



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

75 Hawthorne Street
San Francisco, CA 94105
Underground Storage Tanks Program Office

(LND-4-3)
JUL 13 2018

CERTIFIED MAIL: 7015 3010 0000 3883 5949
RETURN RECEIPT REQUESTED

Ms. Gwendena Gatewood, Chairwoman
White Mountain Apache Tribe
P.O. Box 700
Whiteriver, Arizona 85941

Subject: No further action for the underground storage tank cleanup site at the Hon-Dah Resort and Casino, intersection of Arizona State Highways 73 and 260, in Pinetop, Arizona (EPA ID# WMAP-016)

Dear Ms. Gatewood:

The U.S. Environmental Protection Agency ("EPA") is sending this letter to inform you of our determination regarding the status of the underground storage tank ("UST") cleanup site at the Hon-Dah Resort and Casino ("Site"), on land of the White Mountain Apache Tribe ("Tribe"). EPA has determined, in concert with the Tribe's Environmental Protection Office ("EPO"), that no further action ("NFA") is warranted for the Site, at this time, based on data contained in the "Phase III Groundwater Investigation for Hon-Dah Resort and Casino," dated August 2017, and the "Soil Vapor Replacement Wells Installation & Sampling Report," dated May 21, 2018. Specifically, this NFA determination is based on the following:

- The Tribe removed petroleum-contaminated soil and groundwater following the UST removals in 1993, and following a piping fuel spill that occurred in 1999.
- The hydrocarbon contamination remaining in soil and groundwater at the Site appears to be localized near the current UST systems.
- Direct human exposure to the remaining contamination is unlikely due to the Site being largely paved and its continued use as a fueling facility.
- The shallow groundwater beneath the Site is not currently used for any purpose, it appears to be of limited mobility, and the Tribe has indicated that it has no plan to use the shallow groundwater in the future.
- The only active Tribal drinking water well within one mile of the Site (i.e., the Casino Well) has shown no hydrocarbon compound detections during its monitoring.
- Natural biodegradation appears to be occurring based on the groundwater monitoring results.

Disposition of the groundwater monitoring wells at the Site

As noted above, residual hydrocarbon contamination remains in soil and groundwater at the Site. For this reason, corrective action may be required if the Tribe elects to close the current UST systems in

the future. In this potential event, existing monitoring wells GS-E, GS-S, MW-2-1, MW-3-3, MW-3-4, MW-3-5, RV-NENE and RV-DVWY would likely prove useful in monitoring any remaining groundwater contamination. As such, EPA encourages the Tribe to leave these eight monitoring wells in-place and conduct annual maintenance to ensure their future integrity.

Regarding the six shallow groundwater monitoring wells that were installed adjacent to the Site's foundation for assessing potential vapor intrusion, EPA believes that it would be prudent for the Tribe to properly abandon these wells.

Conclusion

For the reasons noted in this letter, the residual hydrocarbon contamination at the Site does not appear to pose a threat to human health and the environment. Please note that if additional information becomes available in the future regarding new hydrocarbon releases at the Site, or if the use of the Site changes, EPA may determine that additional site assessment and/or corrective action is warranted. If you have any questions regarding the information contained in this letter, please contact Chris Prokop of my staff at (415) 972-3363 or prokop.chris@epa.gov, or you may contact me directly at (415)-972-3369 or linder.steven@epa.gov.

Sincerely,

 for

Steven C. Linder, P.E., Manager
Underground Storage Tanks Program

Enclosure: Background on Former UST Operations, UST Removals, Site Assessment and Remediation

Cc (via email, all w/enclosure):

Brenda Begay, Environmental Manager, EPO, White Mountain Apache Tribe
Cheryl Pailzote, Manager, Water Resources Division, White Mountain Apache Tribe
Laurel Lacher, Lacher Hydrological Consulting
Brent Kurth, General Manager, Hon-Dah Resort and Casino
John Krause, BIA, Phoenix Area Office
Rear Admiral Charles Ty Reidhead, MD MPH, Area Director, IHS Phoenix Area Office
Captain Michael Welch, Director, Environmental Health and Engineering, IHS Phoenix Area Office

ENCLOSURE
Hon-Dah Resort and Casino
Underground Storage Tank Cleanup Site
Pinetop, Arizona (EPA ID# WMAP-016)
Background on Former UST Operations, UST Removals, Site Assessment and Remediation

First documented UST operations

There is little information in EPA's files on the operational history of the first underground storage tank ("UST") systems at the Hon-Dah Resort and Casino UST cleanup site ("Site"). An undated and unsigned EPA UST Notification Form in EPA's files listed five USTs that were reportedly installed 30 years before submitting the Form (the UST installations were likely in the 1950s), which reportedly stored only gasoline and had the following volumes: 10,000 gallons, 8,000 gallons, 4,000 gallons, 3,000 gallons and 500 gallons. The same notification form stated that the USTs were last used in approximately 1960. Based on an interview on June 12, 2018 with Brent Kurth, General Manager for Hon-Dah Resort and Casino, a motel, restaurant and gas station were present at the Site prior to the construction of Hon-Dah Resort and Casino.

1993 UST removals and the first documented hydrocarbon release at the Site

Between October 27 and November 4, 1993, during construction activities at the Site, the Tribe discovered and removed the five original steel USTs. Based on the Tribe's UST closure report, dated December 1, 1993, all USTs were reportedly in good condition, there was no obvious stained soil, and standing groundwater in the excavation contained no free product and showed no hydrocarbon sheens. The closure report clarified that the 500-gallon UST listed on the UST Notification Form had been used for storing waste oil (not gasoline), and that the 10,000-gallon UST was really an 8,000-gallon UST. Nine soil samples and one groundwater sample were collected from the UST excavation, and an additional soil sample was collected from the stockpiled soil. The analytical results for the soil samples from the excavation analyzed by EPA Method 8020 showed no benzene, toluene, ethylbenzene and xylenes ("BTEX") concentrations above EPA's current Regional Screening Levels ("RSLs") for commercial settings. However, the sample from the soil stockpile had concentrations for benzene (5.6 milligrams per kilogram ("mg/kg")) and ethylbenzene (55.0 mg/kg) above EPA's commercial RSLs. In addition, the laboratory analyses for the standing water sample showed benzene (1.5 milligrams per liter ("mg/l")) and toluene (1.1 mg/l) concentrations above EPA's Maximum Contaminant Levels ("MCLs") for drinking water. The single soil sample from below the 500-gallon waste oil UST showed no detections for chlorinated organic compounds by EPA Method 8010A.

Based on the Tribe's closure report, at least three cubic yards of petroleum-contaminated soil ("PCS") were excavated and placed on a plastic-lined surface in the "Cinder Pit Landfill," located approximately ¼ mile southeast of the Site. In addition, an unstated volume of petroleum contaminated liquid was placed on top of the PCS in the Landfill. The Tribe removed four of the five USTs from the Site (no manifests were included with the closure report), but Tank 5 (8,000 gallons) was close in-place because it had been largely filled with concrete.

Installation of a new UST system at the Site

In March 1987, The Tribe hired Rocky Mountain Petroleum to install four new Steel Tank Institute ("STI") P-3 USTs at the Site. The updated UST notification form, dated May 10, 2000, stated that all

USTs were 10,000-gallons, stored gasoline, and that the piping was double-wall fiberglass. The four STI P-3 USTs were factory-equipped with sacrificial anodes for cathodic protection.

Area-wide site assessment work by the Tribe

In October 1998, the Tribe's contractor (Water Management Consultants) conducted an area-wide soil and groundwater assessment that included the Site, another UST cleanup site adjacent to the Tribe's recreational vehicle park (i.e., the former Rex Graham Shell Station), and the Cinder Pit Landfill just southeast of the Site. On October 28, 1998, soil samples were collected from five borings at the Site at 5.5-6.0 feet below ground surface ("bgs") and analyzed for BTEX and total petroleum hydrocarbons ("TPH"). BTEX was only detected in soil samples from two of the five borings (GS-E and GS-S), but at concentrations below EPA's commercial RSLs.

Three of the above-noted soil borings were converted to groundwater monitoring wells (GS-E, GS-EE and GS-S), and the water levels in these and other nearby wells documented a northwestern groundwater flow direction. On October 30, 1998, groundwater samples were collected from these three monitoring wells and analyzed for BTEX by EPA Method 8020, volatile organic compounds ("VOCs") by EPA Method 8260, and total recoverable petroleum hydrocarbons ("TRPH") by EPA Method 418.1. The analytical results for the three groundwater samples showed benzene concentrations (130, 27 and 12 micrograms per liter ($\mu\text{g}/\text{l}$)) above EPA's 5 $\mu\text{g}/\text{l}$ benzene MCL, but no other MCL exceedances.

The second hydrocarbon release at the Site

In April 1999, during submersible pump repair work for Tank 3, a piping release occurred. In a memorandum to EPA dated May 18, 2000, the Tribe described the hydrocarbon release and follow-up corrective action. The Tribe's memorandum stated that in May 2000, the Safety Clean Company pumped out approximately 10,000 gallons of petroleum-contaminated groundwater from the shallow, perched aquifer in the area of the hydrocarbon release. The memorandum also noted that an unknown volume of PCS was removed from the release area.

Corrective action conducted at the Site by the Tribe

As noted in the paragraphs above, the Tribe removed at least three cubic yards of PCS in 1993, and disposed of the PCS and an unstated volume of petroleum-contaminated groundwater on a plastic-lined surface within the Cinder Pit Landfill. In addition, the Tribe had its contractor pump out an estimated 10,000 gallons of petroleum-contaminated groundwater in 2000 following a piping-related fuel spill in 1999. Some PCS was reportedly also removed during the cleanup work in 2000.

Historic groundwater monitoring at the Site

Between the time of installing groundwater monitoring wells in October 1998 and October 2013, the Tribe conducted 14 rounds of groundwater monitoring for VOCs. In 2002, following an increase in methyl tertiary-butyl ether ("MTBE") concentrations in GS-E, the Tribe installed two additional groundwater monitoring wells (MW-2-1 and MW-2-2) to further define the hydrocarbon plume at the Site. During a construction project in 2008, MW-2-2 was destroyed. After the last monitoring event in October 2013, GS-EE was destroyed during parking lot repaving, which left three wells monitoring at the Site (GS-E, GS-S and MW-2-1).

The historic analytical results have shown that GS-E, located just north of the active UST basin, is the most contaminated well at the Site. Since May 2001, the benzene concentrations in GS-E have consistently been well above EPA's 5.0 µg/l benzene MCL. The highest benzene concentration in GS-E (5,300 µg/l) was observed during the October 2002 monitoring event. In October 2013, the benzene concentration in GS-E had declined to 1,700 µg/l.

Since April 1999, the MTBE concentrations in GS-E have consistently been well above EPA's current 14 µg/l MTBE RSL. The highest MTBE concentration in GS-E (11,000 µg/l) was also observed during the October 2002 monitoring event, and again in March 2004. In October 2013, the MTBE concentration in GS-E had declined to 910 µg/l.

Prior to October 2008, GS-S had shown lower level exceedances of EPA's MCL and RSL for benzene and MTBE, respectively, but no MCL or RSL exceedances have been observed since that time. Although MW-2-1 has only shown low BTEX concentrations during its monitoring, the MTBE concentrations in this well have consistently been above EPA's 14 µg/l MTBE RSL since February 2002 (when MTBE analyses were first conducted at the Site). The highest MTBE concentration in MW-2-1 (410 µg/l) was observed during the March 2004 monitoring event. The October 2013 monitoring event showed a reduced but still elevated MTBE concentration of 330 µg/l in MW-2-1.

In October 2014, Gerd Von Glinski, formerly with the Tribe's Water Resources Division, prepared a report entitled "Hon-Dah Underground Storage Tanks Monitoring," which evaluated hydrocarbon contamination at the Site. The concentration-versus-time figures contained in that report appeared to show overall declining trends for benzene and MTBE in GS-E since March 2004, and approximately stable MTBE concentrations in MW-2-1 since February 2002.

Follow-up site assessment by the Tribe

In a letter dated October 7, 2015, EPA required the Tribe to conduct additional assessment work at the Site to address the elevated benzene and MTBE concentrations in GS-E, the elevated MTBE concentrations in MW-2-1, the lack of appropriate, hydraulically downgradient, groundwater monitoring wells, and the potential for petroleum vapor intrusion ("PVI") into the casino and restaurant.

In response to EPA's letter, the Tribe's consultant (Lacher Hydrological Consulting ("LHC")) submitted a site assessment workplan in January 2016. In August 2016, LHC and its subcontractor, Enviro-Drill, Inc., installed three new groundwater monitoring wells at the Site (MW-3-3, MW-3-4 and MW-3-5), and conducted four quarters of groundwater monitoring in August 2016, December 2016, April 2017 and June 2017. In addition, another subcontractor for LHC (Four Corners Environmental) installed 10 soil vapor probes adjacent to the northern edge of the casino and restaurant, which were sampled in August 2016 and May 2017.

In August 2017, LHC submitted its site assessment report ("SAR"), which was entitled "Phase III Groundwater Investigation for Hon-Dah Resort and Casino." The SAR noted the following key points:

- The most recent concentrations for benzene (1,070 µg/l) and MTBE (806 µg/l) in GS-E, and the most recent concentration for MTBE (229 µg/l) in MW-2-1, were still above EPA's MCL and RSL, respectively.

- The three new monitoring wells had defined the extent of hydrocarbon contamination at the Site based on the lack of BTEX and MTBE detections in these wells. In addition, water levels in the new and existing wells showed both western and radial groundwater flow components.
- The BTEX and MTBE concentration trends in GS-E and MW-2-1 appeared to indicate that the hydrocarbon plume was at least stable, if not shrinking.
- The consistently elevated concentrations for manganese and iron in GS-E, GS-S and MW-2-1, combined with the negative oxidation-reduction potential (“ORP”) readings, appeared to indicate that biodegradation was occurring.
- The residual hydrocarbon contamination at the Site should not pose a threat to the Tribe’s nearby drinking water wells due to their hydraulically upgradient or sidegradient positions relative to the Site, the unlikely hydraulic communication between the Site and the Casino Well, and the over one-mile separation between the more distant drinking water wells and the Site.

PVI assessment at the Site

As noted previously in this document, Four Corners Environmental (“FCE”) conducted soil vapor sampling in August 2016 and May 2017. During the August 2016 sampling event, only four of the 10 soil vapor probes could be sampled due to inundation of the probes with shallow groundwater. During the May 2017 sampling event, soil vapor samples were collected from all 10 probes, but the tracer gas compound (difluoroethane) was detected in all samples. Based on the limited number of samples obtained during the initial round of sampling and the tracer gas detections in the second round of sampling, EPA considered the soil vapor analytical data to be of limited usefulness. In response to this, EPA required the Tribe to conduct groundwater sampling adjacent to the casino and restaurant, in lieu of soil vapor sampling.

In March 2018, FCE converted six of the 10 soil vapor probes to shallow monitoring wells, and collected groundwater samples. The “Soil Vapor Replacement Wells Installation & Sampling Report,” provided by LHC and dated May 21, 2018, documented that there were only two VOC detections in the groundwater samples from the six shallow groundwater monitoring wells. One of these VOC detections was 23.3 µg/l acetone, but this concentration was deemed to have been caused by the laboratory based on similar low acetone detections in previous groundwater samples and in the trip blank samples, all of which were acknowledged by the laboratory. The other VOC detection was 142 µg/l MTBE in well HDSV-4, which may have been associated with MTBE previously detected in well MW-2-1. However, it is unlikely that this relatively low MTBE concentration in groundwater would pose a PVI threat based on the one-foot thick foundation slab (shown in a partial foundation cross-section submitted to EPA in September 2017), and MTBE’s overall affinity for the aqueous phase. This data supports the conclusion that PVI into the casino or restaurant is unlikely.

Drinking water wells in the general area of the Site

As noted previously in this document, the Casino Well is the only Tribal drinking water well within one mile of the Site. However, the Casino Well is hydraulically upgradient of the Site and has never shown hydrocarbon detections during its EPA-required VOC sampling.

Indicators of biodegradation

During groundwater monitoring from August 2016 to June 2017, parameters relating to biodegradation were measured in the field. This monitoring showed that for the most impacted monitoring wells at the Site (GS-E, GS-S and MW-2-1), the ORP measurements were consistently negative, and the manganese and iron concentrations were consistently higher than the same concentrations in wells showing background conditions. This data appears to indicate that biodegradation is occurring at the Site.