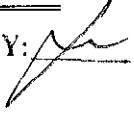


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SENATE

COMMITTEE REPORT NO. 39

RECEIVED BY: 

Submitted jointly by the Committees on Environment and Natural Resources and Health and Demography on MAY 25 2011

R e : Proposed Senate Resolution No. 262.

Recommending the adoption of the recommendations and their immediate implementation.

Sponsors : Senators Zubiri and Cayetano, P.

MR. PRESIDENT:

The Committees on Environment and Natural Resources and Health and Demography to which was referred Proposed Senate Resolution No. 262, introduced by Senator Zubiri, entitled:

**“RESOLUTION
DIRECTING THE COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES AND OTHER APPROPRIATE SENATE COMMITTEES TO CONDUCT AN INQUIRY, IN AID OF LEGISLATION, TO DETERMINE THE ENVIRONMENTAL DAMAGE AND IMPACTS CAUSED BY THE FUEL SPILLAGE PARTICULARLY OF THE FIRST PHILIPPINE INDUSTRIAL CORPORATION (FPIC) PIPELINE IN BARANGAY BANGKAL IN MAKATI, DETERMINE THE CAPABILITY OF THE VARIOUS ENVIRONMENTAL MANAGEMENT PLANS INCLUDING THE ENVIRONMENTAL GUARANTEE FUNDS TO RESPOND TO FUEL SPILLAGE AND TO CRAFT COMPREHENSIVE RESPONSE TO FUEL SPILLAGE AND SIMILAR ENVIRONMENTAL INCIDENTS IN THE FUTURE IN ORDER TO PROTECT PUBLIC HEALTH AND THE ENVIRONMENT”**

have considered the same and have the honor to submit the report on their inquiry back to the Senate recommending the adoption of the recommendations as contained in this report and their immediate implementation.

I. PREFATORY

Article II, Section 16 of the 1987 Constitution provides, *“The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature”*.

This was echoed in the enactment of Republic Act No. 8749 (Philippine Clean Air Act of 1999) and Republic Act No. 9275 (Philippine Clean Water Act of 2004).

The Committee on Environment and Natural Resources aims to craft a legislation that will pursue a more responsive and responsible public-private partnership (PPP) especially in line with President Aquino’s PPP effort that does not only increase investments and infrastructure but deeply strengthen the provisions on risk allocation and always take into consideration environmental concerns to address the evolving global issues of environmental crisis.

II. BACKGROUND

A fuel leak in Barangay Bangkal, Makati City unceremoniously displaced and exposed residents of the West Tower Condominium and adjoining areas to health and safety hazards. For some months, there was finger-pointing as to the primary cause of the fuel leak at the expense of affected residents and, ultimately, the environment.

This initiated the Committees on Environment and Natural Resources and Health and Demography to conduct a joint public hearing from 10:09 in the morning until 12:59 in the afternoon of 15 November 2010. The said public hearing was held in aid of legislation to determine the environmental damage and impacts caused by the fuel spillage particularly of the First Philippine Industrial Corporation (FPIC) pipeline in Barangay Bangkal in Makati and to determine the capability of the various environmental management plans including the environmental guarantee funds to respond to fuel spillage and to craft comprehensive response to fuel spillage and similar environmental incidents in the future in order to protect public health and the environment.

The joint public hearing was attended by the representatives from the Department of Energy (DOE), Department of Environment and Natural Resources (DENR), Department of Health (DOH), Department of Public Works and Highways (DPWH), Bureau of Fire Protection–National Capital Region (BFP-NCR), National Institute of Geological Science of the University of the Philippines (UP-NIGS), City Government of Makati, First Philippine Industrial Corporation (FPIC), Chevron Philippines, Inc., Pilipinas Shell, and Merchant Development Corporation (developer of the West Tower Condominium).

An ocular inspection was conducted by the Committees on 19 November 2011 to determine the extent of the damage caused by the fuel spillage to Barangay Bangkal particularly to the West Tower Condominium.

A second public hearing was held on January 25, 2011 to verify on the status of the remediation measures being done by the FPIC.

III. STATEMENT OF FACTS

A. NOVEMBER 15, 2011 PUBLIC HEARING

Opening Statement of FPIC:

In his opening statement, Mr. Anthony Mabasa, officer-in-charge of the First Philippine Industrial Corporation (FPIC), stated the following:

Honorable Chair of the Committee on Environment and Natural Resources, Honorable Chair of the Committee on Health and Demography, Honorable Senators, Ladies and Gentlemen –

First Philippine Industrial Corporation (FPIC) thank you for inviting us to this investigation of the pipeline oil leak in the Barangay Bangkal, Makati area. In today's hearing, we hope to have the chance to be heard on what FPIC did – or failed to do – is doing – and will do – in the face of this unfortunate incident.

The leakage of our pipeline has caused great suffering, inconvenience and anxiety to many people, particularly the residents of West Tower condominium and the people living and working in Barangay Bangkal. We have listened to your painful stories and we can only imagine what you went through: how you had to evacuate and leave your homes in the middle of the night; how you had to climb many flights of stairs when the power was turned off; how you had to suddenly search for a new place to stay; how the leakage has turned your lives upside down, with many frightening questions still left unanswered.

Sa inyo pong lahat: Kami ay taos-pusong humihingi ng inyong pang-unawa, pagpapatawad at pagpapaumanhin sa aming naging mga pagkukulang. We at FPIC now assure you – publicly, categorically, unconditionally – that though ultimate liability has yet to be established, we take responsibility and will do whatever has to be done to compensate you fairly for the damages you have suffered and to clean up any environmental contamination that the leakage may have caused. We will do all of these with urgency, compassion, and with the assistance of the best experts available.

From the time it was confirmed – on or about October 28, 2010 – that the oil leakage was coming from our pipeline, FPIC has done the following:

- We have repaired the leak and will soon complete preventive reinforcement of the adjoining pipe segments.*
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- *We are digging additional test wells in the leak area and in other areas near major infrastructure along the pipeline route as a first priority.*
- *We have embarked on a comprehensive environment safety audit in coordination with government agencies.*
- *We engaged the services of a decontamination and environmental engineering specialist who will implement the remediation and clean-up of the affected areas in Bangkal.*
- *We have set in motion a comprehensive health program that will address health risks the residents have been exposed to.*
- *We have opened lines of communication to the West Tower residents and conducted an inspection of the basement, preparatory to its repair.*
- *We have coordinated all efforts with the Task Force formed by the Makati City government to ensure greater transparency and effective results.*

FPIC has learned an invaluable lesson from this incident. It took us several months to locate the source of the leak and to repair it. In the meanwhile, people who were directly affected were suffering and in need of immediate help. Regrettably, we did not extend any help until we were sure that the leak was from our pipeline. We should have been more compassionate, more caring and more sensitive. Sana po ay bigyan ninyo kami ng inyong pang-unawa at pagkakataon na gawin ang nararapat.

In closing, we take this occasion to extend our deepest thanks to Mayor Junjun Binay of the City of Makati, who has shown exemplary leadership and concern for his constituents; Makati City Engineer Nelson Morales, who heads the Task Force and, together with Mayor Binay, timely engaged the services of the UP-NIGS, especially to Dr. Carlos Arcilla, who promptly discovered the existence of a leak; and our thanks also to the DENR, DOE, Makati Bureau of Fire Protection, medical practitioners, police, government social workers and barangay authorities. Let us continue to work together, as we resolve the pressing safety, health and environmental problems ahead. Maraming salamat po.

Honorable Chairpersons of the Committees and members of this Chamber, may we be allowed to make a power point presentation to give you a better understanding of our pipeline operations and the timeline of events.

Operations and Maintenance of the Pipeline as Presented by FPIC:

Mr. Leonides Garde, President of FPIC, stated that FPIC owns and operates two pipeline systems – white oil pipeline and black oil pipeline – which transport nearly sixty percent (60%) of petroleum requirements of Metro Manila and parts of Bulacan, Laguna and Rizal. The white oil pipeline which has a diameter of 14 inches and is about 117 kilometers long, transports diesel, gasoline and jet fuel from Batangas to Pandacan. On the other hand, the black oil pipeline which has a diameter of 16 inches and is 105 kilometers long, transports bunker fuel from Batangas to Sucat. The pipeline, designed by Pipeline Technologists, Inc. of Houston, Texas, was constructed in 1967 and became operational in 1969.

The standards for the design, construction, operations and maintenance of the pipelines are according to the United States Department of Transportation Standards for liquid petroleum pipelines that makes reference to engineering standards including the American Society of Mechanical Engineers (ASME), American Petroleum Institute (API), American Society for Testing and Materials (ASTM) and National Association of Corrosion Engineers (NACE). The pipeline material is called API 5LX52 which is in accordance to the description of the American Petroleum Institute. The yield strength is 52,000 pounds per square inch (psi) which is much stronger than structural steel being used for high rises. The design pressure of the pipeline is 1,440 psi however the operating pressure for the white pipeline is only 650 psi thus providing more than double additional safety allowance. Most of the pipeline is underground with a minimum depth of 1.5 meters below the ground surface which is deeper than the minimum of 0.9 meter by the US DOT Standards.

An anti-corrosion technology is being utilized to preserve the material and extend the life of the pipeline. A two-layer coating protects the pipe from moisture and other corrosive substances in the soil. The external coating inspection uses direct current voltage gradient to test its integrity. There is also Impressed Current Cathodic Protection System which transfers activity for rust formation from the pipe material to a sacrificial metal through introduction of electric current. A regular cleaning scraper runs to remove sediments that may cause internal corrosion. There is an in-line inspection every five years to monitor the pipe wall for presence of pitting and/or cracks and follow with protective reinforcement, where necessary. The in-line inspection uses magnetic flux to detect abnormalities inside the pipeline. The FPIC will be using, for the first time, a technology for the pipeline industry called ultrasonic test technology.

There is also a system in place for third party coordination such as a 24-hour patrol in busy sections particularly in Mega Manila; coordinates with DPWH, MMDA and utility companies for any construction near the pipeline; and warning signs every 250 meters.

In the unlikely event of an incident, mitigation measures are ready such as warning signs with toll free number; isolation valves that are remotely controlled;

emergency response team activated by a call-out procedure; and a ready emergency equipment and repair kit.

Chronology of Events as Presented by FPIC:

The following are the chronology of events as presented by Mr. Garde:

- On July 12, 2010 at 10:00 a.m., FPIC was alerted by a police station in Makati of a seepage from the West Tower Condominium. The Bureau of Fire Protection (BFP) personnel under Col. Samuel C. Tadeo were already at the site when the FPIC personnel arrived. FPIC personnel immediately went to the said condominium and saw the seepage in Basement 2. The FPIC personnel immediately proceeded with the emergency shutdown procedures which was activated and completed at 4:45 p.m. of the same day. The FPIC emergency response team was immediately mobilized and by 10 p.m. of the same day, excavation was already being made in front of the West Tower Condominium which was found negative of petroleum leak. Air eductor was immediately installed to siphon out the fumes.
 - From July 12 to 15, 2010, the pipeline was shutdown voluntarily to do fifteen (15) excavations and all were found negative of petroleum leak.
 - On July 14 and 15, 2010, test runs were made in coordination with the Bureau of Fire Protection and Engineer's Office of Makati City. No leaks were seen during the said test runs. A representative from the Department of Public Works and Highways – National Capital Region (DPWH-NCR) inspected the pipeline in this period.
 - On July 15, 2010, the seepage stopped at Basement 2 and FPIC resumed operations.
 - On July 17, 2010, the West Tower Condominium reported again the smell of fumes in which the FPIC personnel immediately checked Basement 2 of the building and no leak was detected. With the assistance of the West Tower Administration, the source of the fume was traced to Basement 4. The portable exhaust ventilation system (air eductor) was immediately transferred to Basement 4. The FPIC continued to observed all their open excavations in front of the building and immediately put up a command post to maintain a 24-hour monitoring.
 - On July 21, 2010 at 10:00 a.m., the FPIC conducted a briefing with the 94 stakeholders and conducted an ocular inspection of the open excavations. The stakeholders include the City of Makati, the Department of Energy, the Department of Public Works and Highways, the residents and administration of West Tower Condominium, and Barangay Bangkal.
 - On July 21, 2010 at 5:00 p.m., Makati City ordered the evacuation of the West Tower residents.
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- On July 21, 2010, FPIC voluntarily shut down the pipeline for further inspection. They were assisted by the Bureau of Fire Protection by engaging the services of HAZCHEM, Inc. an accredited waste treater, to siphon the petroleum layer in the sump pit in Basement 4.
 - On July 22 to 24, 2010, upon instruction of Makati City, an additional of thirteen (13) test pits at Bonifacio and Rodriguez Streets of Barangay Bangkal were excavated. Gas tester readings were jointly conducted with Makati City and yielded negative results. FPIC resumes operations on the condition that continues gas monitoring on all open test pits be done jointly by the BFP, the Department of Environmental Services of Makati City and the FPIC.
 - On July 24, 2010 onwards, FPIC maintained their Bangkal Command Post for any contingency and restored excavations.
 - In August 2010, FPIC made preparations for the in-line inspection runs (magnetic flux leakage and ultrasonic test) to be done by NDT Middle East FZE, an independent contractor.
 - In September 2010, FPIC got reports of continuous seepage in Basement 4 sump pit of West Tower. FPIC immediately engaged the services of two geospecialists – the Geotechnics Philippines, Inc. and Geoanalytic to do Ground Penetrating Radar (GPR) tests of the area. Both contractors started their surveys on September 20. Geotechnics Philippines, Inc. submitted its report on September 30 which showed that there are saturated soils along two immediate side streets of West Tower and there is a 15-meter long metal object buried 1.6 to 2.2 meters under the side street of West Tower. On the other hand, Geoanalytics, Inc. submitted its results on October 4 which showed that there is disturbed soil in nine (9) areas of which four (4) areas are along the pipeline.
 - On September 23, 2010, the ultrasonic test run for the section of the pipeline from Nichols to Quirino Avenue was completed and the result was received by the FPIC on October 29. The result indicated that there is no crack that will indicate any leaks.
 - On September 30, 2010, the magnetic flux leakage run for the same section of the pipeline was completed and the result was received by the FPIC on October 15. The result indicated that there is no metal loss areas that would indicate any leaks.
 - On October 8, 2010, FPIC requested permission to excavate four (4) areas for verification.
 - On October 12, 2010, FPIC presented its excavation and repair methodologies to Makati City.
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- On October 17, 2010, the service of the University of the Philippines – National Institute of Geological Sciences (UP-NIGS), headed by Dr. Carlos A. Arcilla, was engaged by Makati City. UP-NIGS started drilling exploratory wells and found traces of petroleum in several bore holes.
- On October 27, 2010, FPIC voluntarily shuts down the pipeline.
- On October 28, 2010, UP-NIGS continue to bore holes in the south area while FPIC started excavation works at the north side. UP-NIGS detected low explosive level (LEL) using the gas tester in the service road beside the Magallanes flyover. FPIC immediately shifted the excavation to the Magallanes ramp. FPIC made the excavations in three (3) segments – the 1st segment is before the pipeline entered the ramp, the 2nd is in the middle of the ramp and the 3rd is as the pipeline leaves the ramp. On the 1st segment stethoscopes were used to detect where the leak is but this method which is use for water did not work for a petroleum pipeline because when FPIC saw three probable areas of leak in this segment, there was no leak that turned out when the section was dug. On the 2nd segment which is encased in concrete and under the footing of the Magallanes flyover
- On November 7, 2010, the leak was found and repair was done using doubler for the short-term operation but because the pipeline was right under the footing of the Magallanes ramp the bypass of the segment under the flyover structure is being considered for the long-term operation.
- On November 10, 2010, the repair of the leak was completed. The welds of the doubler passed the testing by a third party.
- On November 13, 2010, FPIC made the pressurization and was witnessed by representatives from Makati City, DOE, DENR, DPWH, Shell Company, Inc., Chevron Philippines, Inc. and members from the media.
- Pre-emptive reinforcement of the pipe elbow under the service road of the Magallanes flyover along Osmeña Highway is on-going.

Chronology of Events as Presented by Merchant Development Corporation (Developer of the West Tower Condominium):

- On May 2010, a potential buyer of a unit in the condominium noted gasoline smell but did not report it and thought it as just fumes from cars in the parking area.
 - On July 9, 2010, an initial complaint of unusual strong fumes within the building was received by Property Manager of the West Tower Condominium and was initially suspected to be paint thinner spilled by some units under renovation.
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- On July 10, 2010, leaks at Basement 2 walls were discovered and water mixed with suspected fuel was noticed. Two drums of this water and suspected fuel mixture were collected and was turned over to the BFP.
 - On July 12, 2010, the situation was first reported to the PNP Makati Precinct No. 3. BFP was also contacted, FPIC was informed and they all came to the building to assess the situation. Barangay officials were also notified. FPIC initiated diggings for possible leaks in their pipeline in front of the building.
 - On July 13, 2010, the BFP set up standby fire fighting units due to potential explosion/fire.
 - On July 17, 2010, the fuel spillage reached Basement 4 sump pit area. Meeting was held between FPIC, BFP and West Tower. City Engineer inspected Basements 2 and 4.
 - On July 21, 2010, the Property Manager of the West Tower Condominium had a meeting with BFP, Barangay, DES and FPIC. Total evacuation was recommended. Several residents voluntarily evacuated and relocated to temporary residences. At this point, FPIC is denying the responsibility of the fuel leakage.
 - On July 22, 2010, the City Engineer of Makati City ordered the shutting down of the sump pit pump for environmental purposes. Power was voluntarily shut-down by building manager as a precautionary measure because Basement 4 is now starting to flood.
 - On July 23, 2010, the deep well in Hen. Capinpin Street was found to be contaminated by mixed fuel products similar to West Tower intrusion. NCA Labs conducted water test in both deep well as well as Basement 4 of West Tower. Total building evacuation was announced as a result of the sump pit being shut down by City Engineer.
 - On July 24, 2010, Clean Leaf, a DENR accredited waste water hauler, started the siphoning at a cost of P1.1M. HAZCHEM, Inc. was not able to siphon off anything because their hose could not reach the sump pit in Basement 4.
 - On July 27, 2010, Makati City announces the deadline to clear Basement of waste water. FPIC continues to deny fuel spillage from their pipeline. Makati City Hall cleared FPIC as the source of fuel spillage based on an FPIC certification that "They have no leak". On the same day, media started reporting that the West Tower Condominium is a source of the fuel spillage.
 - On July 28, 2010, NCA Labs, a DENR-accredited laboratory, conducted second test of Basement water and the fuel concentration is now similar to that of the deep well at Hen. Capinpin Street.
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- On July 29, 2010, DOE announced FPIC in not the source of the fuel spillage based on the same FPIC certification.
 - On August 3, 2010, unit owner volunteers who took over from the Property Manager had a meeting with Barangay officials and submitted a proposal to the City Disaster Coordinating Council on how to solve the problem.
 - On August 4, 2010, the unit owner volunteers had requested the Makati City Engineer for an extension of closure order deadline after meeting with DES OIC, Lydia Donato and City Engineering office, Engr. Rose Yumol and their request was graciously extended.
 - On August 5, 2010, the unit owner volunteers submitted the results of the two NCA Lab testing together with the letter request to discharge the wastewater to the sewer line.
 - On August 9, 2010, the unit owner volunteers continued meeting with the Makati agencies – DES, City Engineer and City Mayor's office.
 - On August 10, 2010, Bengan Industries, Inc. was awarded the contract for the hauling of wastewater from West Tower to its treatment plant in Caloocan City at a cost of P2.5M.
 - From August 11 to 14, 2010, a total of 22 trucks hauled off a total of 440,000 liters of wastewater (water-fuel mixture) to Bengan's treatment plant in Caloocan City. A report was submitted to the Office of the Makati City Mayor regarding the developments.
 - On August 18, 2010, the unit owner volunteers met with BenSan Industries regarding the setting up of wastewater treatment plant within the West Tower premises as hauling activity proves to be ineffective at a contract cost of P1.5M.
 - On August 19, 2010, the Bengan Industries, Inc. started the set-up of the treatment plant composed of an Oil Water Separator and an accompanying filter.
 - On August 23, 2010, the DENR issued a Permit to Discharge Wastewater which is good for twenty (20) days.
 - Aug 24, 2010- Met with DES, Mayor's office, City Engineer and Barangay to coordinate the water discharge activity as required by the permit.
 - On August 25, 2010, the Bengan Industries Inc. had started the discharging of treated wastewater into sewer line. The NCA Labs performed the testing as required by the DENR Permit. At this time, 9,200 liters of mixed fuel was shipped to Bengan.
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- Aug 27, 2010- Report to City Mayor's office re status of the treated water discharging.
 - On September 2, 2010, the treatment plant was inspected by DENR EMB Director.
 - On September 3, 2010, an assessment meeting was held between the unit owner volunteers and the DENR, BFP, City Engineer, DES and the Barangay. The parties agreed for another assessment meeting on September 7, 2010 at the City Hall Building.
 - On September 6, 2010, the contaminated flood water in Basement 3 and 4 was completely siphoned. The fuel spillage coming in the West Tower was restricted to sump pit area as per original design. At this time, 15,200 liters of mixed fuel was shipped to Bengan.
 - On September 7, 2010, another assessment meeting was held at the Makati City Hall. In attendance were representatives from the BFP, City Engineer, DES, MGB of the DENR, DENR-EMB, City Disaster Coordinating Council, Barangay Bangkal and West Tower. The parties agreed to clean West Tower Basement to allow safe and accessible for inspection. At this time, 23,000 liters of mixed fuel was shipped to Bengan.
 - On September 8, 2010, another assessment meeting was made by the concerned local and national parties. A suggestion to declare a calamity was made by a hydrogeologist who made a presentation showing the possible environmental disaster that could occur.
 - On September 10, 2010, cleaning was made with the assistance of the Chinese volunteer fire brigades and was able to collect around 2 to 3 sacks of highly flammable rubberized petroleum refuse or fuel refuse.
 - On September 13, 2010, an inspection was made by the Makati City Engineer personnel and made an official declaration that the West Tower was not the source of the fuel spillage. By this time, 26,400 liters of mixed fuel was shipped to Bengan. Some of the mixed fuel was being kept at the West Tower for evidence purposes and for safety in the hauling of said liquid.
 - Sept 17, 2010 - Barangay council adopted resolution declaring the Barangay a calamity area.
 - On September 20, 2010, the FPIC announces the use of GPR to locate the leak. Engr. Efren Impreso of FPIC advises the residents that the area was a former military camp and denied that the source of the spillage is FPIC. At this time, 42,400 liters of mixed fuel was shipped to Bengan.
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- On September 22, 2010, the Makati City Council announced the formation of a task force that will investigate the fuel spillage. At this time, 46,400 liters of mixed fuel was shipped to Bensen.
 - Sept 24, 2010 - City mayor request for updates on the situation from West Tower.
 - Sept 27, 2010 - West Tower Task Force was formally approved.
 - Sept 29, 2010 - Barangay holds meeting with Barangay residents to explain the situation in the area.
 - On September 30, 2010, the Makati City Engineer together with the Ateneo School of Mines and Geology inspected the Basements of West Tower and announced that the area is already saturated with petroleum. At this time, 61,200 liters of mixed fuel has already been shipped to Bensen.
 - On October 1, 2010, the 1st meeting of the West Tower Task Force, presided by Makati City Mayor Jejomar Erwin Binay, was held. Also in attendance were representatives from West Tower and experts from UP and Ateneo. UP-NIGS questioned the effectiveness of the GPR equipment used by FPIC.
 - On October 2, 2010, FPIC announced the initial result of their GPR scan which indicates the presence of fuel tanks in the area. FPIC continues to deny that the fuel spillage is from their pipeline. FPIC claimed that there is a 15-meter long metal object detected by the GPR right in front of the sump pit of West Tower.
 - On October 10, 2010, the Makati City Hall sought the help of UP-NIGS.
 - From October 16 to 28, 2010, UP-NIGS started drilling exploratory wells in the area and several of these wells were found positive for signs of fuel spillage. By this time, 113,200 liters of mixed fuel has been shipped to Bensen.
 - On October 29, 2010, FPIC finally admitted the responsibility of the fuel spillage but need to find the source of the spillage. By this time, 117,400 liters of mixed fuel has been shipped to Bensen.
 - On November 8, 2010, FPIC announced the discovery of five (5) mongo-sized holes in the pipeline near Bonifacio Street and blamed the DPWH and the vibration coming from the Magallanes flyover for causing the mongo-sized holes. By this time, 147,400 liters of mixed fuel has been shipped to Bensen.
 - The West Tower unit owner volunteers have contracted a government agency which has metallurgical experts and based on their response to the inquiry, the vibration from the Magallanes flyover cannot cause the mongo-sized holes.
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- As of November 14, 2010, 817 drums or 163,400 liters of mixed fuel has been shipped to Bengan. This means that a daily average of 12 to 19 drums or 2,400 to 3,800 liters of mixed fuel is coming into the basement of West Tower.

Presentation of the West Tower Condominium:

The West Tower Condominium was developed by Fil-Estate and was completed in 1998 with 177 units for residential use and retail use on the ground floor. The building was designed to have a perforated pipe to drain the ground water outside the building to avoid the hydrostatic pressure of water to the building. The perforated pipe is beneath Basement 4 and there is a collector pipe that goes to the sump pit. The ground water is being pumped up by a 15-horse power sump pump which goes directly to the street drainage or canal. The building never experienced basement flooding even during the typhoon Ondoy.

After the spillage, the perforated pipe was contaminated by FPIC fuel so it goes directly to the sump pit. On August 24, when Makati City ordered the shutting down of the sump pit pumps, the flood line reached Basement 2 and West Tower was not allowed to pump out water directly to the canal.

On the present setup, the fuel on top of the water was pumped up from the contaminated sump pit directly into the drums on the ground floor. On the other hand, the contaminated water was pumped using the same sump pump into the oil-water separator in a carbon treatment tank located outside the building. The carbon in the treatment tank has to be replaced regularly every 600 cubic meters of water or every 12 days.

Various equipment of the West Tower Condominium were damaged because of the fuel spillage such as the elevator equipment, domestic water pumps, fire pump, sewage electrical switches and breakers, fire safety auto switches, circuit breakers, a 450kVA generator set, and the auto transfer switch.

On the pictures and videos presented by Architect Roberto Dimayuga, a resident of the West Tower Condominium, the following can be seen:

- the pipeline shown is already corroded;
 - the wetness of the soil is noticeable;
 - the flyover beam does not rest on the pipeline casing;
 - the worker is using gas mask which means that the fumes are very high;
 - the workers are using pail to collect the fuels because there is a constant leak which means that there might be an existing hole or leak or the jackhammer used by these workers might have hit the pipe.
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Presentation of the University of the Philippines – National Institute of Geological Sciences (UP-NIGS) as presented by Dr. Carlo Garcia

On October 10, 2010, the Makati City hired the services of the UP-NIGS composed of the following:

- Dr. Carlo Arcilla, *Director*, UP-NIGS;
- Dr. Benjamin de Jesus, *Environmental Scientist* (PhD, UP-Diliman);
- Dr. Florencio Ballesteros, *Environmental Engineering* (PhD, New Jersey Institute of Technology);
- Mr. Dave Drake Medina, *Hydrogeologist* (MSc, UP-Diliman);
- Mr. Edmundo Vargas, *Hydrogeologist* (MSc candidate, UP-Diliman);
- Engr. Renato Abundo, former PETRON Construction Manager;
- Mr. R. Jason Antonio, *Geologist*, UP-NIGS;
- Mr. Elise Pellejera, *Geologist*, UP-NIGS;
- UP-NIGS Drilling Team led by Team Leaders Gerald Quina and Gerardo Sumat;
- Advisers: Dr. Glenn Tabios, *Hydrologist*; Dr. Chelo Pascua, *Materials Science*; Engr. Louernie de Sales, *Environmental Engineer*; Dr. C.P. David, *Geochemist*; Dr. Carla Dimalanta, *Geophysicist*; Dr. Zuhar Zahir, *Petroleum Geophysicist* (Petronas University); Dr. Jun Abrajano, *Organic Geochemist* (Rensselaer University); and many others.

The UP-NIGS has to work by multiple working hypothesis such as (1) used oil from car repair shops nearby; (2) gasoline stations; (3) fuel depot in West Tower; (4) old military fuel tank (the buried metal object); and (5) the FPIC pipeline. Numbers (1), (2) and (3) were ruled out because of the volume of fuel already recovered. Dr. Arcilla questioned the use of ground penetrating radar (GPR) because GPR can only detect pipelines but cannot detect leaks. He ruled out the buried old military tank because of the batches of fuel leaking – sometimes gasoline, sometimes diesel and sometimes kerosene – which means that what was being recovered in the basement was mirroring what was passing through the pipeline. UP-NIGS drilled three (3) wells and found no buried metal tank, thus, leaving the FPIC pipeline as the possible source of the leakage.

UP-NIGS drilled holes ten (10) meters apart and used explosimeter to detect the vapor from the leak. UP-NIGS started drilling to the north because these had been excavated before and found zero percent (0%) reading. When UP-NIGS shifted

to the south the drilling of holes, the explosimeter registered 6%, 8% and 100% explosivity and some gasoline were even recovered from some holes.

Dr. Arcilla agreed with the analysis that there's a spatial correlation between the high load flyover and the location of the pipeline elbow where the leak was found because there are no leaks yet found in the vicinity of Barangay Bangkal outside the flyover and corner area.

Dr. Arcilla showed the cross-section of the ground wherein the first layer is the soil, the second layer is the adobe and the third layer is a very thick layer of sand. When the fuel leaked into the ground it goes directly to the sand which is permeable. The West Tower became the collecting point because it has the deepest basement in the area.

Dr. Arcilla noted that the leak might have been plugged but the fuel that has been accumulated in the ground particularly in the basement of the West Tower poses danger and must have to be taken out. UP-NIGS proposed to the Makati City Mayor for the construction of capture wells wherein the fuel will flow into these wells instead into the West Tower but construction of these wells will take time.

Dr. Arcilla also suggested the use of segment pressure test in examining the pipeline. The segment pressure test is an internal method wherein a high pressure will be applied in the sections of the pipeline over an extended period of time. A drop in the pressure means a leak is present in that area and this can be investigated using the exploratory wells.

Dr. Arcilla suggested that a test has to be done on all elbow joints of the 117-km pipeline because there is a lot of load in those areas due to friction. He emphasized the areas where the pipeline crosses the Valley Fault System.

B. NOVEMBER 19, 2010 OCULAR INSPECTION

On November 19, 2010, the Committees on Environment and Natural Resources and Health and Demography conducted an ocular inspection of the West Tower Condominium to check on the present condition of the building and the repair being made by the FPIC on their petroleum pipeline.

During the inspection, Senator Juan Miguel Zubiri, Chairman of the Committee on Environment and Natural Resources, inspected the portion of the pipeline where mongo-sized holes were found and where repair was being made. The Chairman, together with some representatives from the City Government of Makati, FPIC, West Tower Condominium and DOE, also inspected the basement of the West Tower Condominium to ascertain the gravity of the damage caused by the fuel leak and the health and safety hazards posed by the same.

Senator Zubiri in a press conference subsequent to the ocular inspection underscored the overwhelming smell of gas substances in the basement of the West Tower Condominium and the surrounding areas. The Chairman raised concerns as

regards the health and safety of the residents noting the severity of the noxious gases emitted as a consequence of the fuel leak.

C. JANUARY 25, 2011 PUBLIC HEARING

Presentation of FPIC and CH2MHILL:

CH2MHILL, a multinational company based in the U.S., was hired by FPIC to do the recovery and remediation of the fuel spillage in West Tower and Barangay Bangkal in Makati City.

Mr. Edmund Piquero Jr., Project Manager of CH2MHILL, presented the following environmental site assessment:

- From December 2, 2010 up to January 25, 2011, CH2MHILL had already installed a total of twenty-six (26) monitoring wells. These monitoring wells are basically PVC pipes buried in the subsurface to get a representative sample of the groundwater in the subsurface. Twenty (20) monitoring wells are installed around Bangkal area and additional six (6) on the east of West Tower Condominium to monitor if the plume is going towards east of Osmeña Highway. Collected soil samples were sent to ALS Laboratory in Malaysia for analysis of volatile organic compounds (VOCs); benzene, toluene, ethylbenzene and xylenes (BTEX); and total petroleum hydrocarbon (TPH) in terms of gasoline, kerosene, diesel and heavy oil. Peristaltic pump was used in the process in order for the VOCs not to evaporate when getting the soil sample.
 - CH2MHILL, together with the representatives from DOH, DENR and Makati City, also did domestic well sampling in the six (6) identified deep wells. Results of the domestic sampling turned out to be negative of VOCs, TPH and MTBE.
 - On December 7, 2010, CH2MHILL started drilling and had installed six (6) wells for product recovery.
 - On December 16, 2010, CH2MHILL had started the extraction and have already recovered free phase (pure petroleum product). The purpose of this is to control the expansion of the free phase plume.
 - As of January 22, 2011, the company had already collected 61,732 liters of both petroleum product and contaminated water.
 - On the thirty (30) soil samples that were sent to the ALS Laboratory for analysis, only one came out with a reading that is above the limit.
-

- Of the twenty (20) monitoring wells that were installed, five (5) of them has free phase product which means that the fuel is concentrated in that area.
- The free phase area is estimated to be 7,000 square meters and the dissolve phase (water in contact with the fuel) is estimated to be 15,000 square meters or about 1.5 hectares.
- Based on the groundwater contour map shown by CH2MHILL, the flow of water is towards the West Tower Condominium because it has the deepest structure in the area.

Mr. Anthony Cole, Regional Remediation Specialist of CH2MHILL, presented the following remediation system:

- The product recovery process is an interim measure for the larger scale of mediation program that CH2MHILL is starting to design.
- The remediation strategy includes: (1) capturing the phase separated hydrocarbon (PSH – a mixture of kerosene, gasoline and diesel) before it enters the West Tower; (2) removing the PSH in the vicinity of West Tower and beneath Osmeña Highway; and (3) limiting the expansion of the dissolved phase plume.
- One remedial strategy is to pump out the PSH and the groundwater using the multi-phase extraction (MPE). In the MPE, a series of about 30 to 40 wells of 4-inches in diameter and with pumps in them, will be installed in the vicinity and will pump out water and products. Vacuum will be induced on top of the wells to draw out more of the products at a faster rate. Soil Vapour Extraction (SVE) wells will also be installed to suck the air across the soil.
- The conceptual remediation design will be submitted to FPIC on January 24, 2011; the detailed design of remediation system will be submitted last week of February 2011; the construction of the system will take 12 weeks because the system will be constructed in the United States and will be shipped to the Philippines.
- The construction of the remediation system will be completed and will be in operation by 4th week of May.
- The total rehabilitation of the West Tower will take 3 to 5 years.

Engr. Leonardo Ablaza, Environment and Safety Executive Consultant of FPIC, presented the following West Tower basement restoration and emission and effluent discharge mitigation:

- FPIC had defined the basement of the West Tower Condominium as the most critical area.
- FPIC will correct the unsafe condition in the West Tower by degassing the basement which means that hydrocarbon will be pushed out of the basement into the atmosphere by the use of two big blowers which are already running on 24/7.
- FPIC are also doing an air quality monitoring which means that FPIC personnel will monitor the gas level condition before allowing people to enter the basement.
- FPIC had already installed an explosion-proof type of electrical system in the basement in order for the FPIC personnel to work more safely.
- FPIC has an on-going assessment of the electro-mechanicals of the building because it is their commitment to restore the equipment in the basements and in other parts of the building to its condition prior to the incident.
- Bengan Recovery System will be improved to meet the Clean Water Act limits of the Philippines.
- FPIC have tasked an engineering firm to develop a filter that will mitigate the odor coming from the West Tower.
- FPIC aim for West Tower to be habitable by the 3rd quarter of 2011.

Presentation of UP-NIGS:

Dr. Carlo A. Arcilla presented the following:

- On October 2010, Makati City hired the services of UP-NIGS to find the source of the leak and with 70 wells drilled, UP-NIGS was able to isolate that the leak was coming from the pipeline.
 - The general flow of direction of the shallow groundwater in his presentation is going southwest.
 - UP-NIGS drilled 42 wells, starting from a radius of 400 meters from the contamination site, to determine the contamination boundaries and their findings agreed with that of the FPIC's.
 - The plume that was determined by UP-NIGS is bigger than that of the CH2MHILL's.
-

- Dr. Arcilla noted that there are some areas that have more than three (3) meters thick of separated fuel.
- Dr. Arcilla is not definitely sure where the deepest part of the contamination is.
- Dr. Arcilla suggested that the uneven thickness of the plume must be considered in the remediation.
- Dr. Arcilla stressed that the City of Makati is concerned for an aggressive remediation which means that there must be target dates in order for Makati City to impose fines on the violators.
- Dr. Arcilla recommended the following: (1) flow of free water must be blocked in order for the safe return of the residents to the building (West Tower); (2) aggressive product recovery rate for the 1.6 to 1.8 liters of fuel in the ground.

Presentation of the Merchant Development Corporation (Developer of the West Tower Condominium):

Architect Roberto Dimayuga presented the following:

- As of November 17, 2010, FPIC was able to go down the basement to assess the situation.
- On December 23, 2010, FPIC was able to install safety equipments.
- The blower installed by FPIC to pressurize the basement is not sufficient to force air to basement to insure positive air change.
- The blowers installed by FPIC in the basement only dispersed the toxic fumes on uncontrolled places inside and outside the condominium, such the elevator shaft.
- The exhaust discharge pipe installed by FPIC in the basement does not have any filters installed thus, toxic fumes were just transferred to other uncontrolled areas;
- Due to the pressure, toxic fumes may have penetrated the porous materials such as wall, ceiling, floorings etc. The concern of the West Tower residents that these toxic fumes may escape after several years after the building has been rehabilitated and inhabited again.

IV. ISSUES

IV. ISSUES

1. Whether or not the pipeline owned and operated by FPIC was the proximate cause of the fuel leak in West Tower Condominium and adjoining areas in Barangay Bangkal, Makati City.
2. Whether or not the fuel leak in West Tower Condominium occasioned a violation of the Clean Air Act and/or the Clean Water Act.
3. Whether or not residents of West Tower Condominium and adjoining areas in Barangay Bangkal, Makati City should be compensated for the damages sustained due to the fuel leak.
4. Whether or not there is a need to inspect the whole stretch of the FPIC pipeline in order to ensure its structural integrity and, ultimately, the safety of the general public.

V. FINDINGS

**THE PIPELINE OWNED
AND OPERATED BY THE
FPIC IS THE PROXIMATE
CAUSE OF THE FUEL LEAK**

It must be noted that at the very onset of the investigation/hearing, First Philippine Industrial Corporation (FPIC) already made a categorical admission through its Officer-in-Charge, Mr. Anthony Mabasa that the proximate cause of the fuel leak in Barangay Bangkal is the FPIC pipeline. As stated in the opening statement read by Mr. Mabasa during the public hearing conducted on 15 November 2010, viz:

“xxx... The leakage of our pipeline has caused great suffering, inconvenience and anxiety to many people, particularly the residents of West Tower Condominium and the people living and working in Barangay Bangkal... xxx

:... FPIC has learned an invaluable lesson from this incident. It took us several months to locate the source of the leak and to repair it. In the meanwhile, people who were directly affected were suffering and in need of immediate help. Regrettably, we did not extend any help until we were sure that the leak was from our pipeline... xxx”

More than this categorical admission by Mr. Anthony Mabasa during the public hearing conducted on 15 November 2010, the Committees lend credence to the

Geological Sciences (UP-NIGS) that the source of the leak is none other than the pipeline owned and operated by FPIC.

As mentioned above, other probable sources of the fuel leak, as forwarded by FPIC, have all been ruled out through the process of hypotheses-testing. The UP-NIGS tested five (5) hypotheses, to wit: (1) used oil from car repair shops nearby; (2) gasoline stations; (3) fuel depot in West Tower; (4) alleged old military fuel tank (the buried metal object); and (5) the FPIC pipeline. Hypothesis Numbers (1), (2), and (3) were all ruled out because of the sheer volume of fuel being recovered. The buried-old-military-tank hypothesis was also eliminated because of the batches of fuel leaking – sometimes gasoline, sometimes diesel and sometimes kerosene – which means that what was being recovered in the basement was mirroring what was passing through the pipeline. UP-NIGS drilled three (3) wells and found no buried metal tank, thus, leaving the FPIC pipeline as the possible source of the leakage. That the pipeline owned and operated by the FPIC is the proximate cause of the fuel leak was finally confirmed when on 7 November 2010 five (5) mongo-sized holes were found on the surface of the FPIC pipeline.

**THE FUEL LEAK OCCASSIONED
POSSIBLE VIOLATIONS OF THE
CLEAN AIR ACT AND/OR
THE CLEAN WATER ACT**

Rule XXV Section 13 of the Implementing Rules and Regulations of Republic Act No. 8749, otherwise known as the "Philippine Clean Air Act of 1999" enumerates, *inter alia*, prohibited acts to wit:

-XXX-

Fugitive Particulates.

No person shall cause, let, permit, suffer or allow the emission of particulate matter from any source whatsoever, including, but not limited to, vehicular movement, *transportation of materials*, construction, alternation, demolition or wrecking or industry related activities such as loading, storing or "handling," without taking reasonable precautions to prevent such emission. (*emphasis ours*)

-XXX-

Nuisance

No person shall discharge from any source whatsoever such quantities of air contaminants or other material which constitute nuisance as defined under Articles 694

to 707 of Republic Act No. 385, otherwise known as the Civil Code of the Philippines.

-XXX-

The Committees are convinced that there exists, in all probability, clear contraventions of pertinent provisions of R.A. 8749 or the Philippine Clean Air Act of 1999. The fuel leak in the West Tower Condominium and adjoining areas in Barangay Bangkal, Makati City caused the emission of noxious gas substances into the environment. The inhalation of the same by the residents of the affected areas poses a threat to their health in violation of their protected and recognized right to breath clean air.

Chapter 5 Section 27 of Republic Act No. 9275, otherwise known as the "Philippine Clean Water Act of 2004" provides, *inter alia*, prohibited acts to wit:

-XXX-

b) Discharging, injecting or allowing to seep into the soil or sub-soil any substance in any form that would pollute groundwater.

-XXX-

g) Operate facilities that discharge or allow to seep, wilfully or through gross negligence, prohibited chemicals, substances or pollutants listed under R.A. No. 6969 into water bodies or wherein the same shall be liable to be washed into such surface, ground, coastal, and marine water;

-XXX-

The Committees are similarly convinced that there exists, in all probability, clear contraventions of pertinent provisions of R.A. 9275 or the Philippine Clean Water Act of 2004. Laboratory analysis of effluents conducted by the Environmental Management Bureau confirm the presence of effluents, in alarming levels, caused by the seepage of fuel substances in the soil of the affected areas. As a result, groundwater in the vicinity of West Tower Condominium and adjoining areas in Barangay Bangkal, Makati City have been contaminated.

**THE RESIDENTS OF WEST TOWER
CONDOMINIUM AND ADJOINING
AREAS SHOULD BE APPROPRIATELY
COMPENSATED FOR THE DAMAGES
SUSTAINED DUE TO THE FUEL LEAK**

The fuel leak brought about by the mongo-sized holes on the surface of the FPIC pipeline undoubtedly caused undue damage and prejudice to the residents of West Tower Condominium and adjoining areas in Barangay Bangkal, Makati City.

- The residents of the West Tower Condominium were unceremoniously displaced as they were forced to evacuate their residences.
- The residents of the West Tower Condominium, as a consequence of evacuation, were constrained to search for temporary dwelling at their own expense.
- The residents of West Tower Condominium and adjoining areas were constantly exposed to safety risks and health hazards posed by fuel contamination and inhalation of noxious gas substances.
- The residents of West Tower Condominium and adjoining areas were constrained to expend for unexpected medical services as a consequence of the abovementioned health hazards.
- The residents of West Tower Condominium shouldered the clean-up of the fuel leak at an aggregate amount of Seven Million Pesos (Php 7,000,000.00).
- The residents of the West Tower Condominium and adjoining areas suffered sleepless nights, anxiety, and mental anguish caused by a lingering fear for their property and the lives of their family.

As a result of the foregoing, it is but proper that the residents of West Tower Condominium and adjoining areas in Barangay Bangkal, Makati City be appropriately compensated, in accordance with law and equity, for the damages they sustained.

**THERE IS AN IMPERATIVE NEED
TO INSPECT THE WHOLE
STRETCH OF THE FPIC PIPELINE**

The FPIC owns and operates a 42-year-old pipeline system – a white oil pipeline and a black oil pipeline – which transport nearly sixty percent (60%) of petroleum requirements of Metro Manila and parts of Bulacan, Laguna and Rizal. The white oil pipeline which has a diameter of 14 inches and is about

117 kilometers long, transports diesel, gasoline and jet fuel from Batangas to Pandacan. On the other hand, the black oil pipeline which has a diameter of 16 inches and is 105 kilometers long, transports bunker fuel from Batangas to Sucat.

The holes which caused the fuel leak in Barangay Bangkal, Makati City were found on the surface of the white oil pipeline which traverses 117 kilometers of residential and commercial areas from Batangas to Pandacan. The fact that FPIC failed miserably to discover the cause of the leak despite an existing maintenance and inspection system raises a cause for alarm. There is therefore an imperative need to inspect the whole stretch of the FPIC pipeline in order to ensure that the same does not pose a threat to the lives of many Filipinos.

VI. RECOMMENDATIONS


The Committees recommend the following:

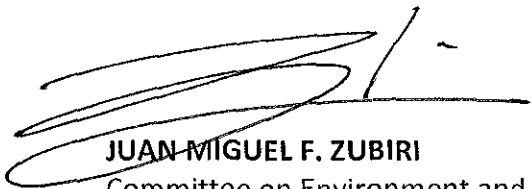
1. The crafting of a legislation which calls for the regulation of oil and gas pipelines. As such the passage of a Senate Bill entitled, "An Act Providing for the Regulation of Oil and Gas Pipelines, Creating the National Pipeline Board For the Purpose, Appropriating Funds Therefore, and for Other Purposes" is earnestly sought.
 2. A sufficient compensation package in favour of the residents of West Tower Condominium and adjoining areas must be put in place as recompense for the damages sustained by reason of the fuel leak. The same must take into consideration any and all damage and inconvenience suffered by the residents and all the necessary expenses incurred by them as a consequence of the fuel leak. The compensation package is without prejudice to any civil claims pending before our courts.
 3. FPIC should shoulder the expenses for the clean-up operations within the West Tower Condominium and adjoining areas affected by the fuel leak. Necessarily, FPIC should forward the appropriate reimbursements for the amount already expended by the West Tower Management, the City of Makati and other government agencies, in the conduct of the same.
 4. FPIC must present a detailed, specific and time-bound clean-up plan that must contain a definitive statement as to the steps and strategies to be taken which must be strictly followed and observed.
 5. Appropriate action must be undertaken by concerned government agencies as regards possible violations of the Clean Air Act and/or Clean Water Act.
-

6. The Committees fully support, and in fact encourage, any and all actions that would ensure protection and enforcement of the rights of the residents as enshrined in the Clean Air Act and the Clean Water Act.
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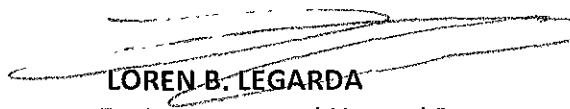
Respectfully submitted:

Chairpersons:



PIA S. CAYETANO
Committee on Health and Demography
*Member, Committee on Environment and
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JUAN MIGUEL F. ZUBIRI
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Vice-Chairperson:



LOREN B. LEGARDA
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JOKER B. ARROYO

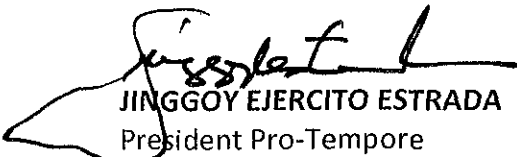
Committee on Environment and Natural Resources



ANTONIO "SONNY" F. TRILLANES IV

Committee on Health and Demography

Ex-Officio Members:



JINGGOY EJERCITO ESTRADA
President Pro-Tempore




VICENTE C. SOTTO III
Majority Leader

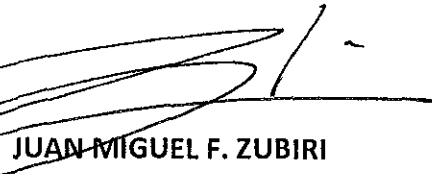
ALAN PETER "COMPAÑERO" S. CAYETANO
Minority Leader

Hon. JUAN PONCE ENRILE
President
Senate of the Philippines
Pasay City


Respectfully submitted:

Chairpersons:



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Vice-Chairperson:

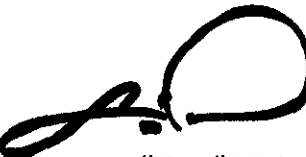

LOREN B. LEGARDA
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Member, Committee on Health and Demography
Vice-Chairperson, Committee on Health and Demography
(manifested on January 24, 2011)

Members:


EDGARDO J. ANGARA
Committees on Environment and Natural
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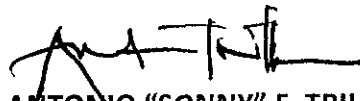
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