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OIG

Office of Inspector General

U.S. Department of State • Broadcasting Board of Governors

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Office of Audits

July 2017

**Management Assistance Report:
Additional Measures Needed
at Embassy Amman to Safeguard
Against Residential Fuel Loss**

MIDDLE EAST REGION OPERATIONS

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Summary of Review

During an audit of fuel acquisition and related services for the U.S. Embassy in Amman, Jordan (Embassy Amman), Office of Inspector General (OIG) auditors discovered inconsistent diesel fuel use¹ at the residences for Embassy Amman employees. OIG discussed its findings with Department of State (Department) contracting officer's representatives (CORs) overseeing fuel-related contracts, who stated that they started to identify inconsistent fuel use in December 2014. In response, the CORs began implementing measures intended to safeguard the residential fuel. For example, the relevant CORs at Embassy Amman required landlords to install cages around the fuel tanks at 21 residences,² as well as video surveillance cameras at some of the residences. While these measures were intended to safeguard the fuel from unauthorized access, they proved to be ineffective because OIG auditors were easily able to circumvent the safeguards and access the fuel lines. As a result, Embassy Amman residences could be susceptible to potential fuel theft or other loss due to ineffective controls.

In addition, OIG auditors calculated that after a delivery, the levels of fuel in the tanks at the residences of Embassy Amman employees tended to be, on average, 3.25 times higher than the fuel levels maintained in the tanks of the Jordanian residents located in the same buildings. For example, the embassy residents' tanks maintained an average of 1,560 liters of fuel after being filled, while Jordanian residents' tanks maintained an average of 480 liters. The large quantities of fuel maintained by the embassy residents make them particularly vulnerable to potential fuel theft or other losses.

OIG made three recommendations to Embassy Amman to further safeguard residential fuel from potential loss. Two recommendations advised the embassy to procure, install, and implement procedures for real-time fuel monitoring devices that would detect and notify Embassy Amman oversight personnel when inconsistent fuel use occurs. A third recommendation advised the embassy to adjust fuel levels based on seasonal needs.

In response to a draft of this report, Embassy Amman concurred with the three recommendations and stated that it has taken action to implement each recommendation. Based on the actions taken and planned, OIG considers each recommendation resolved pending further action. A synopsis of management's comments and OIG's reply follows each recommendation in the Results section of this report. Embassy Amman's response to a draft of this report is reprinted in its entirety in Appendix A.

¹ For the purpose of this report, OIG defines "inconsistent diesel fuel use" as extreme variations in usage amounts or diesel fuel use that conflicts with the amount of fuel that the embassy estimated should be used between measurements.

² According to the General Services Officer, the 21 residences were selected to be caged after Embassy Amman personnel identified inconsistent fuel use at those residences.

BACKGROUND

Fuel is a high-risk commodity that requires strong internal controls to prevent theft or other potential fraud or waste. During the past 7 years, OIG has conducted four investigations related to fuel theft. For example, in 2016, OIG investigated residential fuel theft at the U.S. Embassy in Tbilisi, Georgia, that resulted in substantiated losses of fuel valued at \$2.3 million. Because fuel is easy to sell on the black market at a large profit, the risk of fuel theft remains high at U.S. embassies that purchase fuel to support their operations.

Over the past 5 years, the General Services Officer stated that the number of leased residences at Embassy Amman has increased from 270 to approximately 300 residences as of April 2017.³ Each leased residence has its own diesel fuel tank (see Figure 1) supplying diesel fuel to individual boilers⁴ (see Figure 2), which use the diesel fuel to operate the boiler to provide heat and hot water for the residences.



Figure 1: Standard fuel tank with valve and hose to transfer fuel to the boiler, which is positioned in a separate room.

Source: OIG photo taken March 2017.



Figure 2: Standard boiler with a fuel hose to receive diesel fuel from the fuel tank to operate the boiler engine.

Source: OIG photo taken March 2017.

The tanks and boilers are almost always in separate, locked rooms that are located in the bottom of the leased residences with the diesel fuel line running below the floor between the

³ According to the General Services Officer, 297 residences are within 5 kilometers of Embassy Amman. Embassy Amman officials stated that multiple residential leases are necessary because it is difficult to identify residences that meet Department safety and security requirements. Embassy Amman residents and Jordanian (local) residents may be co-located in apartment buildings.

⁴ Boilers are pressure vessels designed to heat water or produce steam, which can then be used to provide space and service water heating to a building.

tank and boiler.⁵ Because leased residences include Jordanian residents,⁶ the building's custodian⁷ maintains the keys to the tank and boiler rooms instead of embassy employees, allowing the custodian to access the tank and boiler rooms to provide services for all building residents. General Services Office officials stated that they required the landlords to install locked plated⁸ or wire cages around fuel tanks, boilers, or both at 21 residences in an attempt to provide greater security.⁹ The keys for these cages are maintained by embassy personnel who accompany the fuel vendor and unlock the cage to give the vendor access for fuel delivery. The building custodian is not provided a copy of fuel cage keys and, therefore, cannot open the cages.

During the past 5 years, Embassy Amman purchased and supplied diesel fuel to the residences using two contracts.¹⁰ In February 2013, Embassy Amman awarded a contract¹¹ to Jordan Modern Oil and Fuel Services for 5.95 million liters of diesel fuel over 3 years (a base year with 2 option years), with a maximum value of approximately \$5.8 million. In October 2016, Embassy Amman awarded a 5-year contract¹² (a base year with 4 option years) to Jordan Express Tourist Transport for a maximum of 11 million liters of diesel fuel valued at approximately \$6.8 million. Both contracts are fixed-price with economic price adjustments,¹³ which includes the unit price per liter for the fuel and a fixed delivery price per liter. The price adjustments are included in the contract to account for fluctuating fuel prices established by the Government of Jordan.¹⁴ The Department is responsible for paying for fuel after it has been delivered directly to the residence and accepted by the COR, including any fuel that may be lost due to theft. The Department does not have any recourse to recover payments for fuel that is lost after it has been delivered and accepted.

The purpose of this Management Assistance Report is to highlight additional measures that Embassy Amman can take to improve controls for safeguarding residential fuel. This report relates to the overseas contingency operation, Operation Inherent Resolve, and was completed in accordance with the OIG's oversight responsibilities described in Section 8L of the Inspector

⁵ OIG observed one residence that maintained its diesel fuel tank on the exterior of the apartment building.

⁶ Each building may contain multiple embassy residents and Jordanian residents.

⁷ According to embassy officials, in Jordan, most apartment buildings have a custodian or caretaker who is hired by the landlord to supervise the building, maintain its cleanliness, remove the trash, and perform other similar services.

⁸ A plated cage consists of a metal frame with sheets of ventilated metal riveted onto the frame. See Figure 4.

⁹ Some residences that OIG assessed included locked cages around both the fuel tank and the boiler, while others included locked cages around only the fuel tank.

¹⁰ Embassy Amman used two indefinite-delivery/indefinite-quantity contracts for fuel purchases between FY 2013 and FY 2017.

¹¹ Contract number SJO10013D0001.

¹² Contract number SJO10016D0017.

¹³ A fixed-price contract with economic price adjustment provides for upward and downward revision of the stated contract price upon the occurrence of specified contingencies such as market stability.

¹⁴ The Government of Jordan regulates the price of fuel, including diesel heating fuel. A Government committee meets monthly to adjust fuel prices in conjunction with changes in oil prices on the international market.

General Act of 1978, as amended. OIG is reporting these deficiencies in accordance with generally accepted Government auditing standards.

RESULTS

Ineffective Controls at Embassy Amman Residences Leave Fuel Susceptible to Theft

OIG observed inconsistent diesel fuel use at the leased residences for Embassy Amman employees. For example, one residence consumed 7,780 liters of diesel fuel in 2013, 7,640 liters in 2014, and 14,598 liters in 2015; the last year's usage was almost double that of the preceding 2 years. OIG discussed its concerns with Department CORs overseeing fuel-related contracts, who also expressed concern and stated that when they identified inconsistent fuel use,¹⁵ they implemented measures intended to safeguard the residential fuel. However, when OIG auditors tested the safeguards, they were able to circumvent each of them within a few minutes. In addition, OIG calculated that after a delivery, the fuel volume in Embassy Amman's residential tanks tended to be, on average, 3.25 times higher than the fuel volume in the tanks of the Jordanian residents located in the same buildings, making them vulnerable to potential fuel theft or loss. Vulnerabilities regarding potential fuel theft existed because Embassy Amman had not implemented effective measures to monitor fuel use in real-time. Notwithstanding the CORs' efforts to address the problem, the ineffective controls and other vulnerabilities identified in this report suggest that Embassy Amman residences could still be susceptible to potential fuel theft or loss by other means.

Ineffective Safeguards to Protect Fuel Tanks and Boilers

Each of the two contracts awarded by Embassy Amman for residential diesel fuel had a COR designated to oversee the contract. CORs assigned to both contracts observed inconsistent diesel fuel use at residences and took action to implement measures intended to mitigate fuel loss. For example, the COR required the landlords¹⁶ to install locked cages around the fuel tanks, boilers, or both at 21 residences between 2014 and 2016, for which only embassy officials maintained the keys. Also, according to the COR, in 2014, surveillance cameras were installed in some of the fuel tank rooms to monitor access.¹⁷ However, each of these safeguards had major design flaws that OIG was able to easily circumvent to gain access to the fuel lines and drain fuel from the tanks.

¹⁵ CORs stated that they identified inconsistent fuel use by reviewing embassy residents' fuel consumption starting in December 2014. General Services Office personnel stated that they interviewed the residents regarding individual use, and Facilities personnel assessed the tenants' boilers to ensure they were functioning properly. For residences where concerns remained or inconsistent fuel loss could not be explained, the General Services Office required the landlord to build cages around the tanks or boilers or to install cameras in fuel tank rooms.

¹⁶ According to the General Services Officer, it is the responsibility of the landlord to hire and pay the contractor for installing cages to cover the diesel tanks and boilers.

¹⁷ According to the COR, surveillance cameras were installed and maintained by the landlords.

Wire and Plated Cages

OIG assessed 20 fuel tanks and 14 boilers¹⁸ at 12 residential buildings. Of the 20 fuel tanks assessed, 1 tank had a wire cage (see Figure 3), 14 of the tanks had plated cages covering the front of the tank (see Figure 4), and 5 tanks were unprotected. Of the 14 boilers assessed, 8 were protected with cages, while 6 were unprotected.



Figure 3: Fuel tank surrounded by a wire cage with the fuel line extending from the bottom of the tank into the floor to connect to the boiler in the next room.

Source: OIG photo taken March 2017.



Figure 4: Fuel tank surrounded by a plated cage with the fuel line extending from the bottom of the cage into the floor to connect to the boiler in the next room.

Source: OIG photo taken March 2017.

During OIG's March 2017 site visit to Embassy Amman, OIG circumvented each of the established safeguards. For instance, at the residence with the wire cage, OIG determined that the wire cage would not prohibit someone from easily slipping his hand through the cage to disconnect the fuel tank's dispensing line and drain fuel (see Figure 5). In addition, the lid on the diesel fuel tank did not fully cover the tank, leaving a 2-inch gap to allow someone to drop a hose into the tank and siphon diesel fuel (see Figure 6). OIG also found a water bottle partially filled with diesel fuel that appeared to have been drained from one of the boiler's fuel lines (see Figure 7).

¹⁸ OIG was unable to observe six of the boilers because it was unable to gain access to the boiler room at one apartment building.

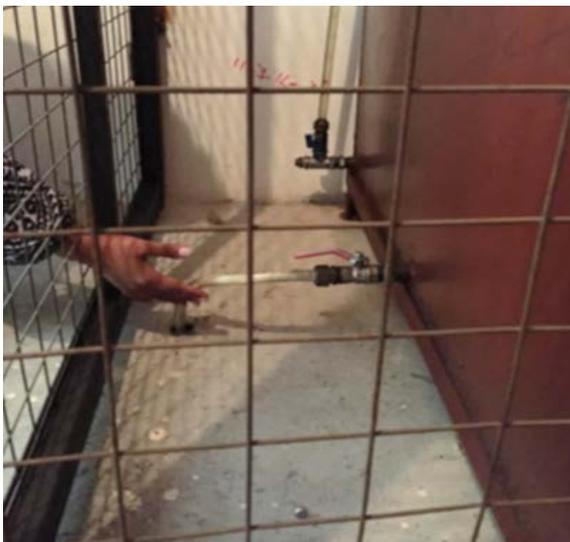


Figure 5: Wire cages with gaps big enough for hands or tools to fit through.

Source: OIG photo taken March 2017.



Figure 6: Gap in the top of fuel tank large enough to slip in a hose and siphon fuel.

Source: OIG photo taken March 2017.



Figure 7: Water bottle with fuel found in boiler room.

Source: OIG photo taken March 2017.

Plated cages also did not provide adequate defense against fuel loss. Although the plated cages would stop someone from placing their hands or tools through the cage, at least two of the plated cages had their panels screwed to the outside of the frame, which exposed the screws so that anyone with a screwdriver could easily remove the plates and access diesel fuel (Figure 8). One of the 14 plated cages contained the screws on the inside of the frame, prohibiting anyone from removing the plates to access fuel; however, in this instance, the plated cage could still be easily circumvented because an arm could be slipped between the plated cage and fuel tank to access the fuel valve and hose (see Figure 9).

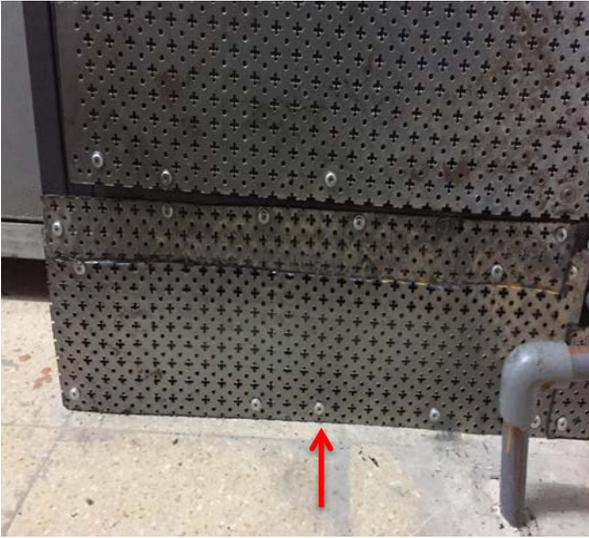


Figure 8: Plated cage screwed to the outside of the frame for easy access.

Source: OIG photo taken March 2017.



Figure 9: Plated cage with screws on the inside could still be easily circumvented.

Source: OIG photo taken March 2017.

In addition, cages designed to prevent unauthorized access to the fuel tanks left gaps that continue to allow access to the fuel lines. OIG observed two plated cages that did not extend to the floor: one stopping approximately 12 inches from the floor, thereby allowing direct access to the fuel dispensing line at the bottom of the tank from which fuel could be drained (see Figure 10). Furthermore, at least one of the plated cages did not extend to the wall, also allowing access to the tank (see Figure 11).



Figure 10: Plated cage does not extend to the floor allowing access to the fuel line.

Source: OIG photo taken March 2017.



Figure 11: Plated cage does not extend to the wall allowing access to the fuel tank.

Source: OIG photo taken March 2017.

Finally, with or without cages, OIG observed additional vulnerabilities in fuel tank and boiler rooms that could leave embassy residences susceptible to diesel fuel loss. For example, OIG observed that the plate on top of a fuel tank could be removed or bent open, and a hose

dropped into the tank to siphon fuel (see Figure 12). Similarly, in the boiler room, diesel fuel could be drawn by running the boiler to extract fuel from the tank and detaching or splitting the hose to steal fuel (see Figure 13).



Figure 12: A bent lid on the top of a fuel tank could provide easy access to siphon fuel.

Source: OIG photo taken March 2017.



Figure 13: Fuel could be drained directly from the boiler's fuel line to another container using a splitter valve.

Source: OIG photo taken March 2017.

Surveillance Cameras

The team observed two fuel tank rooms with surveillance cameras that were installed to capture any illegal activity that might occur in the room. However, as pointed out by both the General Services Office and the Facilities staff, this safeguard can easily be circumvented by simply turning off the lights in the tank room upon entry to avoid being recorded. Someone could also disconnect the camera itself¹⁹ without being recorded because it was located next to the entrance to the diesel tank room, and the camera's field of vision did not include entrance to the room.

Embassy Amman Residents Maintained More Fuel Than Jordanian Neighbors

OIG auditors calculated that after a delivery, the fuel volume in the embassy's residential tanks tended to be, on average, 3.25 times higher than the fuel volume maintained in the Jordanian residents' tanks. For example, embassy residents' tanks in seven residential buildings visited by OIG maintained an average of 1,560 liters of fuel after being filled, while the Jordanian residents' tanks in those same seven buildings maintained an average of 480 liters.²⁰ Most diesel fuel storage tanks for embassy personnel have a 2,000 liter capacity and, according to embassy personnel, diesel fuel is typically filled to 1,800 liters twice per month, on average, during the

¹⁹ OIG observed that the camera could be disconnected at the transformer cover near the light switch.

²⁰ OIG used information provided by embassy staff regarding fuel levels for 10 embassy residential tanks and observations of fuel levels for 25 Jordanian residential tanks in 7 buildings to develop its calculations.

winter.²¹ The significant discrepancy between the amounts of diesel fuel maintained by embassy residents in comparison to Jordanian residents could increase embassy residents' vulnerability to potential fuel theft or other loss.

Embassy Amman Implemented Revised Fuel Monitoring Methods in December 2016

Beginning in December 2016, the COR on the current residential diesel fuel contract,²² improved the actions taken to monitor fuel use and consumption by implementing measures to track diesel fuel use at each of the residences. For example, this COR changed the method used to order and deliver fuel to the residences. Under the previous residential diesel fuel contract, the residents were required to monitor their fuel levels and request a fuel delivery. However, embassy Facilities staff now tracks the fuel levels of the residential tanks by inspecting the tanks on a rotational basis when fuel is delivered. For example, the COR stated that during cold weather, diesel fuel is usually delivered to residences once every 2 weeks²³ and the COR determines which residences will be provided diesel fuel based on a schedule that the COR maintains. During delivery, the embassy Facilities staff²⁴ observes and records the current diesel level in the tank, and then the vendor tops off the tank to 1,800 liters.²⁵ The staff records the amount of diesel fuel that was delivered on a spreadsheet and uses this information to track historical fuel use at each residence. Specifically, the staff compares the amount of fuel used during the previous period to the burn rate²⁶ for the boiler, which is established by the manufacturer. Abnormally high use of fuel is further investigated, and will be reported to the Regional Security Officer by embassy personnel if theft is suspected.

In addition, because the residential diesel fuel tanks are refilled based on scheduled deliveries, any additional fuel requests from embassy residents outside of this schedule will alert embassy staff to investigate theft because, according to the COR, no residence should use all of its fuel between scheduled fuel deliveries. However, because both of these forms of monitoring are not time sensitive and, instead, are reactive to activities that occurred during the previous 2-week period, there is a delay between the time when fuel theft may occur and when it would be detected and reported to the Regional Security Officer.

CONCLUSION

Because Embassy Amman relies upon residential leases in buildings that are controlled by landlords rather than embassy personnel, safeguarding fuel purchased by the embassy is

²¹ Facilities staff projected that residential diesel fuel tanks would be filled twice per month during the winter, once per month during the spring and fall, and once every other month during the summer.

²² Contract number SJO10016D0017.

²³ According to the COR, an additional delivery can be scheduled based on an emergent need.

²⁴ Embassy Facilities staff report to the Facilities Manager, who is the designated COR for the residential diesel fuel contract. The COR also performs these tasks on a periodic basis.

²⁵ According to the COR, the fuel tanks are filled to 90 percent capacity to allow room for expansion of fuel due to varying temperatures.

²⁶ Burn rate refers to the time required for the fuel to burn completely.

challenging. In addition, because fuel is a high-risk commodity that requires robust internal controls to safeguard against potential theft, Embassy Amman must employ additional measures to detect fuel loss from the residential fuel tanks in a timely manner so as to prompt an immediate response.

Embassy Amman personnel have taken some steps, as previously described, to address these concerns. There are, however, additional methods that could also be implemented. For example, according to the Embassy Amman Facilities Manager and the Assistant Regional Security Officer, the embassy could adopt a real-time monitoring system that constantly measures the fuel volume within the tank and transmits the information to a receiving device, such as a cell phone or computer. If there is a sudden drop in a tank's fuel volume (for instance, if fuel was being siphoned by an unauthorized individual), this information would be received on a Facilities staff's cell phone, and the alerted staff could then notify the Regional Security Officer or local police to investigate the activity. An immediate response by the Regional Security Officer and local police to an embassy residence where theft may be occurring may serve as a deterrent. Use of a real-time monitoring system may not only help embassy personnel identify the source of actual fuel loss but could also save the Department money over time by deterring fuel theft.

OIG determined that, in addition to employing a real-time monitoring system, Embassy Amman could also make the fuel tanks of leased residences less vulnerable and minimize potential loss by reducing the volume of fuel stored in the fuel tanks. Specifically, the COR could increase the frequency of deliveries to compensate for a lower volume of fuel delivered each time at no additional cost to the Embassy.²⁷ Reducing the volume of diesel in the fuel tanks would also minimize the volume of fuel that can be lost or stolen at any given time, which could result in monetary savings for Embassy Amman.

Recommendation 1: OIG recommends that Embassy Amman purchase and install a real-time monitoring system at all of the embassy residences to monitor diesel fuel use.

Management Response: Embassy Amman stated that it has "selected a vendor to install a real-time diesel fuel monitoring system for implementation and use at leased residences." The embassy stated that the installation of the fuel monitoring devices will be monitored by the Facilities staff. The embassy anticipates starting installation in July 2017 and completing installation in September 2017.

OIG Reply: Based on the actions taken and planned by Embassy Amman, OIG considers this recommendation resolved pending further action. This recommendation will be closed when OIG receives and accepts documentation demonstrating that Embassy Amman has completed the installation of a real-time monitoring system at all of the embassy residences to monitor diesel fuel use.

²⁷ Contract number SJO10016D0017 does not require the Embassy to pay any additional costs based on the frequency of fuel delivery.

Recommendation 2: OIG recommends that Embassy Amman establish and implement policies and procedures to use the real-time fuel monitoring system at the embassy residences, once installed, to alert the Regional Security Officer of potential fuel theft and to prompt immediate intervention by local police for the purpose of deterring fuel theft.

Management Response: Embassy Amman stated that it has “started to develop a draft policy, which will be fully developed, tested, and proven ... prior to final completion of all fuel monitoring installations in operating leased residences by the end of September 2017.”

OIG Reply: Based on the actions taken and planned by Embassy Amman, OIG considers this recommendation resolved pending further action. This recommendation will be closed when OIG receives and accepts documentation demonstrating that Embassy Amman has established and implemented policies and procedures to use the real-time monitoring system at embassy residences to alert the Regional Security Officer of potential fuel theft and to prompt immediate intervention by local police for the purpose of deterring fuel theft.

Recommendation 3: OIG recommends that Embassy Amman, in the interim before it installs a real-time monitoring system at the embassy residences, lower the diesel fuel levels maintained in residential fuel tanks in accordance with seasonal requirements to mitigate residential fuel theft.

Management Response: Embassy Amman stated that it is “implementing reduced diesel fuel levels during the seasonal summer months in leased residences. Fuel levels are being maintained between 500 to 700 liters.”

OIG Reply: Based on the actions taken and planned by Embassy Amman, OIG considers this recommendation resolved pending further action. This recommendation will be closed when OIG receives and accepts documentation demonstrating that Embassy Amman has implemented a process to maintain lower levels of diesel fuel at residences based on seasonal requirements.

APPENDIX A: U.S. EMBASSY AMMAN, JORDAN RESPONSE



Embassy of the United States of America

17 July 2017

Mr. Norman P. Brown
Assistant Inspector General for Audits
Office of the Inspector General
U.S. Department of State

Dear Mr. Brown:

Embassy Amman has reviewed the OIG draft Management Assistance Report: Additional Measures Needed at Embassy Amman to Safeguard Against Residential Fuel Loss. We concur with the recommendations and provide the following corrective actions for each.

Recommendation 1: OIG recommends that Embassy Amman purchase and install a real-time monitoring system at all of the embassy residences to monitor diesel fuel use.

Reply: Post has selected a vendor to install a real-time diesel fuel monitoring system for implementation and use at leased residencies. The installation will be monitored by Post Senior Facility Manager / COR Bill Sherrill, Deputy Facility Manager David Guerrero and Senior Facilities Engineer Saed Oqal. The installation of fuel monitoring devices is set to start July 2017 and finish in September 2017.

Recommendation 2: OIG recommends that Embassy Amman establish and implement policies and procedures to use the real-time fuel monitoring system at the embassy residences, once installed, to alert the Regional Security Officer of potential fuel theft and to prompt immediate intervention by local police for the purpose of deterring fuel theft.

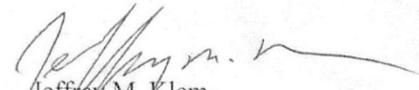
Reply: Post has already started to develop a draft policy, which will be fully developed, tested and proven, as post moves forward with the fuel monitoring installation, and prior to final completion of all fuel monitoring installations in operating leased residencies by the end of September 2017.

Recommendation 3: OIG recommends that Embassy Amman, in the interim before it installs a real-time monitoring system at the embassy residences, lower

the diesel fuel levels maintained in residential fuel tanks in accordance with seasonal requirements to mitigate residential fuel theft.

Reply: Post is implementing reduced diesel fuel levels during the seasonal summer months in leased residences. Fuel levels are being maintained between 500 to 700 liters.

Sincerely,



Jeffrey M. Klem
Acting Management Counselor

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