options for the contaminated groundwater. After the evaluation process is completed, the FS Report will be completed.

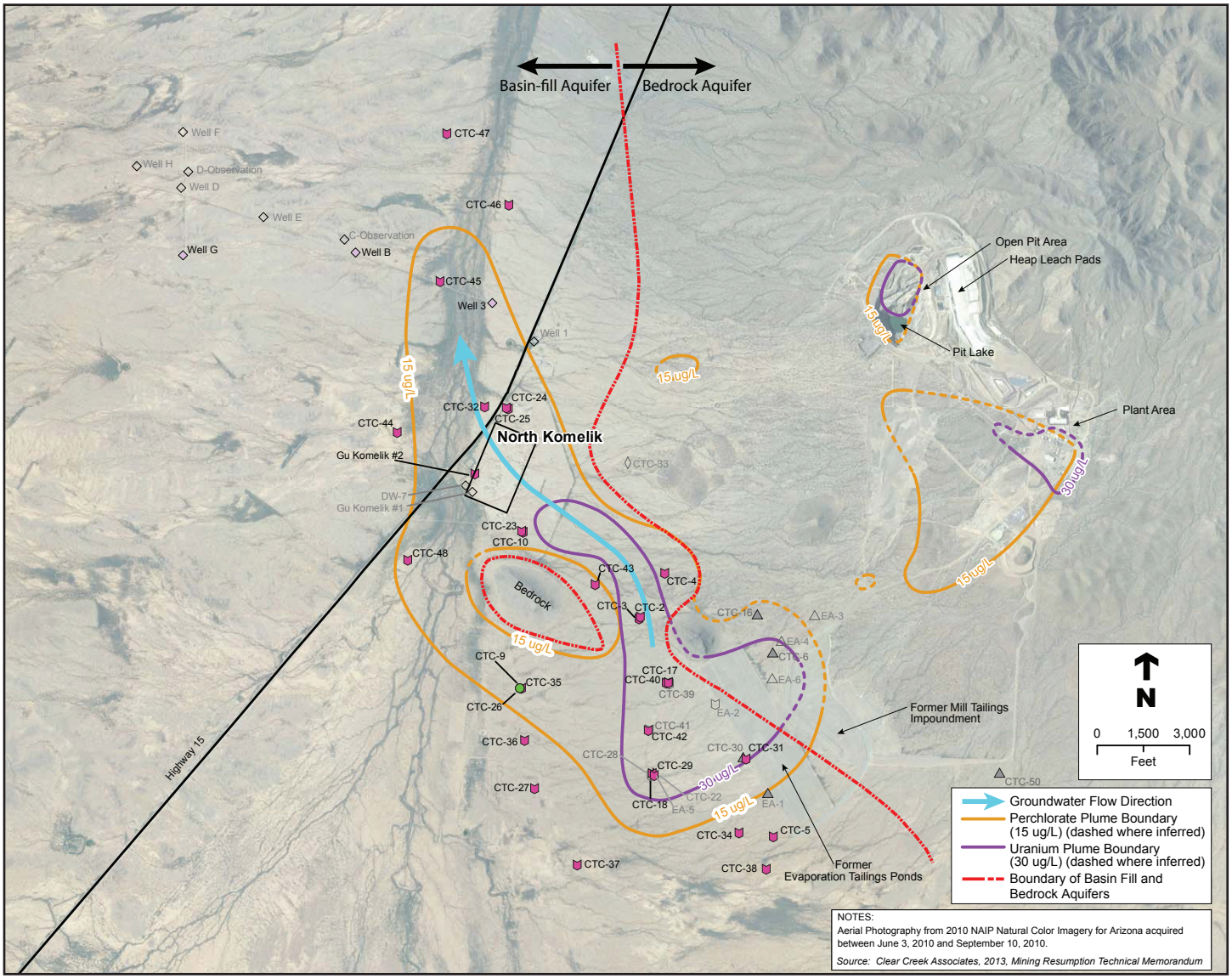



**Figure 2.** Map Showing the Extent of Contaminated Groundwater Plume for the Entire Mine Site in the Vicinity of North Komelik.

### Extent of Groundwater Contamination

The sampling results from the RI show that groundwater contamination extends from the former evaporation ponds and mill tailings impoundment area northward beyond the village of North Komelik. However, the current extent of the groundwater contamination from the mine site does not threaten the groundwater supply of other villages located beyond North Komelik.

The extent of contamination is identified based on sampling data from groundwater monitoring wells (both on and off the mine site) that have been historically monitored. The primary contaminants of concern in the groundwater are sulfate, perchlorate and uranium. The extent of the contaminated groundwater plume is shown on Figure 2 for perchlorate and uranium.

### New Source of Drinking Water Installed in 2002 and Upgraded in 2013

In 2002, CTC drilled new drinking water wells for the village of North Komelik in the Santa Rosa Valley. These wells were installed because of the underlying groundwater contamination in the village. In 2013, the Tohono O'odham Utility Authority (TOUA) upgraded the drinking water supply system to the North Komelik community by piping water from a new treatment system located in the village of Santa Rosa and decommissioned the North Komelik wells. The new treatment system removes arsenic to meet USEPA primary drinking water standards. Arsenic is a naturally-occurring compound also present in the regional groundwater system. North Komelik has a safe and reliable drinking water source that meets USEPA primary drinking water standards for a public water distribution system.

## Key Findings of RI Report

The RI Report is a 14,692 page document, divided into four volumes. The first two Volumes, I and II, cover the groundwater investigation conducted over the last several years. Volumes III and IV cover the risk assessments for ecological resources and human health. The entire report is available for review at the TON Environmental Protection Office in Sells (see contact information on last page).

### RI Report Divided into 3 Geographic Areas

The RI Report divides the mine site into three separate geographic areas for investigating and defining the extent of contamination (see Figure 3). For clarity, USEPA is identifying these as Areas 1, 2 and 3, and also by the names used in the RI Report:

- Area 1 – Open Pit Study Area (OPSA) – located in north-eastern section of site
- Area 2 – Plant Study Area (PSA) – located in south-eastern section of site
- Area 3 – Evaporation Tailings Ponds Groundwater Study Area (ETPGSA) – located in south-western portion of the site.

### Area 1 – Open Pit Study Area (OPSA)

Area 1 (OPSA) is where the mining activities occurred including the underground mine workings, the in-situ mine, the Open Pit, and the Pit Lake. Additional features include the heap leach pads and former pipelines that conveyed process solutions (waste waters).

The CTC RI Report concludes that the contamination in Area 1 (OPSA) is currently located in the subsurface soils and rocks that do not transmit water readily. Based on these findings, the RI Report concludes that the groundwater poses no risk to human health because no supply wells exist in this area for drinking water purposes. However, the underlying groundwater still remains contaminated.

### Area 2 – Plant Study Area (PSA)

Area 2 (PSA) is the plant and processing area that historically contained an integrated oxide and sulfide mineral processing facility and various staff support buildings. In 1999, many of the structures were dismantled and removed from the mine site.

The CTC RI Report concludes that in Area 2 (PSA), groundwater contamination from prior releases of process waste waters that entered the subsurface poses no risk to human health because there are no existing water supply wells in this area and groundwater is not accessible for drinking. However, again, the underlying groundwater still is contaminated.

## Area 3 – Evaporation Tailings Ponds Groundwater Study Area (ETPGSA)

Area 3 (ETPGSA) includes the former locations of the evaporation tailings ponds and the mill tailings impoundment. This area is the part of the mine site that is located closest to the village of North Komelik. The mill tailings impoundment was used for the placement of mill tailings from 1976 to 1977. In 2007-2008, the waste materials in these ponds were removed and relocated into properly lined containment areas located in Area 1 (OPSA). Area 3 was reclaimed with an earthen cover and re-vegetated with quarterly maintenance inspections.

The RI Report concludes that there is no risk to human health from exposure to groundwater in Area 3 (ETPGSA) because, similar to Area 2, groundwater from this area is not consumed. The Removal Action in 2007-2008 eliminated the sources (unlined ponds and impoundment) that contributed to the groundwater contamination beneath and down gradient (to the northwest) in this area and a new water supply has been provided to the village of North Komelik. However, as discussed below, the contamination still poses a risk to human health if it were to be used in the future.

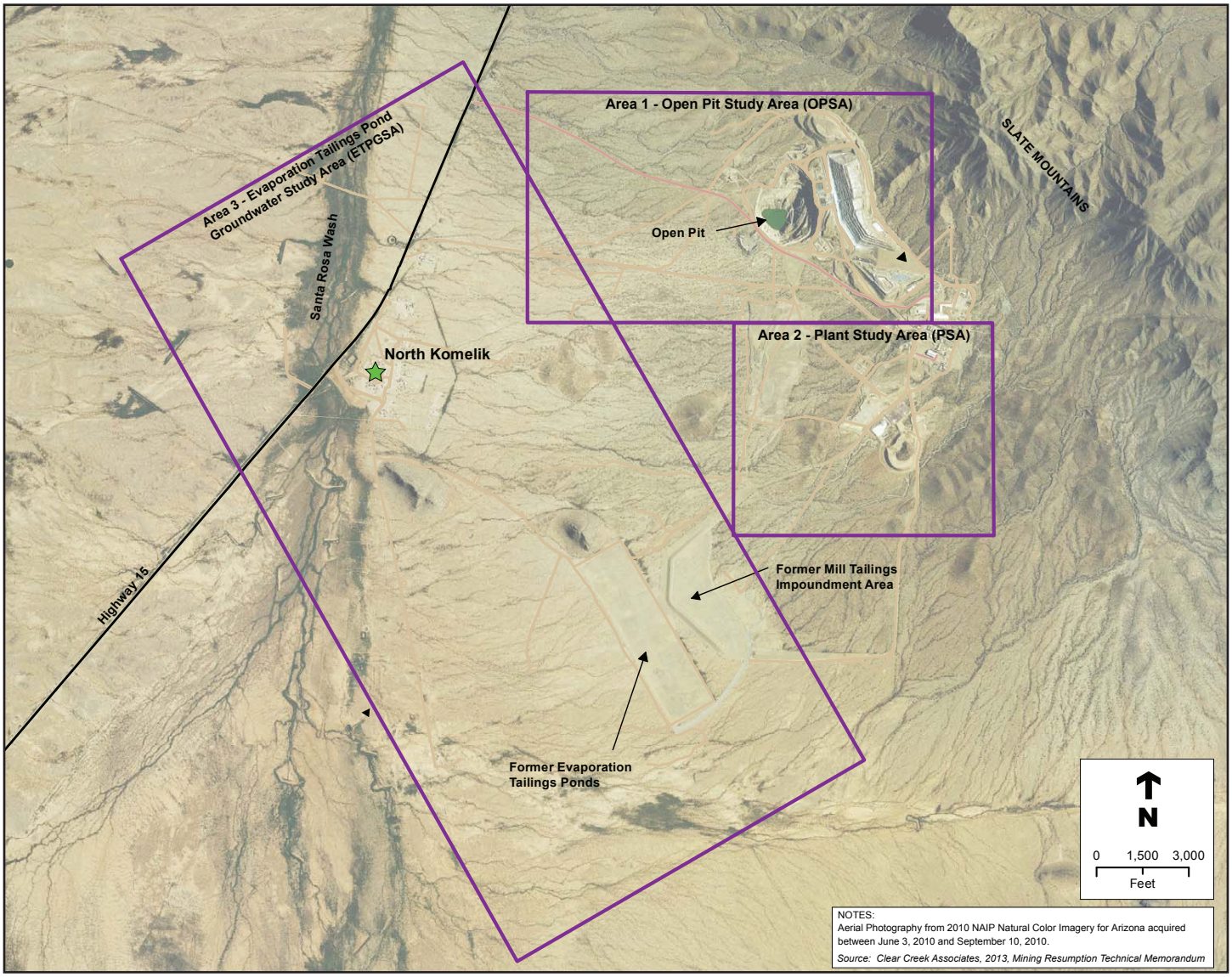



**Figure 3.** Map Showing Location of 3 Geographic Areas Covered in the RI Report

Due to the water contamination in this area, the water supply wells in this area are no longer in use for any purposes. If water were to be used in this area in the future, water treatment would be necessary.

### Ecological and Human Health Risk Assessments

The CTC RI Report included assessments of the risk posed to humans and the environment due to contaminants present at the site. The draft Baseline Ecological Risk Assessment (BERA) concluded that risk to wildlife from site contaminants from exposed water contaminated with copper or sulfate was unlikely because the pit lake waters are expected to become less contaminated over time. Wildlife are more likely to avoid the pit lake water based on taste and unsuitable habitat conditions, combined with the use of noise devices to deter birds. Future mining activities could change the pit lake conditions and therefore require an updated BERA.

Regarding human health, groundwater is not currently used for drinking water or any agricultural purposes in any of the three study areas. Thus, there is no current groundwater pathway. EPA's risk assessment guidance requires evaluating the potential future use of groundwater. The draft Baseline Human Health Risk Assessment (BHHRA) evaluates the ground water pathway and concludes the estimated future risk to human health from groundwater is high and exceeds EPA's risk management levels.

## Mine Re-Start Plan

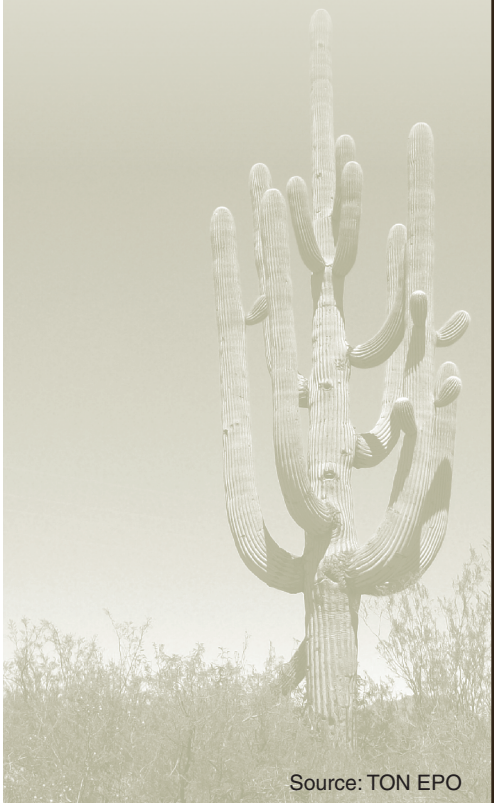
In December 2013, in response to USEPA's request, CTC submitted a Mine Re-Start Plan to describe how proposed future mining activities could be integrated into the RI/FS process. The Mine Re-Start Plan identified the various proposed changes at the mine site. USEPA is currently evaluating these proposed changes. Some of these actions could potentially improve site conditions, while other changes could potentially interfere with the cleanup of the underlying contaminated groundwater or potentially cause future contamination.

## Next Steps – Close-Out of RI Report and Beginning of the Feasibility Study Process

USEPA and the Tohono O'odham Nation (Environmental Protection Office and Water Resources Department) still have some outstanding questions regarding the remedial investigation conducted by CTC. USEPA would also like to gather any remaining questions or comments from the Nation, the village of North Komelik and the Sif Oidak Distict about the RI. Therefore, USEPA, in coordination with the Nation, has not yet approved the RI Report. Prior to conditional or final approval of the RI Report, USEPA would also like to discuss and gather questions about the FS process and how CTC proposes to integrate its mine reopening plans into the overall RI/FS process. USEPA, in coordination with the Nation and CTC, is planning to hold a community meeting on June 17, 2014 to discuss these topics.

## Site Background – Mining Operations

Development of what is now known as the Cyprus Tohono Mine site began in the 1880s when low-grade oxide ore was mined from surface outcrops. During the 1950s and 1960s, Trans-AZ operated a small open pit copper oxide mine. In the late 1960s, Trans-AZ and the El Paso Natural Gas Company enlarged the open pit for removal of 350,000 tons of ore. Mining continued into the 1980s, with several changes of operators. CTC began operating the property in 1987, after leasing it from the TON. CTC expanded the open pit mining activities and heap leaching operations. In January 2005, CTC continued with the solvent extraction/electrowinning operations (leaching copper ore from heap leach piles) for processing heap solutions. In 2009, the mine site was placed in "care and maintenance" status under the Bureau of Land Management.



Source: TON EPO

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# Cyprus Tohono Mine Site

## Additional Information

### U.S. EPA Contacts

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