N00213.AR.001541
NAS KEY WEST
5090.3a

TRANSMITTAL LETTER FOR INSPECTION REPORT AND REPAIR OF GASOLINE UNDERGROUND STORAGE TANKS AT SIGSBEE NEX NAS KEY WEST FL
06/13/2006
AUSTIN BROCKENBROUGH & ASSOCIATES, L.L.P.

AUSTIN BROCKENBROUGH
& ASSOCIATES, L.L.P.
Consulting Engineers

P.O. Box 4800
4800 W. Hundred Road
Chester, Virginia 23831
Phone: 804-748-8746
Fax: 804-748-7849

www.brockenbrough.com

13 June 2006

Commander
Southern Division, Naval Facilities Engineering Command,
P.O. Box 190010
North Charleston, SC 29419-9010

Attn: Mr. Lee Shokes, P.E., Project Manager (Code CI31LCS)

Re: Inspection and Repair of USTs at Sigsbee NEX, Key West Naval Air Station, Key West, Florida; A&E Contract No. N62467-03-D-0160; SOW No. 22; AB&A Job No. 06-046; **Gasoline Storage Tanks - Inspection Report Letter**.

The premium and regular gasoline underground storage tanks located at the Sigsbee Island NEX Gas Station, Key West Naval Air Station, Key West, Florida were inspected and tested by personnel from Austin Brockenbrough and Associates, LLP (AB&A) during the week of May 22, 2006. The inspections and tests were performed with the assistance of personnel from Hauber, Inc. (HI), Jurva Leak Testing, and Discovery Tank Testing. The purpose of the inspections and tests were to determine why the premium tank primary containment failed the tightness test performed in October 2005, and how water is getting into the regular gasoline storage tank. The inspections and tests were performed in accordance with the Project Scope of Work.

The nominal capacity of the premium gasoline storage tank is 6,000 gallons. The nominal capacity of the regular gasoline storage tank is 10,000 gallons. Both tanks are double wall, horizontal, underground storage tanks and are constructed of steel. Station design drawings suggest the tanks were installed circa 1998. Receipt is by tank-truck. The diameter of the premium gasoline storage tank measured eight feet and two inches. The regular gasoline storage tank was not entered, but is assumed to have the same diameter. The tank nozzles, which are located on top of each of the tanks, extend through above-grade concrete pads located above each tank. Typical tank nozzles, listed from east to west, include a 4-inch fill, 4-inch truck vapor recovery, 4-inch ATG, 2-inch leak detection, and 24-inch manway. A vertical turbine pump is installed through each of the 24-inch manway covers.

HI began preparing the tanks for examination, testing, and repairs on Tuesday, May 23, 2006. The preparations included removing the remaining fuel and sludge from the premium tank, removing the pump from the manway cover, and excavating and opening the manway. OVA screening was performed by JK Environmental Services, and there report is attached. The following day, the premium tank was cleaned, certified gas free, and permitted for hot-work.

The following Thursday, May 25, 2006, personnel from Jurva Leak Testing helium leak tested the secondary containment interstitial space. The test indicated there was no leak from or between the primary to the secondary containment. The details of the helium leak test are included in the attached report by Jurva Leak Testing.

Following the helium leak test, AB&A personnel performed a soap bubble test on the interior of the primary tank with approximately 3 psi of pressure on the interstitial space. No leaks were found.

The next day, Friday May 26, 2006, HI secured the cover back onto the tank manway and Discovery Leak Testing performed a precision leak test using vacuum and acoustic testing on the premium gasoline tank. The test is performed using expanding elastic plugs to seal the inside bottom end of the fill and vapory recovery riser pipes. No leak from or between the primary to the secondary containment was indicated. However, a slow but continuous loss of pressure on the primary tank was recorded, and acoustic equipment detected the sound of a leak in the vicinity of the vapor recovery and fill nozzles. The threaded connection between the riser pipe and the tank nozzle at either the fill or the vapor recovery nozzle, as shown in Photograph 1, was likely leaking vacuum. A sketch showing the location of the suspected vacuum leak is included as Figure 1. The details of the testing are included in the HI and Discovery Tank Testing reports which are attached.

Photograph 1 – Threaded Vapor Recovery Nozzle and Riser Pipe
The vapory recovery nozzle threaded connection may not be vapor tight. The irregularities in the interior coating shown here are coating blisters.

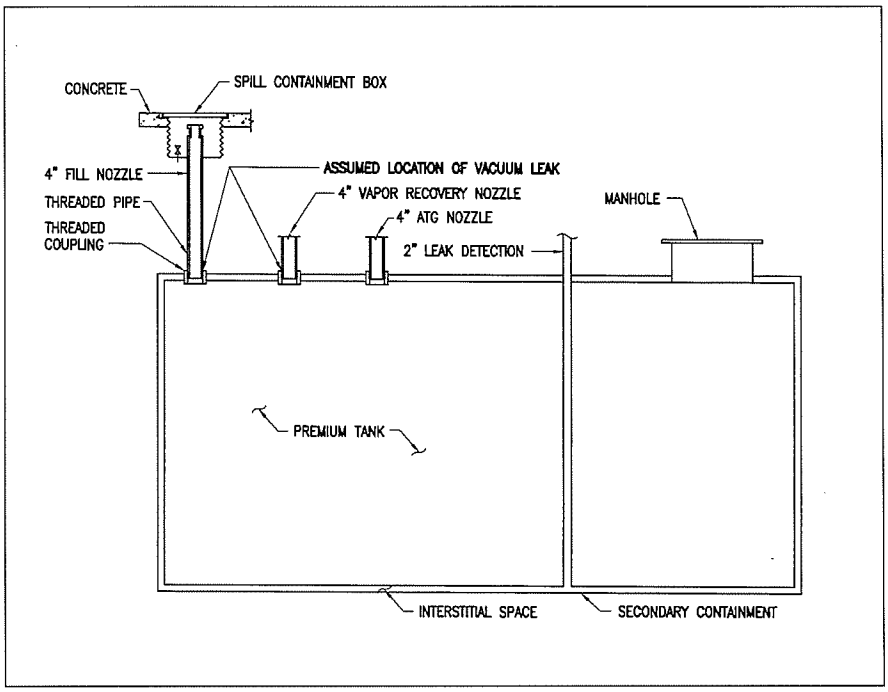


Figure 1 – Believed Location of Vacuum Leak
Acoustic equipment detected the sound of a leak in the vicinity of the vapor recovery and fill nozzle.

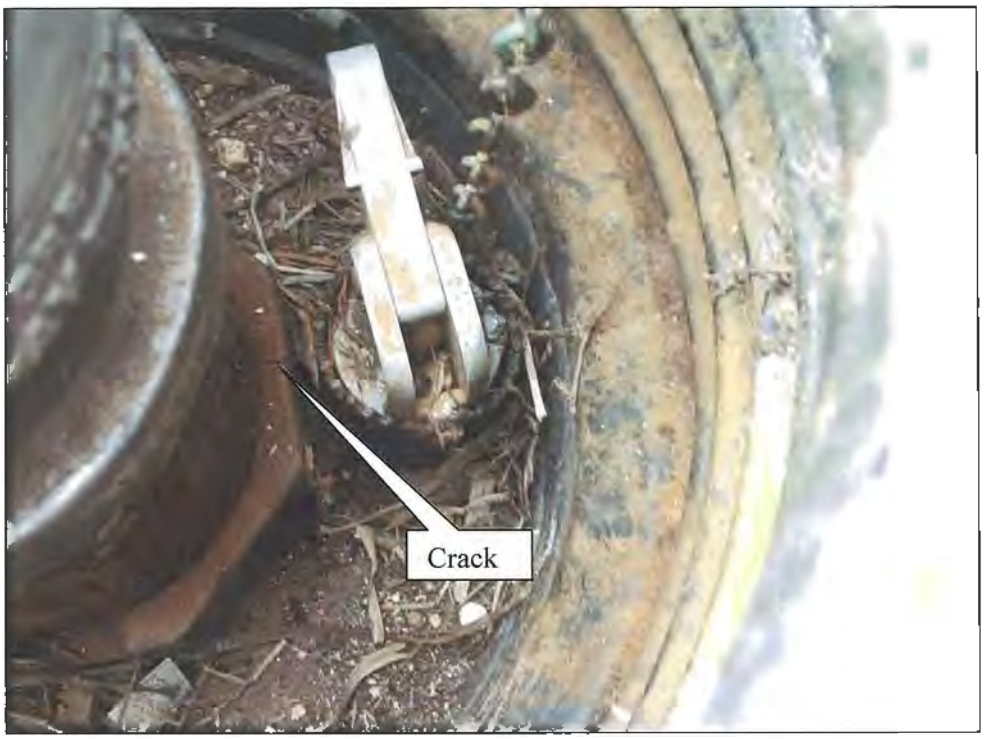
The regular gasoline tank was also precision-tested to confirm there was no leak of the primary or secondary containment shells that could allow water to enter into the tank. The testing indicated there were no leaks. Details of the testing are included in the HI, and Discovery Tank Testing reports which are attached.

The fill and vapor nozzle spill containment boxes of the regular gasoline tank appear to be located at a low elevation, relative to the adjacent concrete, which could cause rainwater to run off the concrete and into the boxes. Delivery truck drivers may also be contributing to the problem by opening the fill and/or vapor recovery caps when the spill containment boxes are full of water. It was also determined that the drain valve, located in the vapor recovery spill containment box, was stuck in the open position, and the bottom of the box is cracked at the threaded connection to the 4-inch riser pipe extension as shown in Photograph 2. The crack could allow water to pass unrestricted from the box into the riser pipe.

Our recommendations for the premium and regular gasoline tanks are as follows:

1. Provide new fill and vapor recovery piping, and spill containment boxes at an elevation above the adjacent concrete.

2. Around the fill and vapor recovery spill containment boxes, re-install the concrete crown up and at an elevation equal to the adjacent concrete.



Photograph 2 – Vapor Recovery Spill Containment Box
The cracked vapor recovery spill containment box bottom connection may allow rain water to enter the riser pipe.

3. Perform the state required testing of the premium tank after the repairs are complete.

Estimated construction cost for the above repairs is $15,000.

The interior coating of the premium gasoline tank is blistered as may be seen in Photograph 1. While no recommendations for replacing the coating are made at this time, the situation should be closely monitored as it could become a contamination problem if the coating starts to disintegrate.

While there were not any problems noted with the adjacent underground diesel storage tank, it appeared that the tops of the fill and vapor recovery spill containment boxes of the diesel tank are also low relative to the adjacent concrete, which could potentially cause rainwater to run off the concrete and into those spill containment boxes. This situation should also be closely monitored, and consideration should be given to replacing the fill and vapor recovery piping, spill containment boxes, and surrounding concrete above the diesel tank at the same time that similar work is performed on the regular and premium gasoline tanks. Estimated construction cost is an additional $6,000.

The above estimated construction costs assume the construction work will be awarded to a contractor, and with no A&E involvement.

The above list of repairs does not contain recommendations for every repair or modification that could be made, and the tank was not evaluated for full compliance with MIL-HDBK-1022A.

Please contact us if you have any questions or need more information.

Sincerely,
Austin Brockenbrough & Associates, L.L.P.

Mike O'Connor
Mechanical Engineer
API-653 Inspector No. 6230

Enclosures:
1. Activity Report – Hauber Incorporated
2. OVA Screening Report – JK Environmental Services
3. Precision Leak Testing Report – Discovery Tank Testing, Inc
4. Helium Leak Testing Report – Jurva Leak Testing