

Republic of the Philippines  
**DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT**

**INTER AGENCY ANTI-ARSON TASK FORCE**



DILG-NAPOLCOM Center, ESDA cor., Quezon Avenue,  
 Quezon City  
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**MEMORANDUM FOR THE CHAIRMAN IATF/SECRETARY, DILG**

**THRU : HON. RAFAEL ANTONIO M. SANTOS** \_\_\_\_\_  
**Undersecretary, DILG**

**SUBJECT : Fact Finding - re: The Explosion/Fire at Unit 501B**  
**(4th Floor Level), Section B Tower A, Two Serendra,**  
**McKinley Parkway Drive, Bonifacio Global City,**  
**Taguig City, last 7:59 PM, 31 May 2013.**

**DATE : 14 August 2013**

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**I. BACKGROUND:**

**References -**

- Republic Act No. 6975;
- Presidential Memorandum Order No. 371 dated May 15, 1996;
- Spot Report Taguig City Fire Station dtd 31 May 2013;
- Memo of CINSUP JUNITO F. MASLANG for OIC, BFP for IATF to assume jurisdiction dtd 02 June 2013;
- Memo for HON. MAR ROXAS, Secretary, DILG from F/CHIEF SUPT CARLITO S ROMERO, OIC, BFP dtd 03 June 2013;
- Memo for HON. MAR ROXAS, Chairman, IATF/SILG from F/SRSUPT FENNIMORE V JAUDIAN, CFEI, CVFI, Chief, IATF-CT, dtd 03 June 2013; Mission Order No: 06 - 2013 - 01 signed by HON. MAR ROXAS, Chairman, IATF/SILG dated 03 June 2013; and
- Turn-over to IATF by SMMCIDTeam dtd 03 June 2013;

This pertains to the explosion incident that occurred on or about 1959H, 31 May 2013 at Unit 501 B, Section "B" Tower "A", Two Serendra, McKinley Parkway Drive, Bonifacio Global City, Taguig City.

That on or about 2010H 31 May 2013 SSUPT FENNIMORE V JAUDIAN, CFEI, CVFI, District Fire Marshal of FDIV, BFP-NCR, and concurrent Chief of the IATF-Composite Team, DILG immediately responded to the said explosion incident to assist the City Fire Station of Taguig, BFP and on or about 2020H same date arrived at the scene of explosion together with F/INSP REDENTOR V ALUMNO and F/INSP JIM B PALER, Chief, IIB, FDIV, BFP-NCR.

That on or about 2200H, 31 May 2013 P/DIR LEONARDO A ESPINA, RD - NCRPO and other officials together with F/CINSUP JUNITO F MASLANG, OIC - City Fire Marshal and F/SINSP SEVERINO G SEVILLA, Chief, Operation/ concurrent Chief, Arson and Intelligence Unit of Taguig City Fire Station conducted assessment/inspection of the building involved in the fire and explosion.

During ocular inspection, F/SINSP SEVILLA noticed a fire on the upper part of the wall along the hallway. He immediately used HCFC Type of Fire Extinguisher to extinguish the flame on that part of the wall. His initial assessment was that the fire at the LPG cabinet at room 506 B was of suspicious origin, considering that the LPG meter cabinet door was broken and no sign of burning, while the interior of meter cabinet was completely burned and the meter was missing<sup>1</sup>.

A Command Post was established by the Crisis Management Committee headed by P/DIR LEONARDO ESPINA at the Function Room No. 2, Two Serendra of subject address. The Head of Departments/Agencies or offices who took part in the investigation were:

a. HON. MAR ROXAS II	SEC DILG
b. HON. ROGELIO L. SINGSON	SEC DPWH
c. HON. MA.LAARNI " LANI" CAYETANO	MAYOR,TaguigCity
d. USEC. AMY GUEVARRA	DOST
e. ASEC. RAYMOND E. LIBORO	DOST
f. P/DIR LEONARDO A ESPINA	RD, NCRPO,PNP
g. F/CSUPT CARLITO S ROMERO	OIC, BFP
h. P/CSUPT JOSE ERWIN T VILLACORTE	PNP, SPD, Director
i. F/SSUPT FENNIMORE V JAUDIAN	Fire Marshal, FD-IV, BFP and con. Chief, IATF-CT
j. P/SSUPT RONAL FELIX ASIS	COP, PNP, Taguig Station
k. P/SSUPT ROBERTO B FAJARDO	RC, NCRCIDU, CIDG,PNP
l. P/SSUPT EMMANUEL L ARANAS	SOCO, PNP Crime Lab
m. P/SSUPT CONRAD CAPA	DDDO, SPD, PNP
n. P/SUPT DANILO MACERIN	ARC, NCR, CIDU, CIDG,PNP
o. F/CINSP JUNITO F MASLANG	Fire Marshal, BFP Taguig City
p. P/CINSP ROMEO R NIÑO	SMMCIDT, PNP
q. P/CINSP ARIEL BAIT	EOD/PBI TEAM, PNP
r. DR. CARLOS ARCILLA	UP, NIGS
s. DR. CARLOS PRIMO C DAVID	UP, NIGS
t. SI MAR SANTOS	EOD, NBI
u. ROMEO G NERO	Opn Mgr, Lanting Sec
v. Others	

That on or about 0345H, 01 June 2013 after proper coordination with the Crisis Management Committee and SOCO, CIDG, SR SUPT JAUDIAN along with BFP investigators from Taguig City and District Command were allowed entry into the blast affected areas, particularly Unit 501B, Section "B" Tower "A", Two Serendra, of subject address and were able to conduct initial assessment of the scene of the explosion, and on or about 0400H same date, informed F/CSUPT CARLITO S. ROMERO OIC, BFP, Fire Ground Commander of the initial assessment, based on the physical damaged found at the subject building - the incident is most likely a gas explosion.

<sup>1</sup> Per Spot Investigation Report dated 31 May 2013, Taguig City Fire Station, attached as Annex "A";

That last 02 June 2013 F/CINSP MASLANG requested F/CSUPT ROMERO that the subject incident be assumed by higher authorities, and on 03 June 2013 F/CSUPT ROMERO endorsed the request to the HON. MAR ROXAS, Secretary, DILG and Chairman IATF paving the way for the IATF to assume jurisdiction.

**HON. MAR ROXAS**, issued Mission Order No. 06 - 2013 - 01 dated 03 June 2013 directing the IATF to conduct thorough investigation and the following coordinating instructions from **HIS EXCELLENCY BENIGNO S. AQUINO III, PRESIDENT OF THE REPUBLIC OF THE PHILIPPINES**, to coordinate and/or tap the Department of Health (DOH), Department of Science and Technology (DOST), Department of Public Works and Highways (DPWH), National Bureau of Investigation - Counter Terrorism Division (NBI-CTD) and other agencies to help in the investigation. Said mission order includes support group from PNP and BFP.<sup>2</sup>

That on the same date, the scene of the incident was turned - over by P/CINSP ROMEO R NIÑO, Chief, SMMCIDT – CIDG, PNP to the IATF Composite Team, which formally assumed the jurisdiction in conducting the investigation.

## II. THE SERENDRA

### A. GENERAL INFORMATION

Serendra is owned by SERENDRA INC. (formerly FIRST SOUTH PROPERTIES, INC.) registered with the Securities and Exchange Commission (SEC) under Registration No. ASO94-005087 dated February 4, 2004 (Annex "Z"). It is one of the prime residential projects developed by AYALA LAND INC. situated in a 12-hectare development estate formerly managed by Bases Conversion Development Authority (BCDA). As a multi-stage development project, it consists of low- to mid-rise terraced sections in the first few phases, gradually spiralling to taller sections in later phases, and initially covered by Building Permit No. 152-04 issued by the Taguig City's Office of the Building Official on March 23, 2004 (Annex "D"). It is divided into three main districts (namely, One Serendra, Two Serendra and Serendra Retail) located between 11<sup>th</sup> Avenue and McKinley Parkway, Bonifacio Global City, Taguig City.

Particularly, Two Serendra District is a residential condominium project divided into five (5) Sections, (namely, Section A as "Almond", B as "Belize", C as "Callery", D as "Dolce" and E as "Encino"). Each section is composed of clusters of towering multi-level buildings sharing common basements (namely, Basements B1 and B2). In terms of open space to building footprint ratio, it has allocated 60% for landscapes and other amenities and 40% for actual building properties. The entire District is protected by perimeter fence, with 24-hour duty Security Guards, with entrance - exit access at both McKinley Parkway and 11<sup>th</sup> Avenue.

Sections A, B and C of Two Serendra were constructed by Makati Development Corporation as the General Contractor. Building Permit No. 152-04 dated March 23, 2004 was issued to Ayala Land Incorporated, indicating the location of construction at Lot B, Station Square, East corner McKinley Parkway & 11<sup>th</sup> Avenue, Fort Bonifacio, Global City. The permit, however, did not indicate the particular section or portion of the project that is covered. A subsequent undated Building Permit No. BP-648-04 was issued to Serendra, Inc. as the

<sup>2</sup> Mission Order No. 06-2013-01 signed by HON. MAR ROXAS, attached as Annex" C";

Owner and indicating the location of construction at District 2 Section B & C, Station Square East corner McKinley Parkway & 11<sup>th</sup> Avenue, Fort Bonifacio, Global City.

## **B. PERTINENT REGULATIONS AND COMPLIANCES**

### **B.1 Applicable Regulations, Standards and Ordinances Prior to Construction**

The following pertinent regulations, standards and ordinances shall be complied with prior to the construction, installation and use of the above mentioned building, structures and their facilities:

#### **1. PD 1096 (National Building Code of the Philippines)**

##### **a. Building Permit and Ancillary Permits**

Section 301 of the IRR of PD 1096 or the National Building Code of the Philippines requires any person, firm or corporation to secure the necessary Building Permit prior to the construction of the building. Ancillary permits like Mechanical, Electrical, Sanitary and Plumbing, are likewise required for installations of the required features of the building.

##### **b. Certificate of Occupancy**

Section 309 of the NBCP requires that no building or structure shall be used or occupied and no change in the existing use or occupancy classification of a building or structure or portion thereof shall be made until the Building Official has issued the Certificate of Occupancy.

##### **c. Electrical and Mechanical Regulations**

The provisions of the NBCP on electrical and mechanical regulations under Section 1301 and 1302, respectively, state that electrical and mechanical systems, equipment and installations shall be in accordance with the Philippine Electrical Code and Philippine Mechanical Engineering Code, respectively.

#### **2. PD 1185 (Fire Code of the Philippines)**

##### **a. Section 1.202 in relation to Section 1.206, IRR**

Section 1.202 in relation to Section 1.206 of the Implementing Rules and Regulations of PD 1185 states that fire safety inspection shall be conducted as a pre-requisite to grants of permits and/or licenses by local government or other government agencies and the issuance of Fire Safety Inspection Certificate (FSIC) upon payment of the required fees.

##### **b. Rule 3 – Fire Safety in Building, Structures and Facilities**

This Rule provides that several fire safety features are to be complied with by the owner when constructing a building. The applicable safety measures for the Serendra Complex are as follows:

- i. Automatic Fire Suppression System
- ii. Automatic Detection and Alarm/Warning System
- iii. Wet/Dry Standpipe Systems
- iv. Fire Safety Construction
- v. Fire Extinguishers
- vi. At least two means of egress

**c. Rule 28 – Liquefied Petroleum Gases**

- i. Section 28.203 provides that the servicing of LPG tanks, cylinders, piping, delivery hoses, burners, or stoves shall be undertaken by technicians duly certified by the Chief of the Local Fire Service in coordination with the Philippine Liquefied Petroleum Gas Association (PLPGA).
- ii. Section 28.210 provides for the adoption of the Philippine Liquefied Petroleum Gas Association Safety Code which are not inconsistent with the provision of the IRR of PD 1185 on LPG.
- iii. Section 28.211 para D recommends the use of safety devices that automatically stops the flow of gas should a leak develop in the tubing and/or piping between the regulator and the burner.

**3. Safety Code of Philippine Liquefied Petroleum Gas Association (PLPGA) Series of 2000 (as per Section 28.210 – LPG Safety Standards)**

- a. Section 3.10.1 provides that a two-regulator system or an integral two-stage regulator is required for controlling vapor pressures within limits necessary for safe operation of the system.
- b. Section 3.10.2 provides that the first stage regulator shall be installed as close to the tank or vaporizer outlet as practical and located outdoors.
- c. Section 3.10.3 provides that the second stage regulators located inside buildings or in inadequately ventilated areas must be vented to a safe location outside the building.
- d. Section 3.10.6 recommends that isolation valves be located close to regulators to facilitate maintenance.
- e. Section 3.12.11 provides that shutoff valves shall be incorporated at the ends of all pipelines to which properly identified hoses are connected.

**4. RA 7160 otherwise known as the Local Government Code of 1990**

Provisions of the Local Government Code states that the Local Government Unit shall have the authority to regulate the operations of business establishments within their area of responsibility.

## **B.2 Applicable Regulations, Standards and Ordinances Covering the Period of Renovations up to the Date Incident**

The following pertinent regulations and standards shall be complied with to cover the repair and renovation of Unit 501B:

### **1. PD 1096 (National Building Code of the Philippines)**

#### **a. Building Permit and Ancillary Permits**

Section 301 of the IRR of PD 1096 or the National Building Code of the Philippines requires the any person, firm or corporation to secure the necessary Building Permit prior to the alteration, repair, conversion and use any building or portions thereof. Ancillary permits like Mechanical, Electrical, Sanitary and Plumbing, are likewise required for installations of the required features of the building.

#### **b. Certificate of Occupancy**

After completion of the construction and prior to the use of the building, a Certificate of Occupancy is required to be secured by the owner/permittee pursuant to Section 309 of the NBC.

#### **c. Automatic Shutoff Device**

Section 1302 para 10 (h) requires that piping carrying propane, butane and other gas which are heavier than air, shall be provided with automatic shutoff device at each burner before the flexible connection.

### **2. RA 9514 (Fire Code of the Philippines of 2008)**

a. Section 4(j) of RA 9514 in relation to Rule 9(1)(c) of its IRR requires the building owner/occupant to submit plans and specifications, and other pertinent documents of said building to ensure compliance with applicable codes and standards and shall secure the necessary Fire Safety Evaluation Clearance (FSEC) from City/Municipal Fire Marshal having jurisdiction as a pre-requisite to the issuance of Building Permit by the Local Building Official.

#### **b. Rule 10, IRR – Fire Safety in Building, Structures and Facilities**

This Rule provides that several fire safety features are to be complied with and maintained by the owner even after the renovation of Unit 501B to ensure life safety:

##### **i. Automatic Fire Suppression System (AFSS)**

Section 10.2.6.5(4) of the IRR of RA 9514 provides that sprinkler impairment procedures shall comply with NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection System.

##### **ii. Automatic Detection and Alarm/Warning System**

Section 10.2.6.4(3) of the IRR of RA 9514 provides that to ensure operational integrity, the fire alarm system shall have an approved maintenance and testing program which shall be developed by the building management in accordance with internationally accepted standards.

iii. Safety Devices for Liquefied Petroleum Gas

Section 10.3.4.3.3(d) of the IRR of RA 9514 provides that no person shall tamper with or make ineffective the safety device of any LPG container.

B.3 Compliances Before and After Construction

The following permits and licenses were granted to Ayala Land Inc and Serendra Inc as proof of compliance of the pertinent regulations enumerated above.

1. City Government of Taguig

NAME OF PERMIT/ LICENSE	NUMBER/ DATE	PERMITTEE/ GRANTEE	DESCRIPTION
Building Permit	152-04/ Mar 23, 2004	Ayala Land Inc.	Lot B Station
Building Permit	648-04/ undated	Serendra Inc.	District 2 Sec B & C, Lot B Station, Square East Corner Mckinly Parkway & 11 <sup>th</sup> Ave. Fort Bonifacio, Global City
Building Permit	BP-06-227/ May 05, 2006	Serendra Inc	District 2 Sec D
Building Permit	BP-06-371/Aug 08, 2006	Serendra Inc	District 2 Sec E
Occupancy Permit	15-07-0197/ Oct 24, 2007	Ayala Land Inc/ Serendra Inc.	Serendra District 2, Phase 1, Section A
Occupancy Permit	15-08-0104/ Apr 22, 2008	Ayala Land Inc.	Serendra District 2, Section B, Tower BA
Occupancy Permit	15-08-0105/ Apr 22, 2008	Ayala Land Inc.	Serendra District 2, Section B, Tower BB
Business Permit	No Available Record	No Available Record	No Available Record

2. Taguig City Fire Station (BFP)

NAME OF PERMIT/ LICENSE	NUMBER/ DATE	PERMITTEE/ GRANTEE	DESCRIPTION
Fire Safety Checklist	No Available Record	No Available Record	No Available Record

Fire Safety Inspection Certificate (Occupancy)	OP-06-13557/Jan 08, 2007	Ayala Land Inc.	Serendra Phase 1A &1B
Fire Safety Inspection Certificate (Occupancy)	OP-08-05-0035/May 13, 2008	Serendra Inc	Serendra District 2, Section B
Fire Safety Inspection Certificate (Business)	R16-85892/Jun 21, 2011	Serendra Condominium	Two Serendra
Fire Safety Inspection Certificate (Business)	R16-91077/Nov 22, 2012	Serendra Condominium	Two Serendra

**B.3 Compliances before and after Renovation of Unit 501B**

Records revealed that there were no permits secured prior and after renovation of Unit 501B. (Annex “I” and “J”)

**C. BUILDING FEATURES OF TWO SERENDRA**

**1. BUILDINGS AND RESIDENTIAL UNITS**

Section A (Almond) composed of 9 towers with actual floor levels ranging from 6 to 9 floors, to note that all towers do not have 4<sup>th</sup> and 13<sup>th</sup> floors, omitting every floors and rooms with number “4” and “13”, Section B (Belize) with 4 towers ranging from 7 to 12 floors, Section C (Callery) with 3 towers ranging from 10 to 14 floors, Section D (Dolce) with 2 tower 7 and 12 levels and Section E (Encino) with 3 towers; 10, 18 and 23 floors. All in all Two Serendra has 21 towers having 1,200 total residential units with 858 units occupied as of end of May 2013 with 1,265 parking slots as show in maps and tables below.

**Table 1**

SECTION A (ALMOND)			
TOWE R	ACTUAL FLOOR LEVEL	DESIGNATE D FLOORS	NO. OF UNITS
A	7	G/F to 8 <sup>th</sup> Flr	14
B	9	G/F to 10 <sup>th</sup> Flr	63
C	8	G/F to 9 <sup>th</sup> Flr	41
D	7	G/F to 8 <sup>th</sup> Flr	53
E	7	G/F to 8 <sup>th</sup> Flr	15
F	6	G/F to 7 <sup>th</sup> Flr	83
G	6	G/F to 7 <sup>th</sup> Flr	17
H	6	G/F to 7 <sup>th</sup> Flr	40
I	8	G/F to 9 <sup>th</sup> Flr	24
TOTAL UNITS			350

**Table 2**

SECTION B (BELIZE)			
TOWER	Actual Floor Level	Designated Floors	No. of Units
BA	7	G/F to 8 <sup>th</sup> Flr	35
BB	9	G/F to 10 <sup>th</sup> Flr	27



BC	10	G/F to 11 <sup>th</sup> Flr	50
BD	12	G/F to 14 <sup>th</sup> Flr	83
TOTAL UNITS			195

Table 3

SECTION C (CALLERY)			
TOWER	Actual Floor Level	Designated Floors	No. of Units
CA	10	G/F to 11 <sup>th</sup> Flr	60
CB	12	G/F to 14 <sup>th</sup> Flr	71
CC	14	G/F to 16 <sup>th</sup> Flr	112
TOTAL UNITS			243

Table 4

SECTION D (DOLCE)			
TOWER	Actual Floor Level	Designated Floors	No. of Units
DA	7	G/F to 15 <sup>th</sup> Flr (Loft Area)	70
DB	12	G/F to 14 <sup>th</sup> Flr	68
TOTAL UNITS			138

Table 5

SECTION E (ENCINO)			
TOWER	Actual Floor Level	Designated Floors	No. of Units
EA	10	G/F to 21 <sup>st</sup> Flr (Loft Area)	70
EB	23	G/F to 25 <sup>th</sup> Flr	114
EC	14	G/F to 16 <sup>th</sup> Flr	90
TOTAL UNITS			274

Table 6

Section	Studio	1-BR	2-BR	3-BR	Total
A - Almond	94	92	97	67	350
B - Belize	14	59	70	52	195
C - Callery	78	71	64	30	243
D - Dolce	56	29	23	30	138
E - Encino	41	100	82	51	274
TOTAL					1,200

Table 7  
PARKING LOTS

Sections	No. of Parking Levels	No. of Parking Lots
Almond	2	351
Belize and Callery	2	480
Dolce and Encino	2	434
TOTAL		1,265

2. DESIGNERS AND BUILDERS' INFORMATION

The Project was progressively designed and constructed by sections with its respective Developer, Architect, Design Engineers/Consultants and General Contractor as tabulated below:

<u>SECTIONS</u>	<u>Almond</u>	<u>Belize &amp; Callery</u>	<u>Dolce and Encino</u>
Developer	Alveo Land Corp	Alveo Land Corp	Alveo Land Corp
Architect	RMJM	Aidea Phils., Inc.	Angelito Cunanan
Design Engineers/ Consultants:			
Structural	Engr. Jose A. Sy	Engr. Jose A. Sy	Engr. Jose A. Sy
Electrical	R.A. Mojica and Partners	R.A. Mojica and Partners	R.A. Mojica and Partners
Mechanical	R.J. Calpo and Partners	R.J. Calpo and Partners	R.J. Calpo and Partners
Sanitary/ Plumbing	NBF Consulting Engineers	NBF Consulting Engineers	NBF Consulting Engineers
Fire Protection	NBF Consulting Engineers	NBF Consulting Engineers	NBF Consulting Engineers
Fire Alarm & Detection	R.A. Mojica and Partners	R.A. Mojica and Partners	R.A. Mojica and Partners
LPG System	R.J. Calpo and Partners	R.J. Calpo and Partners	R.J. Calpo and Partners
General Contractor	Makati Dev't Corp	Makati Dev't Corp	EEI

Likewise, below is the profile of the Design Engineers and Consultants and the standard used in their designs.<sup>3</sup>

3. STRUCTURAL DESIGN:  
Engineer-Of-Record: Sy2 + Associates

- a. Code Compliance of:
  - i. National Structural Code of the Philippines (2001)

<sup>3</sup> Per information presented during the coordination meeting with the design professionals initiated by Ayala Land Inc last 04 June 2013.

- ii. Uniform Building Code (1997)
- iii. American Concrete Institute Building Requirements (ACI 318)
- b. Design Criteria as Per Code Requirements:
  - i. Earthquake – Zone 4
  - ii. Wind Load – 200 kph
  - iii. Live Load – 40 psf
  - iv. Concrete Strength – 3000 to 7000 psi
  - v. Rebar Yield Strength – Grade 40 & 60 ksi
  - vi. Live Load – 40 psf
- c. Reinforced Concrete Moment Frame:
  - i. Reinforced concrete beams, columns and shear wall
  - ii. Building frame resting on combined mat and isolated footings
- d. External Walls and interior walls are non - structural walls except for shear wall.

#### **4. ELECTRICAL SYSTEM:**

**Engineer-Of-Record: Raladin A. Mojica**

- a. Codes and Standards during Design:
  - i. National Building Code of the Philippines and its IRR (1997)
  - ii. Philippine Electrical Code (2000)
  - iii. National Electrical Code (2005)
  - iv. National Fire Protection Association (2002)
- b. Utility power service is from MERALCO.
- c. Centralized MERALCO Metering at Basement - 1 and direct power risers to the Residential Units were provided.
- d. Panel board with built-in circuit breakers were provided inside the Residential Units.
- e. In case of MERALCO power outage, there is emergency power from the engine - generator system for common areas and residential units were provided.
- f. Lighting and power receptacles were provided at the Residential Units.

#### **5. SANITARY AND PLUMBING:**

**Engineer-Of-Record: Noel B. Franco**

- b. Code Compliance:
  - i. National Building Code of the Philippines
  - ii. National Plumbing Code of the Philippines
  - iii. Philippine Sanitation Code
- c. Direct connection to BGC's water and sewer system

- d. Water:
  - i. Centralized cistern tank
  - ii. Overhead water tank for every building
  - iii. Water is distributed thru gravity (down-feed) and pressurized system
- e. Sewer (human waste from CR of individual units of Two Serendra): Unit sewer line is connected to vertical stack that goes to the Soil Pipe and directly connected to the sewer manhole located at the pathwalk (outside the perimeter of Two Serendra), fronting Drop-off Lobby of Section B and C which will then goes to Central Sewage Treatment Plant of Bonifacio Global City. Basement 2, Section C has one sewer that accommodates the waste of two Comfort Rooms (one for each basement) at the common areas of Basement 1 & 2. There are also three (3) sumpits at Basement 2 Section B & C that accommodate water from parking drain, plenum drain, and oil interceptor overflow at perforated pipe.<sup>4</sup>

## **5. FIRE DETECTION AND ALARM SYSTEM:**

**Engineer-Of-Record: Raladin A. Mojica**

- a. Code Compliance and Design:
  - i. National Fire Protection Association (2002)
  - ii. National Electric Code (2005)
- b. Addressable fire detection and alarm system with Fire Alarm
- c. Control Panel (FACP) located at the Centralized Command Center at Basement 1 Security Office.
- d. Smoke detectors were provided at the Living / Dining and Bedrooms of the Residential Units.
- e. Heat detectors were provided at the Kitchen of the Residential Units.
- f. Fire Alarm bells and annunciators were provided at the common areas.

## **6. FIRE PROTECTION:**

**Engineer-Of-Record: Noel B. Franco**

- a. Code Compliance:
  - i. Fire Code of the Philippines
  - ii. National Fire Protection Association
  - iii. NFPA 101 – Life Safety Code
- b. Fully automatic fire sprinkler system
- c. Central Fire Storage Tank and Fire Pump System

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<sup>4</sup> Per statement of Engr. John Aler (attached as Annex"PPPP") and actual ocular examination conducted by IATF team.

- d. Wet & dry standpipe system
- e. Fire Hose Cabinets located at every floor
- f. Portable Fire Extinguishers at Common areas.

7. Close Circuit Television (CCTV) SYSTEM

Two Serendra is provided with CCTV that is monitored in the CCTV Room at Basement 1, Section B&C, Engineering Office and operated by Lanting Security Personnel. The CCTV cameras are installed in the following location:

	CCTV CAMERA	LOCATION
1	CHANNEL 1	Covering Elevator 1, Tower BB (Fixed Camera)
2	CHANNEL 2	Covering Elevator 2, Tower BB (Fixed Camera)
3	CHANNEL 11	Covering Tower BB, Lobby BB (Pan Tilt Zoom)
4	CHANNEL 14	Covering Command Post/Pool Area (Pan Tilt Zoom)
5	CHANNEL 15	Covering Section B&C Drop Off Lobby (Pan Tilt Zoom)
6	CHANNEL 14	Covering Playground or at the Back corner of Tower I
		Section Almond. (Pan Tilt Zoom)

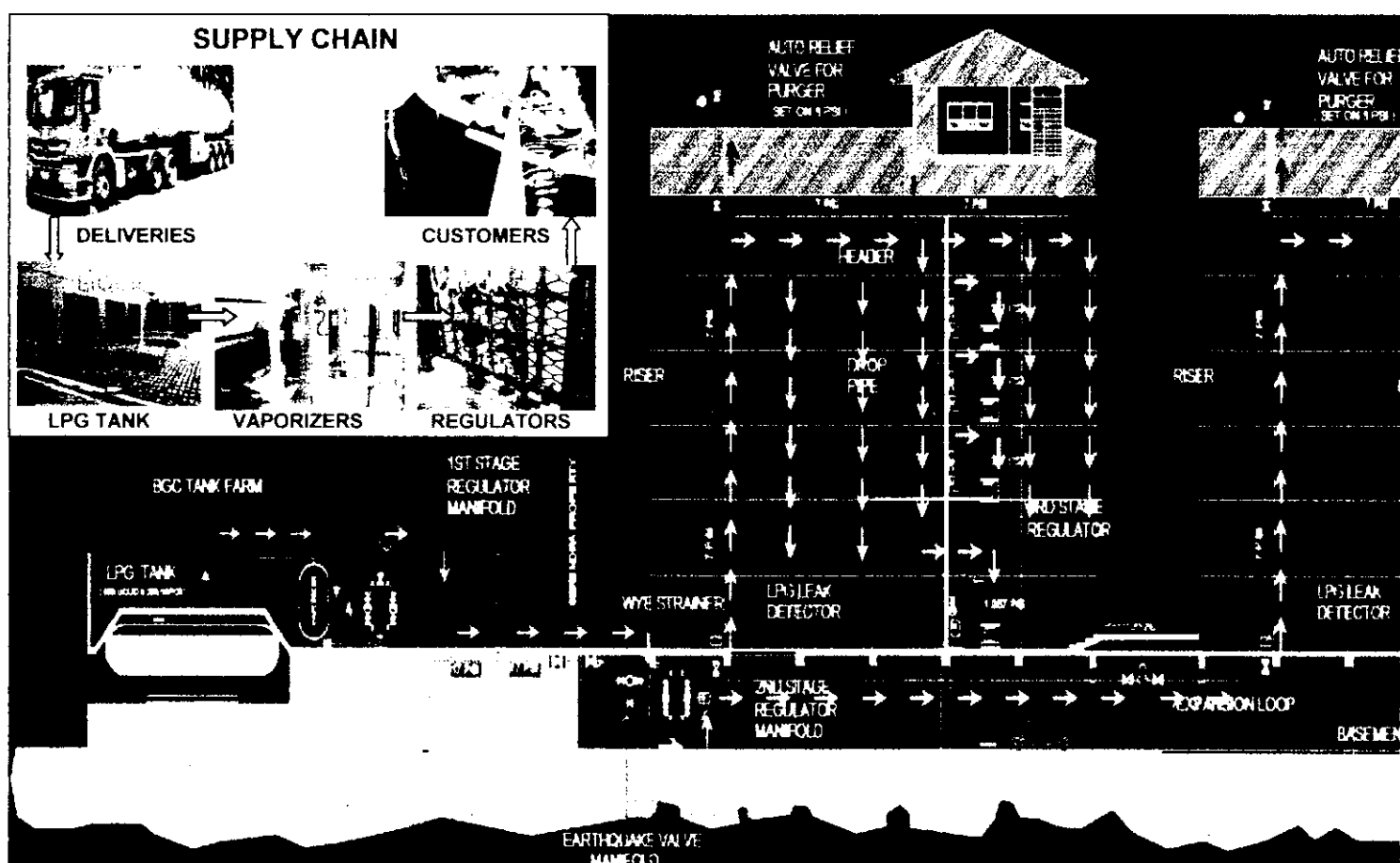
8. LPG SYSTEM –  
RJ CALPO AS THE DESIGNER ON RECORD

Individual condominium units are supplied through a centralized LPG distribution system coming from the Bonifacio Gas Corporation (Bonigas for brevity. Annex “HH”) through a Medium Density Polyethylene (MDPE) pipeline, which is approximately 2.5 km from tank farm of Bonigas to Serendra District. The central tank farm of Bonigas is being supplied by Shell Philippines, Inc from its bulk storage at Batangas Depot. There are three LPG service lines that supply Serendra District: for One Serendra; Two Serendra and Serendra Commercial. Two Serendra has three mother meters, one for Section A, one for Sections B & C, and one for Sections D & E, and every unit has individual sub-meter. The LPG distribution facilities (from mother meter to sub-meter of individual unit) in Two Serendra is owned by Serendra Inc., the developer of Serendra District, and being managed by Direct Power (Annex “OOOO”).

As per Engr Ephraim Silang, Operations Manager of Bonigas, the LPG distribution system is more or less eight (8) kilometers that is looped throughout the Bonifacio Global City. The liquid LPG is being supplied by Pilipinas Shell through its hauler, EMME-Subic Company. The tank farm has four (4) 11,400-gallon LPG tanks, which is being filled at its 80% capacity. From the tank, the liquid form is being pushed by a pressure of 60 to 80 psi to the vaporizer at a temperature of 60 to 70 degrees Celcius (°C). It will then pass through the first stage regulator to keep the pressure of 15 to 20 psi at the distribution system, which will be supplied to the buildings.

The distribution pipeline throughout the Bonifacio Global City is composed of 200-mm diameter MDPE pipe. (See Fig.1)<sup>5</sup>

<sup>5</sup> LPG distribution system is based on the presentation of Engr. Calpo and other the design professionals, during the coordination meeting with BFP/PNP and other stakeholders, initiated by Ayala Land Inc last 04 June 2013. While inset photo of supply chain is based on the power point presentation provided by Engr. Dennis Palomar, Operations Manager of BGC.



**Fig.1. LPG DISTRIBUTION SYSTEM FROM BGC TANK FARM TO SERENDRA .  
(INSET PHOTOS SHOWED THE SUPPLY CHAIN)**

Engr. Calpo's design for the LPG distribution system of Serendra District provides for an interconnection to the BGC 200-mm diameter main gas line for LPG. It is served by a 100-mm gate valve for the 100-mm diameter MDPE service pipe connected to a ball valve - earthquake valve – ball valve and by-pass valve. After the said valves, it is connected to a second stage regulator, isolation valve and a mother meter that serves the pipeline towards the different towers. The LPG pipeline passed through the common basement 1 of the towers from a 100 mm diameter B.I. seamless pipe that reduces to a 50 mm diameter supply line equipped with expansion loop for each size, which on Section B Tower A is served by a 38-mm diameter LPG riser.

The said building LPG riser is equipped with an isolation valve, ball valve and wye strainer that connects to a purge line located at the top most portion of the riser inside the ceiling. The purger is connected to a pipe that terminates to the ceiling eaves. The purger is set to 8 psi (see attached report of CFM, Taguig dated July 16, 2013) while the LPG riser pressure is working on 7 psi. The LPG is distributed to the different residential units through a 32 mm diameter horizontal branch line inside the ceiling that serves the drop pipes. The 25 mm diameter drop pipe inside the pipe chase serves the gas meter assembly located along the hallway. The gas meter assembly is located inside a cabinet with cover and provided with an isolation valve, third stage regulator that reduces the pressure to 0.4 psi, the gas meter and the bell reducer that is connected to a 15 mm diameter stub-out.

Calpo's design for the LPG distribution system inside buildings terminates to the stub-out. The design criteria of Ayala Property Management Corp (APMC) for each residential unit provides that a gas detection system shall be installed by among the APMC's accredited installers. (Annex "NNNN")

#### **D. SECTION B TOWER A**

The building designated as Section B Tower A where unit 501B is located is made of mixed construction materials under pre-painted long span galvanized iron sheet. It is a seven (7)-storey structure composed of thirty five (35) residential units with balcony in a typical five (5) units per storey configured as follows: two (2) units studio type; two (2) units one (1) bedroom type; and one (1) unit three (3) bedroom type. The building is a moment-resisting frame resting on combined mat and isolated footings where columns, beams and floors are made of reinforced concrete. The exterior wall and interior partition are design as a non-structural or non-load bearing wall made of reinforced spraycrete and concrete hollow blocks respectively, except for the shear wall of the fire exit which is made of reinforced concrete.

#### **E. BUILDINGS SAFETY FEATURES OF TWO SERENDRA**

The building is equipped with the following safety features:

- i. A Fire Detection and Alarm System that include initiation device such as smoke detectors, heat detectors, manual pull stations and water flow switches.
- ii. A combination Wet and Dry Standpipe System typically located in all Fire Exit Stairs, Fire Hose Cabinets with complete accessories located at the corridors/hallway at the common areas of every floor, basement and at the parking areas.
- iii. Portable Fire Extinguishers are distributed at the fire hose cabinet, common areas, equipment rooms, generator set room, parking areas and electrical & machine rooms.
- iv. An Automatic Fire Suppression System (AFSS) equipped with a fire pump with a discharge capacity of 750 gallons of water per minute driven by a 100 Horsepower (HP) motor coupled with a 5 HP Jockey Pump as the maintaining pressure, water tank of 45,000 gallons capacity and sprinkler heads distributed throughout the residential complex.
- v. Vertical openings for the elevator shafts, fire exit stairs and garbage chute are protected with sprinkler heads and fire rated doors with panic hardware mechanism.
- vi. A 600 KW Generator Set capable of starting automatically during power interruptions by an 8 seconds delay transfer switch. The generator set is fuel-fed with a 34,621 liter capacity main fuel tank and a 1,778 liters capacity day tank equipped with a confinement dike/bund wall in cases of spillage and a wheel type portable fire extinguisher.
- vii. The LPG distribution system inside the building is protected by a manual shut off valve at the base of the riser located at basement 1.

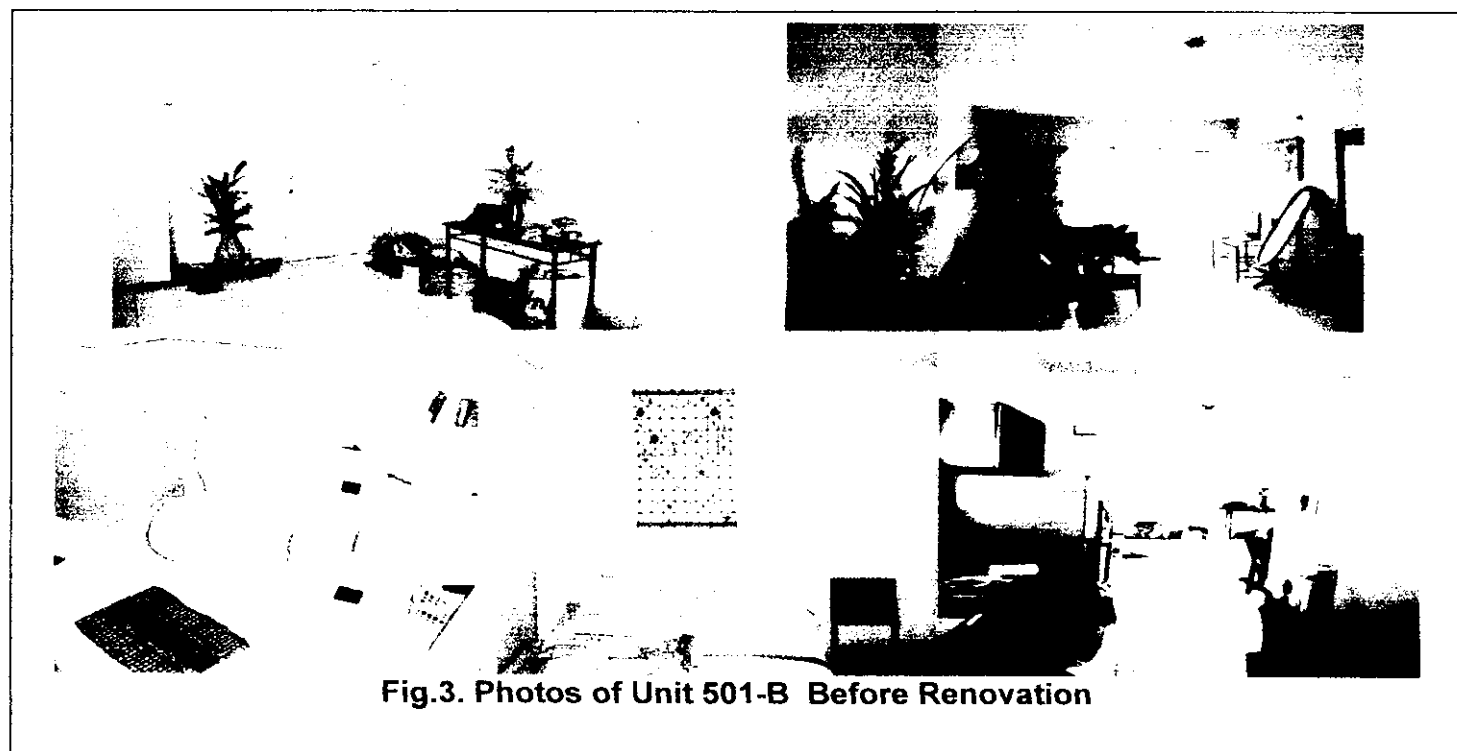
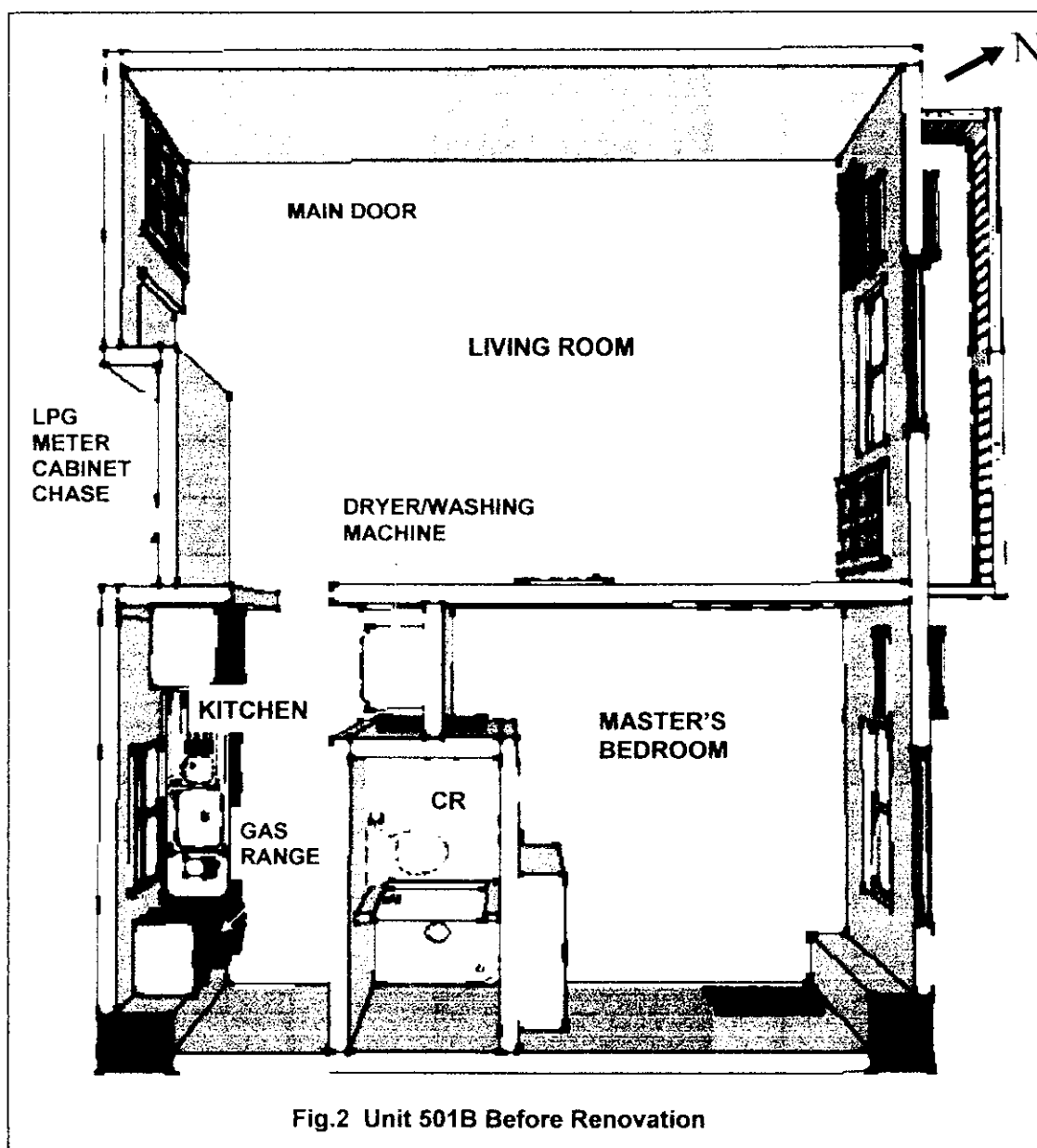
Also provided with a "*stand-alone gas leak detector*" at the bottom of the riser located at the ground floor. To cater for over pressure of the system a purger (pressure relief valve) located at the upper most portion of the riser is installed. The purger is connected to a pipe discharging in case of over pressure at the ventilation of the ceiling eaves. An earthquake protection to allow multi axial movement is also provided through an expansion loop installed at every change of pipe diameter and at strategic points within the piping system. Individual gas meters serving the residential units are provided with an isolation valve and pressure regulator valve.

#### **F. UNIT 501-B (BEFORE THE RENOVATION)**

F.1. Based on Architectural and Engineering Plans (Annex "YYYY"), information presented during the coordination meeting with the BFP/PNP and other stakeholders and design professionals, initiated by Ayala Land Incorporated on June 4, 2013, inspection of Unit 501B and similar units, and photographs taken before the renovation (See Figures 2 & 3), the following were gathered:

1. Unit 501B is a one-bedroom unit located at the end of the hallway at the 5<sup>th</sup> Floor of Two Serendra, Section B Tower A, facing McKinley Parkway Drive. It is a corner unit just opposite unit 502 B and adjacent to the fire exit.
2. The ceiling is constructed from gypsum board with aluminum ceiling studs. The walls are painted and the flooring tiled. The kitchen is furnished with a modular kitchen sink and shelves and provided with a space for a refrigerator and gas range at both ends of the kitchen sink. Opposite the space for the refrigerator is a space for the washing machine which is located adjacent to the Toilet and Bath (T&B). At the end of the kitchen is a pantry cabinet for storage purposes. The T&B located inside the bedroom is provided with the standard fixtures of lavatory, water closet and shower heads and tile floorings. The bedroom located in the right corner of the building is provided with single bed and cabinets.
3. As to the electrical system, the circuit breaker is located at the kitchen wall beside the T&B. The unit is provided with typical lighting fixtures and power supply outlets fixtures at the bedroom, T&B, balcony, living, dining, and kitchen area that serve home appliances such as refrigerator, television, gas range, washing machine and dryer, electric fan, air-conditioner, water heater, etc. The unit is likewise provided with smoke detectors at the bedroom and living room and a heat detector at the kitchen area.
4. For the mechanical features of Unit 501B, it is provided with a window type air-conditioner, sprinkler heads at various locations and a stubout for the LPG system inside the unit. The LPG appliance is equipped with a leak detector (Home Alert Brand) that is connected to an automatic shutoff valve. The automatic shut-off device is connected to the service pipe (stubout).
5. The unit is also provided with standard sanitary and plumbing fixtures composed of water supply for T&B, kitchen, and wash area, as well as, sanitary waste and house drain for T&B's water closet, lavatory and shower drain, kitchen sink, and wash drain. (Fig.2 & 3)





F.2 Prior to the renovation of Unit 501B, the following arrangements were made, to wit:

1. The "C+G Interior Design Studio" was contracted by Ms. Marianne Cayton to perform interior design services to renovate Unit 501B where the final design was approved by Ms Cayton on August 29, 2012 as declared by Ms Charice D Benetua of "C+G" (Annex "III");
2. Initially, C+G recommended Engr. Larry Nolasco to do the renovation works but after submission of two (2) succeeding quotations, Ms Cayton felt that the price quotations were still high, she asked C+G to look for another contractor. Then, C+G recommended RM Ladrado Construction Services to do the renovation work, which Ms Cayton accepted the quotation of RM Ladrado on December 06, 2012 (Annex "III");
3. Based on the Professional Services for Interior Design of Serendra Unit (Unit 501B) dated July 02, 2012 addressed to Ms Cayton that was submitted by Ms Benetua and cited in her SS dated July 08, 2013 (Annex "III"), include the attached Interior Design Plan Drawings composed of Floor Plans (Existing and Proposed); Ceiling and Utilities Plans (Reflected Ceiling and Electrical Utilities); and Elevation Plans (Sections thru A, B, C, D, E and F). (Annex "XV")
4. These plans were the basis of the Scope of Work (Annex "XVI"), prepared by "C+G" and undertaken by RM Ladrado Construction Services (Annex "III" and "III"), as enumerated, covers the following:

*"A. General Requirements*

1. *Mobilization*
2. *Demobilization*
3. *As-built Plans*

*B. Demolition Works*

1. *Demolition of existing walls*
2. *Hauling and disposal*

*C. Architectural Works*

1. *Fabrication of new dry wall partition*
2. *Master's Bedroom – Wardrobe Cabinet with Dresser*
3. *Master's Bedroom – Bed platform with drawers and storage chest*
4. *Master's Bedroom – Sliding Pocket Door*
5. *Bedroom 1 – Wardrobe Cabinet with Dresser*
6. *Bedroom 1 – Trundle Bed*
7. *Kitchen – Washer/dryer cabinet*
8. *Living/Dining – Accent plywood cladding*
9. *Living/Dining – shelves with backlight*

*D. Masonry*

1. *Installation of wall and floor tiles*

*E. Glass Works*

1. *Living Area – Wall mirror*
2. *Living Area – full length mirror*
3. *Master's Bedroom – dresser mirror*

4. *Swing door at shower area*

*F. Painting Works*

*G. Electrical Works*

*H. Plumbing Works*

1. *Relocation of water line for dryer/washer*
2. *Installation of new lavatory*

5. The Professional Services for Interior Design for unit 501B of Two Serendra was confirmed by Ms Cayton, who stated that she engaged the services of C+G Interior Design Studio for the renovations of her unit. The Interior designer prepared the plans that she later approved, and hired the services of an outside contractor to do the renovation works. The plans were submitted to Serendra management, which in turn approved the same. (Annex "DDD")
6. In addition to the above arrangements prior to the renovation of Unit 501B, Ms Gochangco declared that their company gave all the Plans to RM Ladrado needed for the necessary permits. (Answer 8 para 7 of Annex "III").
7. Relative to the approval of the proposed renovation and the securing of the necessary permits, following information were gathered:
  - a. As a matter of Policy Guidelines of APMC before and after renovations, Engr. Escote averred that prior to renovation, client must comply with the following documents: Filled-up Application Form, Scope of Work, Proposed Renovation Plan, Bond amounting to Fifty Thousand (P50,000.00) which is refundable to cover in case of any damage in the Common Areas or violations during construction and a Security Bond amounting to Five Thousand Pesos (P5,000.00) that is non-refundable. After renovation, client must submit a letter request for final inspection together with the as-built plan for the megger testing. Megger Testing according to Engr. Escote is to check if there are grounds in electric wires. (Question No. 39 of his SS dated July 4, 2013 of Annex "CCCC"),
  - b. SHERHAN P MOHAMMAD, Technical Assistant/ Building Engineer of Worksavers Personnel Services, Inc. stated that he received the proposed plan through an e-mail from C+G Design Studio on January 14, 2013 and was subsequently approved. (Annex "LLL")
  - c. Mohammad added that his work was being supervised by the three (3) Property Managers of Ayala Property Management Corporation (APMC) who are handling the three (3) Sections of Two Serendra, namely: AYI CASTILLO (Section A), ENGR. CHRISTIAN RIVERO (Section B & C), and JORGE IBARRETA (District 2/All Sections of Two Serendra), as well as by ENGR RIO ESCOTE, Chief Engineer of Sections A, B & C; (Answer No. 8 of Annex "LLL")

- d. Engr Escote disclosed that he, Sherhan P Mohammad and Christian Rivero, are the people responsible in approving Application for Renovation. (Answer No. 34, Annex CCCC)
- e. Further Engr Escote, disclosed that in the renovation of units, the unit owner is the one responsible for securing permit at Taguig City Hall. (Answer No. 31, Annex CCCC)

#### G. UNIT 501-B (DURING RENOVATION)

G.1 The Work Permits (Annex "S") issued by Ayala Property Management Corporation (APMC) to RM Ladrado Construction Services and other specialty contractors/ installers, as hereunder tabulated, revealed the following:

ITEM/DATE	PERMIT NR	WORK DESCRIPTION	NR OF LISTED WORKERS	NR OF LISTED MATERIALS, TOOLS & EQUIPMENT	REQUESTED BY (RESIDENT/ PROJECT IN-CHARGE)	APPROVED BY (PROPERTY MANAGER)
1. 04/01/13	- none -	Painting/Carpentry Works	7	4 (M)	M GRUTA	RJ. GARVIDA
2. 04/02/13	unreadable	Painting/Carpentry Works Renovation	7	7 (T&E)	M GRUTA	S MOHAMMAD
3. 04/03/13	- do -	Painting/Carpentry/Works	7	7 (T&E)	- do -	Unidentified Signatures
4. 04/05/13	0742.013	Painting/Carpentry/Works	7	7 (T&E)	- do -	S MOHAMMAD
5. 04/08/13	- none -	Painting/Carpentry/Works	7	7 (T&E)	- do -	Unidentified Signatures
6. 04/11/13	- none -	Measure	1	1 (M)	C CUIZON JR	Unidentified Signatures
7. 04/11/13	- none -	Painting/Carpentry/Works	7	7 (T&E)	M GRUTA	RJ GARVIDA
8. 04/11/13	0965.013	Measure	1	1 (M)	C CUIZON JR	Unidentified Signatures
9. 04/12/13	- none -	Painting/Carpentry/Works	7	10 (T&E)	C CUIZON JR	Unidentified Signatures
10. 04/15/13	1015.013	Painting/Carpentry/Works	7	12 (T&E)	M GRUTA	Unidentified Signature
11. 04/16/13	1050.013	Painting/Carpentry/Works	8	11 (T&E)	M GRUTA	S MOHAMMAD*
12. 04/17/13	- none -	Painting/Carpentry/Works	7	8 (T&E)	M GRUTA	S MOHAMMAD
13. 04/18/13	- none -	Painting/Carpentry/Works	8	8 (T&E)	M GRUTA	S MOHAMMAD
14. 04/19/13	1134.013	Painting/Carpentry/Works	8	7 (T&E)	M GRUTA	Unidentified Signature
15. 04/22/13	1148.013	Painting/Carpentry/Works	8	7 (T&E)	M GRUTA	S MOHAMMAD
16. 04/22/13	1171.013	Relocation of Sprinkler	1**	0	F ATAG	Unidentified Signature
17. 04/23/13	1184.013	Painting/Carpentry/Works	8	7 (T&E)	M GRUTA	Unidentified Signature
18. 04/24/13	1037.013	Painting/Carpentry/Works	7	7 (T&E)	M GRUTA	S MOHAMMAD
19. 04/25/13	- none -	Painting/Carpentry/Works	7	7 (T&E)	M GRUTA	Unidentified Signature
20. 04/26/13	1331.013	Painting/Carpentry/Works	8	7 (T&E)	M GRUTA	Unidentified Signatures
21. 04/29/13	1310.013	Painting/Carpentry/Works	7	5 (T&E)	M GRUTA	Unidentified Signatures
22. 04/30/13	1284.013	Painting/Carpentry/Works	10	5 (T&E)	M GRUTA	S MOHAMMAD
23. 05/02/13	- none -	Painting/Carpentry/Works	7	5 (T&E)	C CUIZON JR	Unidentified Signatures

24.	05/03/13	1366.013	Painting/Carpentry/Works	9	4 (T&E)	C CUIZON JR	Unidentified Signatures
25.	05/06/13	- none -	Painting/Carpentry/Works	8	4 (T&E)	M GRUTA	Unidentified Signatures
26.	05/07/13	1490.013	Painting/Carpentry/Works	10	4 (T&E)	M GRUTA	S MOHAMMAD
27.	05/08/13	1527.013	Painting/Carpentry/Works	8	4 (T&E)	M GRUTA	Unidentified Signature
28.	05/09/13	- none -	Painting/Carpentry/Works	8	4 (T&E)	M GRUTA	Unidentified Signature
29.	05/09/13	1573.013	Wallpaper Work	1***	1 (M) 4 (T&E)	P LATRIZO	Unidentified Signature
30.	05/11/13	- none -	Cleaning	3	0	C CUIZON JR & A OCHOA MENDEZ	Unidentified Signatures
31.	05/14/13	- none -	Painting/Carpentry/Works	9	4 (T&E)	M GRUTA	S MOHAMMAD
32.	??/??/??	- none -	Painting/Carpentry/Works	7	7 (T&E)	M GRUTA	RJ GARVIDA
33.	05/15/13	1448.013	Painting/Carpentry/Works	8	4 (T&E)	M GRUTA	Unidentified Signature
34.	05/16/13	1629.013	Painting/Carpentry/Works	7	4 (T&E)	C CUIZON JR	S MOHAMMAD
35.	05/17/13	1653.013	Painting/Carpentry/Works	6	4 (T&E)	M GRUTA	Unidentified Signature
36.	05/18/13	1719.013	Cleaning	6	0	M GRUTA	Unidentified Signature
37.	05/20/13	- none -	Carpentry/Painting/ Works	8	2 (T&E)	M GRUTA	Unidentified Signature
38.	05/21/13	1896.013	Wallpaper/Aircon Cleaning	3	0	C CUIZON JR	Unidentified Signature Note: Need SRF
39.	05/21/13	1917.013	Carpentry/Painting/ Works	5	2 (T&E)	C CUIZON JR	Unidentified Signatures
40.	05/27/13	1684.013	Punchlist Retouch	6	0	C CUIZON JR	S MOHAMMAD
41.	05/28/13	1675.013	Retouch/Cleaning Works	5	0	C CUIZON JR	S MOHAMMAD
42.	05/29/13	1768.013	Retouch/Cleaning Works	5	0	C CUIZON JR	Unidentified Signature

\* Conducted inspection of common area on the stated date.  
\*\* Alpha Plumbing for Sprinkler Relocation  
\*\*\* PAULINO LATRIZO, Wallpaper Installer

G.2 The Delivery Permits (Annex “T”) issued by the Ayala Property Management Corporation (APMC), as hereunder tabulated, revealed the following:

ITEM/DATE	PERMIT NR	QTY	CONSTRUCTION MATERIALS DELIVERED	REQUESTED BY (RESIDENT/ PROJECT IN-CHARGE)	APPROVED BY (PROPERTY MANAGER)
1.	04/18/13	unreadable	3 pcs	M GRUTA	Unidentified Signatures
			3 pcs		
			5 pcs		
			5 pcs		
			2 gals		
			1 set		
2.	04/22/13	- none -	181 pcs	R REGALADIO	S MOHAMMAD
3.	04/24/13	00222.12	1 pcs	C CUIZON JR	Unidentified Signatures
			1 tin		
			-		
			-		
4.	04/26/13	00206.12	3 sets	C CUIZON JR	S MOHAMMAD
			2 sets		
			-		
5.	04/29/13	unreadable	3 pcs	C CUIZON JR	S MOHAMMAD
6.	04/30/13	00226.12	-	C CUIZON JR	S MOHAMMAD
7.	05/03/13	- none -	1 pc	C CUIZON JR	Unidentified

		1 pc	Plywood		Signatures	
		1 pc	QDE Enamel			
		4 pcs	Adhesive ABC Cement			
		1 pc	Circular Saw			
8.	05/14/13	unreadable	3 pcs	Glass Mirror *	C CUIZON JR	S MOHAMMAD
			1 pc	Glass Window Mirror *		
			1 pc	Glass Wall Mirror *		

\* Glass Aluminum Supply

Mr Manuel Gruta, Supervisor/Foreman of RM Ladrido, stated that their Scope of Work were carpentry, painting, electrical, plumbing, masonry and tile setting. He further stated that the original one-bedroom unit was made into two-bedroom unit; collapsed the concrete wall between the CR and the living room and the washing machine area; installed cabinets in both bedrooms; made bed frames in each bedroom; installed open shelves in the living room near the main door and at the back of the CR and under the TV; transferred the washing machine into the pantry cabinet adjacent to the gas range; provided additional partition inside the CR to separate the shower area; laid tiles on the flooring and walls of the CR; laid pipeline for water supply and floor drain in the pantry cabinet where the washing machine will be transferred; relocated the circuit breaker at the back of the CR wall; provided four (4) additional convenience outlets, 2 in the new bedroom, 1 in the living area, and 1 for the washing machine); installed three (3) additional lighting fixtures in the living area above the location of the TV; relocated some convenience outlets and lightings; and constructed a drop ceiling for the sprinkler head. The construction of the drop ceiling was not included in the scope of works; hence, they secured the permission of Engr. Mohammad. The relocation of the sprinkler was done by Alpha Plumber and painting of the whole unit started after all the works were performed. (Annex "FFF")

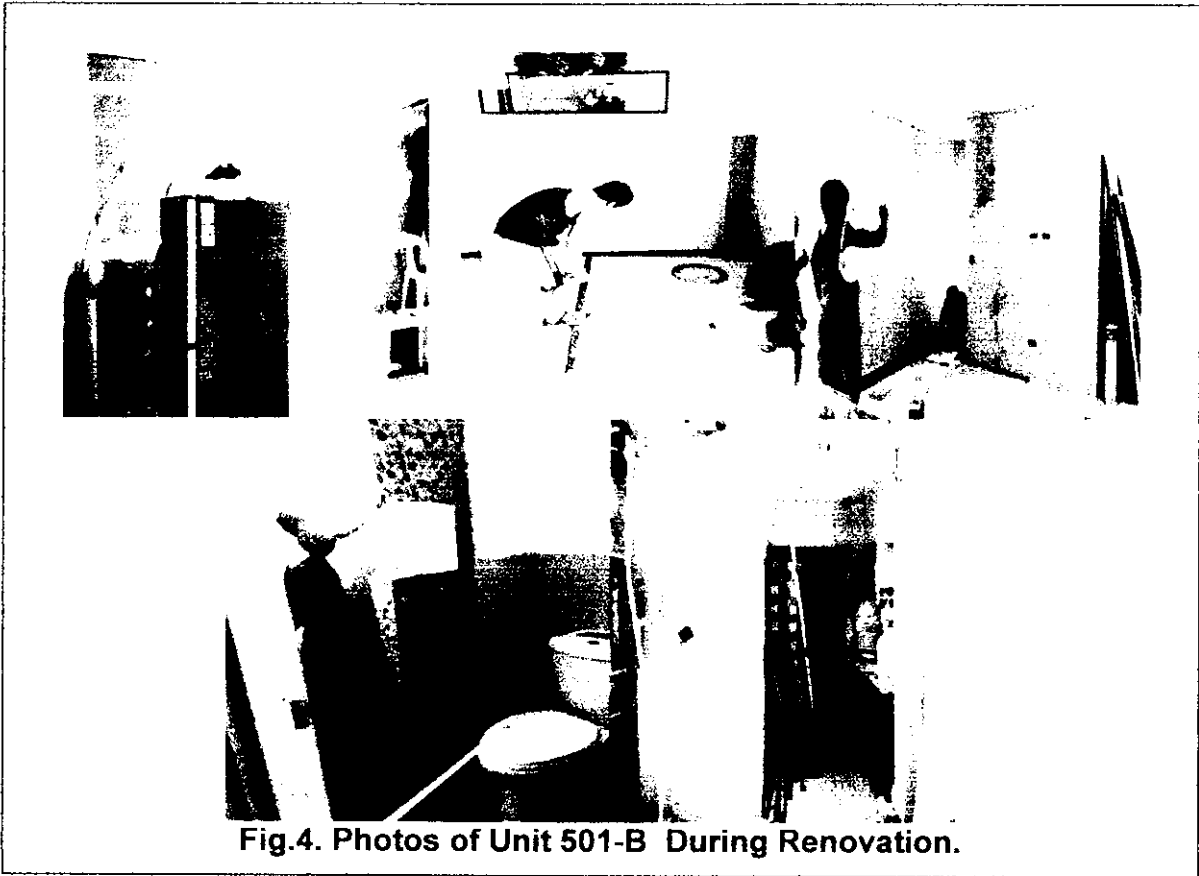


Fig.4. Photos of Unit 501-B During Renovation.

## H. UNIT 501-B (AFTER THE RENOVATION)

### 1. Engineering System

After the renovation, Unit 501B became a two-bedroom residential unit by utilizing portion of the living room into an additional bedroom as the master's bedroom. Several modifications were introduced on the interior design of the unit and the major alteration made was the relocation of the electrical panel board from its original location to the CR wall facing the living room near the television set with an open shelf. Also the washing machine/dryer was relocated from its original location to the pantry cabinet kitchen area; hence, reduced the space where the gas range was located. The former and newly renovated bedrooms were completed with built-in closets. Open shelves were also added near the main door.

### 2. Fire Protection System

There was no major alteration made as to the fire protection system (fire alarm and detection system) except the relocation of one of the sprinkler heads due to the construction of the drop ceiling.

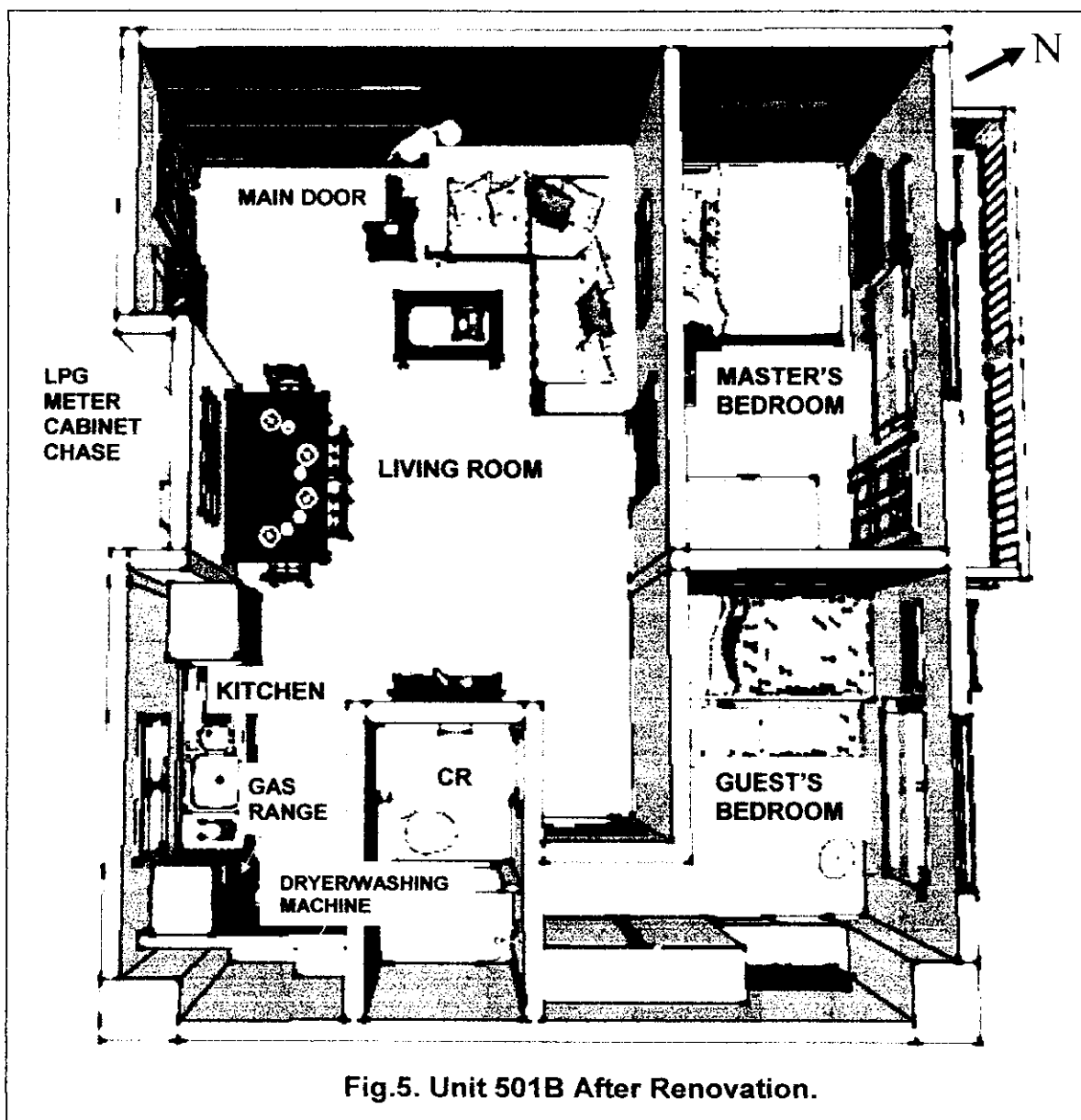


Fig.5. Unit 501B After Renovation.

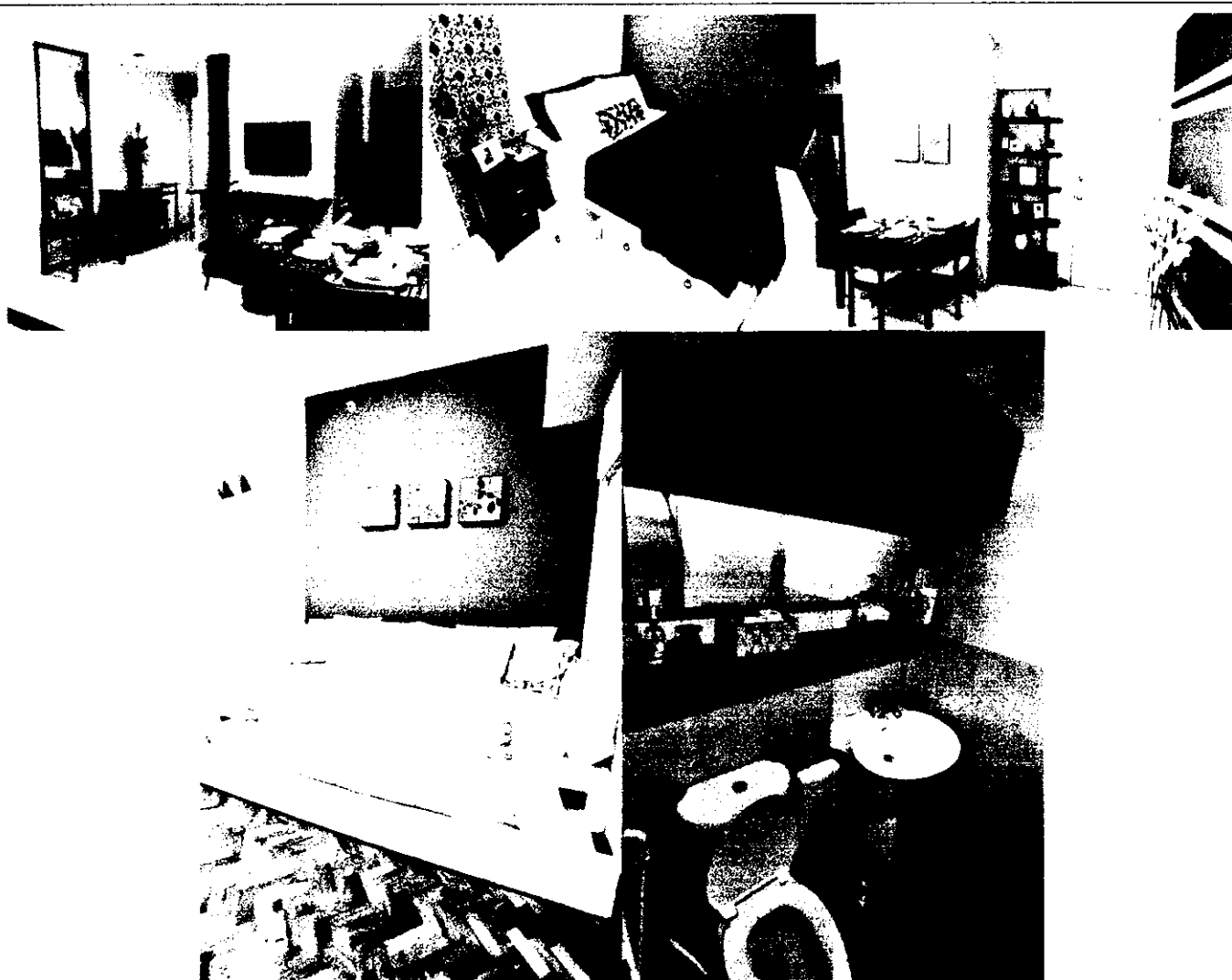


Fig.6. Photos of Unit 501-B After Renovation.

## I. UNIT 501B GAS DETECTOR SYSTEM

### 1. The Detector Installed

Unit 501B is provided with gas leak detector device installed at the siding of kitchen counter top near the gas range with automatic shut-off device connected between the stub-out and braided flexible hose.



Fig.7 showed the Gas Leak Detector (Home Alert brand) of Unit 501B recovered by PNP after the explosion and turned-over to IATF-CT.



## 2. Operation

The Gas Detector System installed in Unit 501B will automatically shut off the gas supply after the gas leak sensor detects an LPG leak. The gas detector functions by means of an audible sound and a visible signal informing the occupant that a leak had been detected. The detector will display a red blinking light to indicate that a leak had been detected. The leak may occur after the stub out, at the connections of the detection system assembly, at the flexible hose, at the fittings into the gas range or at the gas range itself in cases the selector knob is not properly turned off.

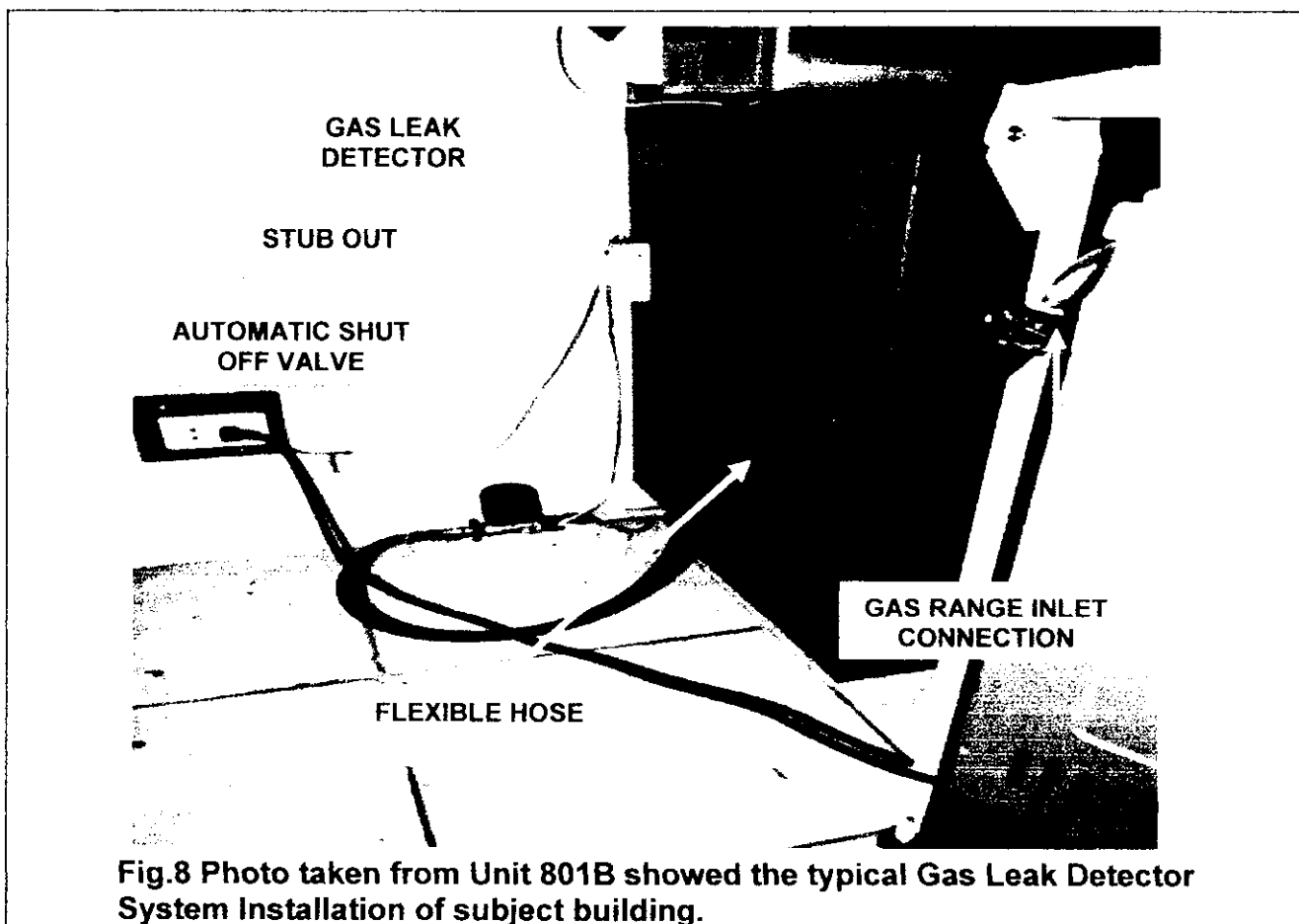
After a leak had been sensed by the gas detector, it will send a signal to the automatic shut-off valve to trigger the latter to immediately stop the flow of the LPGas.

## 3. Profile of the Installer

The gas detection system of Unit 501B was supplied by HomeAlert, Inc with principal office at 3F L& R Bldg, 1018 Arnaiz Avenue, Makati City. Based on its Securities and Exchange Commission (SEC) Certificate of Incorporation dated June 27, 2002 it is engaged in the business of trading of goods such as safety and security equipment and products on wholesale/retail basis.

## 4. Policies and Guidelines of Serendra Inc on the Installation of Gas Detector System

Based on SS of Dave Francisco Opiso y Francisco, it is mandatory in the policy of Serendra for residential units to have a gas detector and an automatic shut-off valve because Serendra will not activate the LPG supply unless same are provided. (Annex "NNNN")



### III. THE MAY 31, 2013 EXPLOSION

#### A. FATALITIES :

1. **SALLYMAR NATIVIDAD Y MALDA**, male, 33 years old, Staff Search Asia Sevice Cooperative, Driver of Abenson delivery closed van, - dead on the spot; (Annex "QQ")
2. **JEFFREY UMALI Y CUNANAN**, male, 32 years old; Employee, VSA Manpower Resources, Inc., onboard the said delivery van - dead on the spot; (Annex "QQ")
3. **MARLON BANDIOLA Y CASTILLO**, 28 years old, onboard the delivery van - dead on the spot; (Annex "QQ") and
4. **ANGELITO SAN JUAN**, 63 years old - was brought to St. Luke's Medical Center, Bonifacio Global City last May 31, 2013, **"Initial survey done in the emergency room showed that he sustained burns all over his body."** (Medical Certificate signed by Christian P. Aro. M.D. Plastic and Reconstructive Surgeon, St Luke's Medical Center dtd June 3, 2013). He died at the Intensive Care Unit, of the said medical center last July 4, 2013, attached as Annex "PP")

#### B. INJURED:

1. **Allen Poole** (American citizen), 67 years old, occupant of Tower I - brought to St. Lukes Hospital, Global City Taguig
2. **Louise Gabriel Lorenzo**, 9 years old, brought to St. Lukes Hospital, Global City Taguig;
3. **April Joy Garcia**, 19 years old, brought to St. Lukes Hospital, Global City Taguig;
4. **Janine Nicole Bonjoc**, 22 years old, brought to St. Lukes Hospital, Global City Taguig.

OUTPATIENT (Emergency Room)	DATE TREATED
1. LORENZO GABRIEL	May 31, 2013
2. APRIL GARCIA	May 31, 2013
3. JACQUELINE POOLE	Jun 1, 2013
4. PATRICIA JAVELLOSA	Jun 1, 2013
5. MARIA CHARIBEL GARCIA	Jun 1, 2013
6. MILAGROS LORENZO	Jun 1, 2013
7. ROSARIO JAVELLOSA	Jun 1, 2013
8. RAYCEE PO	Jun 2, 2013
9. MADDY DINGLASAN	Jun 3, 2013
10. GAZELLE LOVELY	Jun 3, 2013
11. THERESE BANEZ	Jun 4, 2013
12. JACOB BANEZ	Jun 4, 2013
13. KIM BANEZ	Jun 4, 2013
<b>Note:</b> As per list submitted by Atty. Jennylle S. Tupaz, Atty-in-Fact, Serendra Inc., dtd July 23, 2013 - (Annex "NN").	

### C. DAMAGE TO PROPERTY:

**a. Two Serendra Complex** - The Sections and Towers of Two Serendra District that are affected by the explosion are Section B Tower A where Unit 501B was located, Section B Tower B, Section A Tower I and H. Very extensive damage was noted at Unit 501B where the non - bearing walls in the NORTH (fronting Section A Tower I), EAST (fronting McKinley Parkway Drive, the wall that hit Abenson service van) and SOUTH (fronting Unit 502B) wall at the kitchen portion of Unit 501B was blasted by the explosion. The hallway of the fifth floor of Tower BA from 501B to 506B was severely damaged. The blast pressure wave blasted inwards the main door of all the individual units on that floor and shattered some window glass and detached the metal exit door, except Unit 501B main door that was shattered/blasted outward, but the damaged noticeably lessen on the adjoining floors and the two nearby towers (Section B Tower B and Section A and Tower I). (Details of the damage assessment conducted by IATF Composite Team and Technical Working Group on the four (4) affected towers are hereto attached as Annex "R".)

Damage assessment on the Structural, Mechanical, Electrical, Plumbing, LPG lines, and fire protection of the three towers (Section B Tower A, Section B Tower B, Section A Tower I and Section A Tower H) at Two Serendra affected by the LPG explosion was conducted by the Technical Team<sup>6</sup> represented by the following:

- a. IATF-CT Representatives;
- b. BFP Technical Working Group;
- c. Building Officials Taguig City;
- d. Taguig City Fire Station Representative;
- e. Makati Development Corporation Engineering Representative;
- f. Ayala Property Management Corporation Engineering Representative;

The amount of damage to property is still undetermined pending the submission of Affidavit of Loss by Serendra/Unit Owners/Tenants, Ayala Property Management Corp., Makati Development Corporation and other victims outside Two Serendra Complex.

#### Photos of affected buildings



Fig.9 The exterior view of Section B Tower A, where the "spraycrete" walls of Unit 501B (encircled) was, before the explosion propelled it to the North and East directions.



Fig.10 Showed the exterior view of Section B Tower B, rear portion also damaged by the explosion.

<sup>6</sup> Report of the Damage Assessment by different Technical Team, Attached as Annex "R";



Fig.11 The exterior view of Section A Tower I, facing Section B Tower A.



Fig.12 The exterior view of Section A Tower H facing McKinley Parkway Drive.

**One Serendra Complex - No damage reported/noted.**

**b. Damaged Structures/Vehicles outside Two Serendra:**

**b.1. Structures:**



Fig.13 Showed the Vino's Liquor Store at Market Market, hit by the BPF located approximately 59 m from Unit 501B.

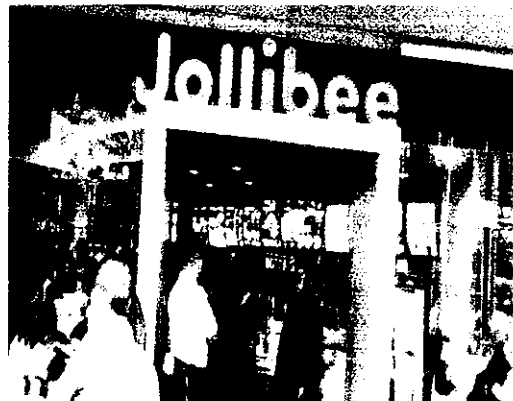


Fig.14 Showed the Jolibee hit by the BPF located approximately 179m from unit 501B. (Farthest distance reached by the BPF).

1. Red Ribbon, GF Market, Market BGC Taguig City Manager: Cris Cajete - broken glass, distance from 501B: 146 m;
2. Kamay Kainan, GF Market Market, - broken glass Owner: Natividad Garcia, distance from 501B: 134 m;
3. Vino's Liquor Store, Market, Market - broken glass door, damage signage and ceiling, Owner: Metro Vinos Inc., distance from 501B: 59 m (Fig.13);
4. Jollibee, GF Market, Market - Damaged ceiling, owner: Jing Alvarez, the farthest distance noted from 501B: 179m (Fig.14).

**b.2. Vehicles:**



Fig.15 showed the damaged Abenson Van at McKinley Parkway Drive hit by the "spraycrete" wall from Unit 501B during the blast that resulted to the death of three persons aboard the van.



Fig.16 showed the damaged Starex Van with Plate No. BEL 354 beside the Abenson Van, both vehicles were in motion towards the North direction when the explosion occurred.

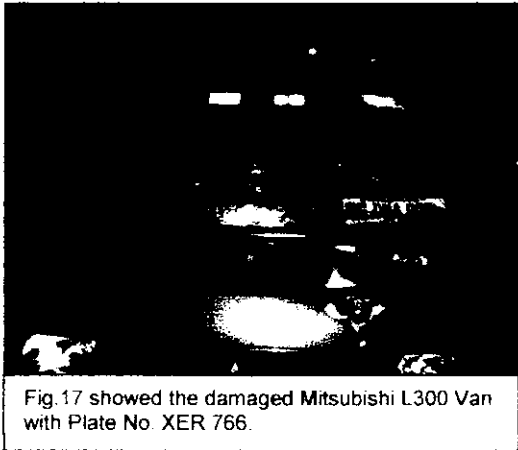


Fig.17 showed the damaged Mitsubishi L300 Van with Plate No. XER 766.

- 1. Abenson Service Van with Plate Number WTH 509 (Fig.15);
- 2. Starex Van, Plate Number BEL 354 owned by ORLANDO DL. AGRAVANTE (Fig.16)
- 3. Mitsubishi L300 Van, Plate Number: XER 766 owned by ALEXANDER J ALO residing at 19781 Cherry St., Executive Heights Subd., Paranaque City (Fig.17);
- 4. Toyota Vios Gold, Plate Number: ZRE 674 owned by MICHAEL PABLO residing at Western Bicutan Taguig;
- 5. Honda Civic with Plate Number: GFE 808 owned by GILBERT AGUILA residing at Western Bicutan Taguig.

b.3 Other(s):

Lamp post located at the sidewalk of Market Market across Two Serendra, Section B Tower A, Mckinley Parkway Drive, BGC, Taguig City.

IV. THE INVESTIGATION CONDUCTED BY PARTICIPATING AGENCIES/ CONSULTANTS REPORT:

A. PHILIPPINE NATIONAL POLICE (PNP) -

a. SOUTHERN POLICE DISTRICT Crime Laboratory Results (attached as Annex "M"):

RANK/NAME	POSITION	EDUCATION	QUALIFICATION EXPERTISE TRAININGS	NATURE OF INVESTIGA TION	METHODOLOGY	ACTUAL INVESTIGATION CONDUCTED	EVIDENCE GATHERED
PSINSP ARI E CERISE.ELYN FELIX – AGU ILAR	Forensic DNA Analyst, DNA Branch Camp Crame, Quezon City	Bachelor of Science in Medical Technology University of Santo Tomas Graduate - March 2001	Medical Technologist  Combined DNA Index System (CODIS) Federal Bureau of Investigation- Laboratory Division (CODIS Unit) PNP Crime Laboratory July 22,2013 to July 26,2018, etc.	DNA Analysis	The process conducted by the SOCO was done using the three (3) general procedures which are documentation, search and collection. condition. (Details of methodology is hereto attached "XX")	DNA extraction using the DNA System (Promega Corporation)	

P/INSP HOMEL FELICIANO SORRA	PNP CRIME LABORATORY Deputy Chief, Forensic Photography Division	Bachelor of Science in Criminology	Crime Scene Management Course for SOCO Team Leaders PNP Crime Laboratory July 30, 2012 – August 3, 2012  Public Safety Officers Basic Course PNP ITG, PPSC, Camp Vicente Lim, Canlubang Laguna January 18, 2010 – February 23, 2011, etc.		(Details of methodology is hereto attached "XX")	Conducted visual survey/ initial walk through at the scene together with the EOD, and conducted briefing to SOCO team members. Determines the personnel and equipment needed and makes specific assignments	Collection debris sample and swabs in the areas and labeled
P/SINSP RENDIELYN LUGTU SAHAGUN	Southern Police District, Crime Laboratory Office  Chief, Police Community Relations  Forensic Chemist	Masters of Management Major in Public Administration, Philippine Christian University  Bachelor of Science in Chemistry	License Chemist  Chemical, Biological, Radiological & Nuclear First Responder Training Program BFP; Defense Research and Development Canada; and Canadian Nuclear Safety Commission Parklane Hotel, Cebu City. Etc.				
P/CINSP ALBERT ARTURO	Deputy Chief, Chemistry Division, PNP Crime Lab	Bachelor of Science in Chemistry	Chemist  Chemical Safety  4 <sup>th</sup> Counter – Improvised Explosive Devise Conference  Chemical Explosives Systems Exploitation Course, International First Responder Program  Bomb Identification and Detection Seminar  Forensic Chemistry Advance Course tion Course. Etc.				
P/CINSP VICTOR CALUB DRAPETE		Bachelor of Science in Chemistry	Chemist  Forensic Chemistry Advance Course  Crime Scene Investigation with Blood Stain Pattern Interpretation Post Blast Incident Management Program, etc.				
P/INSP JEZRHE LL P CRUDA	Forensic Chemical Officer, Regional Crime Laboratory Office 7  Forensic Chemical Officer / SOCO	Bachelor of Science in Chemical Engineering  University of the Philippines – Diliman	Scene of Crime Operation (SOCO) Course PNP Crime Laboratory, Camp Crame, QC  Basic Physical Identification Seminar - Workshop Seminar on "SAMPLING FOR		(Details of methodology is hereto attached "XX")		

	Team Leader		CHEMICAL ANALYSIS* PNP Training Service, Camp Crame, Quezon City				
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Findings:

**June 4, 2013 - CRIME LAB-SPD: Chemistry Report No. C-249-13**  
**CONCLUSION:** Specimen A through SSS  
**"do not contain explosives and/or explosive ingredients."**  
Examined by: P/CInsp Albert S Arturo  
Forensic Chemist and approved by: P/CInsp Victor Calub Drapete  
Chief, Chemistry Division

**June 6, 2013- CRIME LAB-SPD: Chemistry Report No. C-118-13**  
**CONCLUSION:** Specimens A-1 to A-15, A-16a, A-16b, A-17 to A-25,  
A - 26a, A-26b, A-27 to A-48, B-1 to B-7, C-1 to C-17, D and E  
**"do not contain explosives and/or explosive ingredients."**  
Examined by: P/SInsp Rendielyn L Sahagun  
Forensic Chemist and approved by : P/CInsp Abraham V Tecson  
Chief, Chemistry Section

**b. CRIME LABORATORY, Camp Crame, PNP - (attached to Annex "M")**

Findings:

**June 7, 2013 - CRIME LAB-CRAME:**  
**DNA Laboratory Report Control No. 00495**

**CONCLUSION:**

- "The male DNA profile obtained from the off-white cut cloth with stain marked as "ZONE B 5" (170-13-A812) is consistent with the DNA profile obtained from the cut cloths with alleged blood stain cut from the longs pants marked as "ASJ-1" (170-13-A768 Report Control No. 00490)"
- "No DNA profile was obtained from checkered white and green cut cloth with stains marked as "ZONE A 12" (170-13-A810), off-white cut cloth with stains marked as "ZONE A 31" (170-13-A811) and black cut cloth with stains marked as "ZONE C 12" (170-13A811)".

Examined by: P/SInsp Marie Cerise-Elyn Felix-Aguilar  
Forensic DNA Analyst

Approved: P/Supt Jose Arnel M Marquez, MD  
Chief, Medico-Legal Division

**June 7, 2013- SOCO, SPD, Crime Laboratory Office**

Recommended for the conduct of chemical analysis on the paint drip found on the flexible hose with scrapings taken from the crime scene.

**Chemistry Report No. C-118-13 - "NEGATIVE RESULTS** for the presence explosives and/or explosives ingredients."

**June 7, 2013 - PNP CRIME LAB-CRAME:**

## Physical Identification Report No. PI-01-2013-TM

**FINDINGS:**

"One (1) black La Germania cooking range stainless steel top Model SL 6031 60 BT with Serial No. 0403-A-0588 (broken cover), 84 cm in height x 69.2 cm in width, with three (3) gas fed burner, one (1) electric hot plate, and one (1) oven, with two (2) missing knobs for the gas fed burners, and with metal inlet nozzle 11 cm in length still intact, 1 cm outside diameter and 7 mm inside diameter tip, pointing downward 66.3 cm from the ground."

Examined by: P/SInsp Rolando L Barilla  
Forensic Chemical Officer  
Physical Identification Div.

Approved: P/CInsp Medardo H Palapo  
Forensic Chemical Officer  
Chief, Physical Identification Div.

**c. PNP - CIDG - NCR CRIMINAL INVESTIGATION AND DETECTION  
UNIT, Crame (Annex "N")**

June 25, 2013 - Initial Investigation Report signed by P/SSUPT ROBERTO B FAJARDO, Reg Chief NCR-CIDU, CIDG :<sup>7</sup>

"Conclusion of report, the explosion was **NOT caused by a bomb**, whether improvised or manufactured, based on the report of PNP-SOCO and K9 units/EOD Bomb squad"

**d. DSRU-BOMB SQUAD, SOUTHERN POLICE DISTRICT**

RANK/NAME	POSITION	EDUCATION	QUALIFICATION EXPERTISE TRAININGS	NATURE OF INVESTIGATION	METHOD OLOGY	ACTUAL INVESTIGATION CONDUCTED	EVIDENCE GATHERED
P/CINSP ARIEL BAIT	Chief, DSRU, SPD		Bomb Technician Course, Post Blast Investigation Course, SWAT Course, Internal Security Operations Course and Close Quarter Battle (CQB) Course	To check the possibility of any bomb components and secondary device at the scene of explosion		Supervised the RPSB K9	
P/SINSP DELA CRUZ	Deputy Chief, DSRU/Bomb Squad; SPD		EOD, EOD Level 1, Post Blast Investigation Course	To check the possibility of any bomb components and secondary device at the scene of explosion		Paneled McKinley Parkway Drive at the same time especially the slabs that fall from Unit 501B and the ABENSON delivery truck.	
P/SINSP MORRIS GUMSINGAN	POST Blast Investigator		EOD, Post Blast Investigator, EOD Level 1 & EOD Level 2	To check the possibility of any bomb components and secondary device at the scene of explosion		First responder along with PCINSP BAIT, SPO1 Acosta, and SPO1 Tulay with Canine Aquiles to Unit 501B.	
SPO1 Allyson Tulay	DSRU Member; SPD		K9 Handler Course Close Quarter Battle (CQB) PNP Scout and Criminal Investigation Course	To check the possibility of any bomb components and secondary device		Conducted paneling at the area for any bomb components and	

<sup>7</sup> PNP CIDG Report, attached as Annex "N";



			with Canine Aquiles trained to detect explosives such as Black powder, detonating cord, gun powder, C4, Pent, TNT Flakes, blasting Cup and time fuse	at the scene of explosion		possible secondary device.	
SPO1 Alexander Bernardo	K9 Handler		K9 Handler Course with Canine Jessie, trained to detect HMTD, TATP, Urea Nitrate, Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det Cord, Time Fuse, TNT Granular, Smokeless Powder	To check the possibility of any bomb components and secondary device at the scene of explosion		Conducted paneling at Unit 501B Serendra Two to reconfirm if there are substance of bomb but just like the reaction of Canine Aquiles proved it to be negative.	
SPO1 Cruzaldo Acosta	SRU, Taguig Police Station		EOD, EOD Proficiency, Explosive Ordnance Reconnaissance (EORA) and Combat Post Blast.	To check the possibility of any bomb components and secondary device at the scene of explosion		Paneled the entire hallway of Serendra Two and its perimeter	
PO3 Victor	Rodel Member, DSRU, SPD,		K9 Handler Course, Close Quarter Battle (CQB), PNP SCOUT, Post Blast Investigation Course with Canine Bravo trained to detect explosives such as Black powder, detonating cord, gun powder, C4, Pent, TNT Flakes blasting Cup and time fuse	To check the possibility of any bomb components and secondary device at the scene of explosion		Paneled the entire hallway of Serendra Two and its perimeter together with PSINSP DELA CRUZ	
PO2 Reynaldo Mayugba	NCRPO		K9 Handler Course with Canine "Denver" trained to detect HMTD, TATP, Urea Nitrate, Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det Cord, Time Fuse, TNT Granular, Smokeless Powder	To check the possibility of any bomb components and secondary device at the scene of explosion		Paneled the entire hallway of Serendra Two and its perimeter under the supervision of PSINSP LEONIE ANN APALING	
PO2 Roderick Miguel	NCRPO		K9 Handler Course	To check the possibility of any bomb components and secondary device at the scene of explosion		Under the supervision of PSINSP DELA CRUZ paneled McKinley Parkway Drive at the same time especially the slabs that fall from Unit 501B and the ABENSON delivery truck.	
PO1 Mari Ryan Junio	RPSB/NCRP O, K9 Handler		K9 Handler Course, who is handling Canine "Poco" trained to detect HMTD, TATP, Urea Nitrate,	To check the possibility of any bomb components and secondary device		Together with PO2 Roderick Miguel and under the supervision of	

			Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det Cord, Time Fuse, TNT Granular, Smokeless Powder	at the scene of explosion		PSINSP DELA CRUZ paneled McKinley Parkway Drive at the same time especially the slabs that fall from Unit 501B and the ABENSON delivery truck.	
Army Sgt. Albert Dulo	Philippine ARMY, K9 Unit		K9 Explosive Detection Training/K9 Combat Tracking Course/ K9 Narcotics Detection Training/Explosive Ordnance Reconnaissance Agent Training with Canine Peanut, trained to detect HMTD, TATP, Urea Nitrate, Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det Cord, Time Fuse, TNT Granular, Smokeless Powder	To check the possibility of any bomb components and secondary device at the scene of explosion		Paneled at the immediate vicinity of Serendra Two where the slabs have fallen beside Serendra One.  Have been in - charged in the whole vicinity of Serendra One and the playground in between Serendra One and Two together with Sgt. Marion Rutol, K9 Unit of Philippine ARMY.	
Army Sgt. Marion Rutol,	K9 Unit of Philippine ARMY		K9 Explosive Handler Course /K9 Obedience Course with Canine "Astro" trained to detect HMTD, TATP, Urea Nitrate, Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det Cord, Time Fuse, TNT Granular, Smokeless Powder.	To check the possibility of any bomb components and secondary device at the scene of explosion		Paneled at the immediate vicinity of Serendra Two where the slabs have fallen beside Serendra One.  Have been in - charged in the whole vicinity of Serendra One and the playground in between Serendra One and Two.	
Army Sgt. Dominicio Dado	K9 Unit, Philippine ARMY		K9 Explosive Detection Course/K9 Combat Training Course/ Explosive Ordnance Reconnaissance Agent Training with Canine Kyla trained to detect HMTD, TATP, Urea Nitrate, Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det	To check the possibility of any bomb components and secondary device at the scene of explosion			

			Cord, Time Fuse, TNT Granular, Smokeless Powder.				
Army Pfc. Rogelio Ronquillo	K9 Unit, Philippine ARMY		K9 Explosive Detection Course, K9 Combat Training Course with Canine "Chika" trained to detect HMTD, TATP, Urea Nitrate, Ammonium Nitrate (Pills), Cast Booster, Comp B (RDX/TNT), Black Powder, C4, Dynamite (NG), Dyno AP (Emulsion), Fireworks, Guns, Nitro Meth Liquid, PETN Det Cord, Potassium Chlorate, Ammunition, RDX Det Cord, Time Fuse, TNT Granular, Smokeless Powder.	To check the possibility of any bomb components and secondary device at the scene of explosion			

Findings:

"Considering all the training profiles and experiences of Personnel involved and the ability of all the nine (9) K9 dogs who took part in the paneling at Serendra Two Bldg., Fort Bonifacio, Taguig City where the explosion happened as well as the Post Blast Investigation conducted by joint elements of NBI, SPD/Bomb Squad, we can safely conclude that the said explosion wa not caused by a bomb."<sup>8</sup>

B. NATIONAL BUREAU OF INVESTIGATION (NBI)

a. NBI - Forensic Chemistry Division Result (Annex "TT")

June 4, 2013 - Certification issued by GEORGE J DE LARA, Forensic Chemist II

Laboratory examinations conducted to cotton swabs taken from different locations of the Serendra Two Condominium building gave **" NEGATIVE RESULTS for the presence of explosive residue."**

June 5, 2013 - Certification issued by GEORGE J DE LARA, Forensic Chemist II

Examinations conducted on the specimens taken from IQ01 to IQ08, OQ02 to OQ3, and Q4 submitted by SI MAR C. SANTOS of CTD, NBI gave **NEGATIVE RESULTS** for the presence of explosive residue.

June 11, 2013 - Certification (P – 13 – 121) issued by GEORGE J DE LARA, Forensic Chemist II:

Laboratory examinations conducted on the specimens recovered from room 206B and 501B gave **NEGATIVE RESULTS** for the presence of Flammable Substance.

b. NBI - EOD Counter Terrorism Division: Post Blast Investigation Report (Annex "O")

<sup>8</sup> Report signed by PCI ARIEL SOLOMON BAIT, dated 09 August 2013, attached as Annex "L".

June 6, 2013 - NBI EOD Report dated 06 June 2013, signed by SI MAR SANTOS, EOD:<sup>9</sup>

"a) No component or part of any explosive device was found in the examined debris.

b) Soil sampling, which is procedural in Post Blast Investigation for examination for presence of explosive material/residue, CANNOT BE MADE as there was **NO CRATER FOUND in said unit.**"

c. NBI Electrical Division Report (Annex "VV")

June 18, 2013 - NBI ELECTRICAL SECTION

REPORT # 13 – 06 – 001 signed by ENGR. DAVID R. AOANAN, Chief Electrical Section, NBI

Findings:	
1. Evidence # "1" & "3" -	No indication of short circuit. Switches are in the "ON" position.
Evidence # "1 – A" & "1 – B"	No indication of short circuit. Switches are in the "OFF" position.
Evidence # "2"	No indication of short circuit in the motor windings. Switch is in the "OFF" position.
Evidence # "2 – A"	No indication of short circuit in any of the wires inside the utility box and PVC pipes.
Remarks: Please be informed that switches, circuit breakers, plugs and receptacles all release arcs and sparks as contact open and close during normal operation.	

REPORT # 13 – 06 – 002 issued by ENGR. DAVID R. AOANAN, Chief Electrical Section, NBI

Findings	
Evidence Card # "32"	No signs of short circuit inside the device or in the power cord.
Evidence Card # "33"	Main circuit breaker is in the "ON" position. There were no wires connected to the said breaker. Circuit breakers # 1, 3, 4, 5, 6, 9, 10, 11 & 12 are in the "OFF" position. No traces of short circuit in any of the wires connected to the

<sup>9</sup> NBI EOD and Counter Terrorism Division Report dated June 6, 2013, attached as Annex "O";

	said breakers. Circuit breakers # 2, 7, & 8 are in the "ON" position. There were no wires connected to the said breaker.
<b>Remarks:</b> Please be informed that switches, circuit breakers, plugs and receptacles all release arcs and sparks as contact open and close during normal operation.	

**REPORT # 13 – 06 – 003 issued by ENGR. DAVID R. AOANAN, Chief Electrical Section, NBI**

<b>Findings:</b>	
Evidence Card # "35" One piece LPG LEAK DETECTOR	No traces of short circuit. The switch is in the "OFF" position.
<b>Remarks:</b> "Upon testing, the unit was not working when plugged into a 220 volts commercial power, however it could not be determined if this condition had existed before or after the explosion."	

**C. BFP Arson Laboratory Section Report (Annex "CCC")**

**July 4, 2013 - ARSON LABORATORY SECTION, BFP – NHQ REPORT NO: 2013 – 805 – 173 issued by SUPT JOCELYN B COLLADO, Chief, Arson Laboratory Section:**

**Findings:**

Laboratory examination conducted on the partially burned brown paper marked as "C – 248 – 13, ASA" gave **NEGATIVE RESULT** for the presence of any flammable substance.

**July 26, 2013 - Certification signed by SUPT COLLADO**

"THIS IS TO CERTIFY that the BFP Arson Laboratory's Gas Chromatogram is an instrument used in identifying liquid flammable substances by separating and analyzing the compounds that can be vaporized without decomposition. It is capable of detecting of **gasoline, diesel, lacquer thinner, acrylic thinner, kerosene, acetone, paint, benzene, ethyl alcohol, methyl alcohol, toluene, isoprophyl alcohol, paint varnish, butyl alcohol, biodiesel and other liquid organic compounds.**

THIS FURTHER CERTIFIES that ALS Report No. 2013-805-173 dated 04 July 2013 with **NEGATIVE RESULT for the presence of flammable substance**, based

on submitted partially burned brown paper marked as "C-248-13W, ASA", connotes the absence of the above-mentioned substances."

D. DEPARTMENT OF HEALTH (DOH) (Annex "RR")

NATIONAL REFERENCE LABORATORY, East Avenue Medical Center

a. The following are the **TEST REPORT IN ANALYTICAL TOXICOLOGY** signed by Marites D Go, RMT, Nenita G. Marayag-Supervising Technical Officer and Noted by Socorro Cruz-Yanez.,M.D.,FPSP:<sup>10</sup>

June 5, 2013 -

Laboratory Accession No.: NRL – 13 – 1242

Specimen ID Number	NAME	Age / Sex	RESULTS (g/dL)		
			Total Hemoglobin	Methemoglobin	Sulfhemoglobin
TXAT – 13 – 168	CLAMOR, ENRICO	43/M	12.1	0.0468	Not Detected
TXAT – 13 – 169	VALLEJO, OFELIA	32/F	11.4	0.1638	Not Detected
TXAT – 13 – 170	TULAY, ALLYSON	36/F	13.4	0.1404	Not Detected
TXAT – 13 – 171	ACOSTA, CRUZALDO	39/M	13.5	0.0234	Not Detected
TXAT – 13 – 172	GUMSINGAN, MORRIS	40/M	11.8	Not Detected	Not Detected
TXAT – 13 – 173	JANDUG, JACINTO	33/M	13.5	0.0468	Not Detected
TXAT – 13 – 174	FALCASANTOS, NEBSTER	28/M	14.6	0.0702	Not Detected
TXAT – 13 – 175	KANGLEON, KARLA	38/F	11.5	0.0936	Not Detected

Normal Values:

Methemoglobin - Not more than 0.5 g/dL or 3% of Total Hemoglobin  
Sulfhemoglobin - Clinical toxicity occurs beyond 10 g/dL

Remarks:

- Studies showed that a delay in analysis after clotting contribute significantly in the increase of Methemoglobin and Sulfhemoglobin levels. Please correlate clinically.
- Samples were collected on June 4 – 5 and received at NRL June 5, 2013. Said samples were analyzed immediately upon receipt at the laboratory.

June 17, 2013

Laboratory Accession No.: NRL – 13 – 1289

Specimen ID Number	NAME	Age / Sex	RESULTS (g/dL)		
			Total Hemoglobin	Methemoglobin	Sulfhemoglobin
TXAT – 13 –	JAUDIAN,	55/M	13.2	0.0234	Not Detected

<sup>10</sup> DOH Toxicology Department Report, attached as Annex"RR";

177	FENNIMORE				
TXAT – 13 – 178	SEVILLA, SEVERINO	49/M	13.6	0.0702	Not Detected
TXAT – 13 – 179	PALER, JIM	45/M	14.4	Not Detected	Not Detected

Normal Values:

Methemoglobin - Not more than 0.5 g/dL or 3% of Total Hemoglobin  
Sulfhemoglobin - Clinical toxicity occurs beyond 10 g/dL

Remarks:

- Studies showed that a delay in analysis after clotting contribute significantly in the increase of Methemoglobin and Sulfhemoglobin levels. Please correlate clinically.
- Samples were collected on June 14 and received at NRL on the same day. Said samples were analyzed immediately upon receipt at the laboratory.

June 18, 2013

Laboratory Accession No.: NRL – 13 – 1303

Specimen ID Number	NAME	Age / Sex	RESULTS (g/dL)		
			Total Hemoglobin	Methemoglobin	Sulfhemoglobin
TXAT – 13 – 180	VALLER, REYNALDO	49/M	12.9	Not Detected	Not Detected
TXAT – 13 – 181	MODOMO, DOUGLAS	54/M	12.5	Not Detected	Not Detected
TXAT – 13 – 182	JIHANEY, JIMDOL	27/M	14.8	0.0468	Not Detected
TXAT – 13 – 183	BERUG, ALTHER	32/M	13.6	0.0468	Not Detected

Normal Values:

Methemoglobin - Not more than 0.5 g/dL or 3% of Total Hemoglobin  
Sulfhemoglobin - Clinical toxicity occurs beyond 10 g/dL

Remarks:

- Studies showed that a delay in analysis after clotting contribute significantly in the increase of Methemoglobin and Sulfhemoglobin levels. Please correlate clinically.
- Samples were collected on June 17; 2:30pm and received at NRL on the same day 3:15pm. Said samples were analyzed on the following day.

June 18, 2013

Laboratory Accession No.: NRL – 13 – 1317

Specimen ID Number	NAME	Age / Sex	RESULTS (g/dL)		
			Total Hemoglobin	Methemoglobin	Sulfhemoglobin
TXAT – 13 – 184	PALCONIT, LEO	33/M	14.6	Not Detected	Not Detected
TXAT – 13 – 185	CABISO, MARY JOY	27/F	11.8	Not Detected	Not Detected
TXAT – 13 – 186	ROMERO, EVANGELINE	43/M	12.2	Not Detected	Not Detected

Normal Values:

Methemoglobin -	Not more than 0.5 g/dL or 3% of Total Hemoglobin
Sulfhemoglobin -	Clinical toxicity occurs beyond 10 g/dL

Remarks:

- Studies showed that a delay in analysis after clotting contribute significantly in the increase of Methemoglobin and Sulfhemoglobin levels. Please correlate clinically.
- Samples were collected on June 18 and received at NRL on the same day. Said samples were analyzed immediately upon receipt at the laboratory.

**b. Final Technical Report dated 02 August 2013 re: Determination of Ethyl Mercaptan**

**"Discussion:**

A. Analysis of ethyl mercaptan

Ethyl mercaptan (C<sub>2</sub>H<sub>5</sub>SH) is a chemical substance with a disagreeable odor described as penetrating, persistent, and garlic- or leek-like, similar to decaying cabbage. It is used as an intermediate and starting material in the manufacture of plastics, insecticides, and antioxidants. Butane and propane are odorless gas, therefore an odorant is added to warn the presence of these gases. Detection is important because of its flammable nature which can cause explosions when improperly handled. Ethyl mercaptan is used because of its over-all effectiveness as a warning agent.

Exposure to ethyl mercaptan depresses the central nervous system and affects the respiratory center, similar to hydrogen sulfide, producing death by respiratory paralysis. Clinical signs of exposure are eye and mucous membrane irritation, headache, dizziness, staggering gait, nausea, and vomiting. At higher levels, it may cause comatose and death.

In a study determined by a validated method which included a butanol standard for comparison, Nagata (2004), reported an odor threshold of 0.0000087 ppm for ethyl mercaptan. This value was considered most appropriate for calculation of the Level of Distinct Odor Awareness (LOA). The USEPA has set the level of distinct odor awareness (LOA) for ethyl mercaptan at 0.00014 ppm. The LOA represents the concentration above which it is predicted that more than half of the exposed population will experience at least a distinct odor intensity, about 10 % of the population will experience a strong odor intensity (USEPA, 2007). Thus, comparing the result of the rapid assessment where the calculated PID reading for ethyl mercaptan of  $1.1 \times 10^{-8}$  ppm was below the odor threshold of 0.0000087 ppm and the LOA of 0.00014. The non-recognition of the presence of the odorant by the restaurant manager can be attributed to several factors which will be discussed in this report.

The range of acceptable odor threshold is quite broad and caution should be used when relying on odor alone as a warning of potentially hazardous substances. Personal conditions (e.g. anosmia, olfactory difficulties, sinus congestion, allergies, smoking, etc) may also affect the ability of an individual to detect odor at any particular time. Certain environmental conditions may also exist which can diminish odor detection such as masking by other odors (musk or dampness).

Based on available literature, the stench of the odorant will rapidly spread throughout a room and the strongest odor may be near the floor where the LPG gas may tend to concentrate since it is heavier than air. Thus, it concentrates in areas where there is little air movement and floor to ceiling concentration gradients is possible which means that the strongest odor may not be at the adult breathing level.

On the other hand, a person continuously smelling the same odor may become accustomed to this odor within a few minutes. The odor will diminish in intensity until it may not be detected because of paralysis of the olfactory nerves. Studies have shown that odor intensity decreases with time. Odor fatigue may occur before the odorant reaches a detectable level.

Furthermore, there are also conditions cited in literature wherein the amount of ethyl mercaptan can decrease such as its capacity to adsorb to metal surfaces in containers and piping and the presence of rust, among others. In some cases, the potential problem exists in the tanks and pipings of retail customers. Thus, it was recommended that adequate tests should be done to determine the presence of odorants each time it changes custody in the distribution network and a record of the verification is made.

A. Medical Examination



The possibility of primary blast eye injury was also entertained in K.K. case based on the effects of the blast incident on some items (eg. damaged television and doors located on the ground floor). The impact of blast wave especially on air or gas filled structures such as the eyes are usually severe and may result in perforated eye, foreign bodies, air embolism, and orbital fractures. Up to 10% of survivors have significant eye injury, eye irritation, blindness and retinal artery air embolism. Symptoms include: eye pain or irritation, foreign body sensation, altered vision, periorbital swelling or contusions The impact of the blast wave on the patient will depend on her position inside the room during the incident. It is also possible that K.K. has an existing ophthalmologic problem (based on history) prior to the incident and the problem was aggravated by the blast incident.

There are four general types of injuries caused by explosion:

1. Primary, or "blast wave" injury, refers to injury caused by the intense over-pressurization impulse created by a detonated HE. Blast wave injuries are characterized by anatomical and physiological changes from the direct or indirect over-pressurization force impacting the bodies' surface. The HE "Blast wave" (over-pressure component) should be distinguished from "Blast wind" (forced superheated air flow). "Blastwind" may be encountered with both HE and LE, however "blast wave" is specific to HE only.
2. Secondary injuries are those injuries sustained by flying shrapnel and other objects.
3. Tertiary injuries are those injuries sustained by the body being physically thrown from the blast wind.
4. Quaternary are related injuries indirectly caused by the explosion.

Table 2: Mechanisms of Blast injury

CATERGORY	CHARACTERISTICS	BODY PART AFFECTED	TYPES OF INJURIES
PRIMARY	Unique to HE, results from the impact of the over-pressurization wave with body surfaces	Gas filled structures are most susceptible: lungs, GI tract, and middle ear	Blast lung(pulmonary barotrauma) TM rupture and middle ear damage Abdominal hemorrhage and perforation Globe (eye) rupture Concussion (TBI without physical signs of head injury)
SECONDARY	Results from flying debris and bomb fragments	Any body part may be affected	Penetrating ballistic (fragmentation) or blunt injuries Eye penetration (can be Occult
TERTIARY	Results from individuals being thrown by the blast wind	Any body part can be affected	Fracture and traumatic amputation Closed and open brain Injury
QUATERNARY	All explosion-related injuries, illnesses, or diseases not due to primary, secondary, or tertiary mechanism. Includes exacerbation or complications of existing conditions.	Any body part can be affected	Burns (flash, partial, and full thickenss) Crush injuries Closed and open brain injury Asthma, COPD, or other breathing problems from dust, smoke, or toxic fumes Angina Hyperglycemia, Hypertension

E. DEPARTMENT OF SCIENCE AND TECHNOLOGY (DOST) (Annex "XX")

Certificate No. 2013-0-06663-42

Date: 03 July 2013

Customer's Sample Designation	Evidence # 31	Evidence # 3A	Evidence # 1A
Test Pressure, psi	7.00	7.00	10.00
Remarks	*	***	**

- \* - Leak occurred at the connection between the pipe and meter  
 \*\* - Leak occurred at the regulator  
 \*\*\* - Leak at the body of the LPG meter

Florante A. Catalan  
 Supervising SRS

Noted by: Rio S. Pagtalunan, Dr. Tech.  
 Division Chief

**Certificate No. 2013-0-0684-42**

Date: 03 July 2013

Customer's Sample Designation	Black Cooking Range labeled LA GERMANIA	Black Braided Flexible LPG Hose with Two (2) Metal Clamps	Cut Yellow Painted Galvanized pipe
Test Pressure, psi	7.00	7.00	10.00
Remarks	*	**	***

- \* - No leak noted upon reaching the test pressure  
 \*\* - Leak occurred at the damaged portion labeled Point A of the braided hose  
 \*\*\* - No leak on the pipe and regulator was observed but when the seal was removed, the allows the air to pass through

Florante A. Catalan  
 Supervising, SRS

Noted by: Rio S. Pagtalunan, Dr.Tech.  
 Division Chief

**Certification No. 2013-0-0363-39**

Date: 25 June 2013

%C	%Si	%Mn	%P	%S	%Cr	%Mo	%Ni	%Cu
0.059	0.020	0.25	0.010	0.011	0.013	0.002	0.005	0.013

- Note: 1. Other remaining elements were not identified/analyzed.  
 2. Sample preparation and analysis were witnessed on 24 June 2013  
 by: Idabel Pagulayan/IATF-DILG and Hobert Brojas/APMC.

Gina A. Catalan  
 Approved Signatory

Noted by: Rio S. Pagtalunan, Dr.Tech  
 Division Chief.

Report Number: 2013-0-0151-43A

Date: 28 June 2013

**Evidence Card No. 2, Burnt LPG Meter w/o Valve**

Elements	Trial 1	Trial 2	Trial 3	Average (w%)
Iron (Fe)	0.498	0.509	0.467	0.491
Chromium (Cr)	0.000	0.000	0.000	0.000
Nickel (Ni)	0.004	0.000	0.000	0.001
Molybdenum (Mo)	0.000	0.000	0.000	0.000
Manganese (Mn)	0.026	0.026	0.038	0.030

Cobalt (Co)	0.004	0.000	0.010	0.005
Copper (Cu)	0.180	0.166	0.173	0.173
Vanadium (V)	0.047	0.028	0.024	0.033
Silver (Ag)	0.001	0.000	0.000	0.000
Tin (Sn)	0.000	0.000	0.000	0.000
Tungsten (W)	0.000	0.000	0.001	0.000
Lead (Pb)	0.018	0.013	0.017	0.016
Zinc (Zn)	0.330	0.307	0.315	0.317
Niobium (Nb)	0.000	0.000	0.000	0.000
Palladium (Pd)	0.000	0.000	0.000	0.000
Bismuth (Bi)	0.000	0.001	0.001	0.001
Zirconium (Zr)	0.002	0.001	0.002	0.002
Titanium (Ti)	0.181	0.186	0.120	0.162
Antimony (Sb)	0.000	0.000	0.000	0.000
Aluminum (Al)	98.710	98.760	98.840	98.770
Selenium (Se)	0.000	0.000	0.000	0.000

The analysis conducted is for screening only and not to be used as standard for grade determination.

Lemuel N. Apusaga  
Senior Science Research Specialist  
Process Research Section

Noted: Rodnel O. Tamayo  
Officer-in-Charge  
Materials and Process Research Division

F. DR. IDABEL B. PAGULAYAN, IATF-DILG Consultant, Technical Report (Annex "AAA")

RANK/NAME	POSITION	EDUCATION	QUALIFICATION/ EXPERTISE	NATURE OF INVESTIGATION	METHODOLOGY	ACTUAL INVES CONDUCTED	EVIDENCE GATHERED
DR. IDABEL BERNABE-PAGULAYAN	CONSULTANT IATF-CT. Former Chief,Forensic Chemistry Division, NBI from 1995-2006, Asst. Chief Forensic Chemist 1989-1995,NBI etc.	Doctor of Philosophy in Criminology; Doctor of Management Science; Master in Management; Bachelor of Science in Chemistry	Registered Chemist; Registered Criminologist	Determination of real cause of explosion	Mathematical computation and analysis of LPG Material Safety Data Sheet; Determine the percentage/ ratio of Ethyl Mercaptan in Two Serendra LPG Pipeline Distribution.	a. Gathering/ Recovering of the Physical Evidence b. Scene Reconstruction	

Conclusion:

From the consolidated laboratory results of the Department of Health, Department of Science and Technology (Metal Industry Research Development Center and Advanced Device and Materials Testing Laboratory- Industrial Technology Development Institute), National Bureau of Investigation (Forensic Chemistry Division), Philippine National Police - Scene of the Crime Operatives (SOCO), Bureau of Fire Protection (Arson Laboratory Section), and Inter-Agency Anti-Arson Task Force - Composite Team's gathered evidence, the explosion could not have been caused from other chemical substances such as flammable and combustible materials in large volume because these substances need specialized containers which were not present in the blast site.

There is no indication as to the presence of Sewer gas/Methane, because there's no septic tank in the whole Section B Tower A.

According to the DOH findings, a direct reading instrument Photoionization Device (PID) was used in the LPG samples taken from the Bonifacio Gas Farm and Brazil Restaurant for the rapid assessment monitoring for volatile organic chemicals including Butane and Ehtyl Mercapatan showed a concentration/ppm of 27.9055 for Butane and 1.1 x10<sup>-8</sup> concentration/ppm for Ethyl Mercaptan. Thus, the reading of

Ethyl Mercaptan was below the odor threshold of 0.0000087 ppm and the level of Distinct Odor Awareness (LOA) of 0.00014.

On the other hand, the results of the comparative paint analysis conducted by the Advanced Device and Materials Testing Laboratory - Industrial Technology Development Institute showed that samples marked "JPC1,2,3,5,9,10,11 and 12" coincide with the peaks of Point A of the black braided flexible LPG hose while samples marked "JPC- 4 and 8" coincide with the peaks of Point B of the black braided flexible LPG hose.

Therefore, based on the foregoing results the cause of the explosion at Unit 501B Tower "A" is due to the LPG gas leak from the LPG braided flexible hose that was detached from the gas range when it was moved during the renovation at the kitchen area that could cause the LPG fuel to leak into the said Unit on May 31, 2013 on or about 7:00 AM.

**G. DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH) (Annex "ZZ")**

**June 25, 2013 - DPWH Report issued by JUDY F. SESE, OIC, Bureau Director, Bureau of Research and Standards, DPWH:**

- a. "The submitted Spraycrete walls were noted to be of composite materials consisting of cement mortar reinforced with 12 mm diameter and steel wire mesh. Test specimen for this type of material shall be extracted by the conduct of core boring test using drilling machine. Reinforcing steel bars and steel wire mesh cannot be avoided to be included in the extracted specimen thus will cause an unreliable test result for strength.
- b. The submitted 12 mm diameter reinforcing steel bars were of insufficient in length which is less than the standard length of 1.0 meter for testing hence, it will not have conclusive result for strength and other properties of the materials.

In view of the above reasons, we regret to inform you that we cannot pursue to conduct the test as requested in your letter."

**V. IATF-CT's INVESTIGATION:**

RANK/NAME	POSITION	EDUCATION	QUALIFICATION/ EXPERTISE	NATURE OF INVESTIGATION	METHODOLOGY	ACTUAL INVESTIGATION CONDUCTED	EVIDENCE GATHERED
1. FSSUPT FENNIMORE V JAUDIAN, CFEI, CVFI	Chief, IATF-CT	Bachelor of Laws, BS Criminology and Police Administration	Criminologist; Certified Fire and Explosion Investigator (CFEI), NAFI, USA and Certified Vehicle Fire Investigator(CVFI) NAFI, USA, Post Blast Investigator	Determination of real cause of Explosion/fire	Scientific Approach; NFPA 921; BFP SOP's; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Lead Investigator in the conduct of Explosion/fire Investigation	(Please see attached Logs (i.e. evidence log, photolog, sketch log, document log, step by step activity), Annex"DD DDD")
2. SRINSP MA. MYRA Q BICO	Chief, Intelligence Section, BFP/IATF-CT (On-call)	BS Criminology	Licensed Criminologist	Determination of real cause of Explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	a. Taking Testimonies of the witnesses	(Please see attached Logs)

3. FINSP OSCAR N ROPERO	Chief, Investigatio n Section, IATF-CT, Fire/Arson Investigator	Bachelor of Laws, BS Criminology	Licensed Criminologist; Post Blast Investigator	Determination of real cause of Explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975Scientific Approach/NFPA 921/ BFP SOP	a. Gathering/ Recovering of the Physical Evidence b. Taking Testimonies of the witnesses c. Scene Reconstruction	(Please see attached Logs )
4. FINSP REDEDOR V ALUMNO	Chief, Admin IATF-CT Fire/Arson Investigator	Bachelor of Arts in Public Administration	Arson Investigator; Post Blast Investigator	Determination of real cause of Explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	a. Gathering/ Recovering of the Physical Evidence b. Scene Reconstruction	(Please see attached Logs)
5. SFO3 MARLO H SERITO	Chief Prevention Sec, FSED, BFP-NHQ/ On-Call Fire/arson Investigator and Legal Researcher IATF - CT	Bachelor of Laws; Fire Safety Engineering; BS Electrical Engineering	Registered Electrical Engineer	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	a. Gathering/ Recovering of the Physical Evidence b. Taking Testimonies of the witnesses c. Scene Reconstruction	(Please see attached Logs)
7. SFO3 CLETO T RESPICIO JR.	Fire/Arson Investigator / Liaison, IATF-CT	BS Electrical Engineering	Registered Master Electrician	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Measurements and Sketches; Scene Reconstruction; Gathering of Physical Evidence	(Please see attached Logs)
7. SFO3 MELANIE A ENCONTRO	IATF on Call Investigator	BS Criminology	Licensed Criminologist	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Measurements and Sketches; Scene Reconstruction; Gathering of Physical Evidence	(Please see attached Logs)
8. SFO3 LIBERTINE E GIMOTEA	IATF on Call Investigator	Bachelor in Elementary Education	Professional Teacher	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Measurements and Sketches; Scene Reconstruction; Gathering of Physical Evidence	(Please see attached Logs)
6. SFO2 J PEPITO V PALMA JR	Fire/Arson Investigator / Evidence Custodian, IATF-CT	BS Criminology; AB Sociology	Fire Arson Investigator	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Received Evidence gathered by IATF Investigator and PNP SOCO; prepared the necessary documentations and with the approval of Chief, IATF-CT, sent/transmit the Evidence to NBI, DOST,BFP- ALU for appropriate laboratory examinations	(Please see attached Logs)
10. SFO1 GINO S MIRABITE	Fire/Arson Investigator / Document Custodian	BS Criminology; Associate of Arts	Licensed Criminologist	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Measurements and Sketches; Scene Reconstruction; Gathering of Physical	(Please see attached Logs)

						Evidence	
11. FO3 RORYCARL DALAMCIO	Fire/Arson Investigator (IATF On-Call)	BS Criminology, Bachelor of Laws	Licensed Criminologist	Determination of real cause of explosion/fire	Scientific Approach; NFPA 921; BFP SOP; Inter-Agency Protocol for Explosives- Related Incidents Investigation; RA 6975	Assisted in Measurements and Sketches; Scene Reconstruction;	(Please see attached Logs)
12. PO2 VICTOR T AQUINO	PNP Representative/Intelligence	BS Criminology	Licensed Criminologist	Gather relevant intel that may help in the resolution of case	Intelligence gathering procedures	Assist in securing the Scene of explosion/fire	(Please see attached Logs)

#### A. PRE - EXPLOSION DATA, DOCUMENTS, FACTS OR EVIDENCE

##### a. Scope of Work from APMC - re: Renovation of Unit 501B from April 1, 2013 to May 29, 2013

Based on the Work Permits issued by the AYALA PROPERTY MANAGEMENT CORPORATION to RM LADRIDO CONSTRUCTION SERVICES, the first day of renovation started on 01 April 2013 with work description as "Painting/Carpentry Works, while the last permit issued was on 29 May 2013 with work description as "Retouch/Cleaning Works" (Work Permits issued to MANUEL GRUTA of RM Ladrido is hereto attached as Annex "S" while Delivery Permit of construction materials used for the renovation is hereto attached as Annex "T.")

##### b. Pertinent Entries in the Security Logbook

###### Photocopy of Security Log Book Basement 1, BB/BA (Annex "MM") -

Showing Entry of RM Ladrido workers from Apr 2 to 14 May 2013; and

**24 May 2013** Marianne Cayton recorded in the logbook.

**31 May 2013** - Angelito San Juan with two companions Herminia Ochoa recorded as "Min Chua" Alice Mendez recorded as "Alice" at the SG lobby, BB/BA.

#### B. POST - EXPLOSION DATA, DOCUMENTS, FACTS OR EVIDENCE

##### a. Sworn Statements taken by IATF-Composite team:

1. S.S. of HERMINIA OCHOA y ESPANA dtd 11 July 2013
2. S.S. of ALICIA MENDEZ y OCHOA dtd 11 July 2013
3. S.S. of NEBSTER FALCASANTOS y WINES dtd 06 June 2013
4. S.S. of RAMIL ARSOLA y ROQUE dtd 06 June 2013
5. S.S. of DANTE ROSAURO y SALADUGA dtd 06 June 2013
6. S.S. of JACINTO JANDUG y BORONG dtd 09 June 2013
7. S.S. of EDISON PADABOC y PORTICO dtd 08 June 2013
8. SS of ADRIAN GERONIMO y MEDRANO dtd 09 June 2013
9. S.S. of JOSELITO SEMANIA y CORDENETE dtd 08 June 2013
10. S.S. of RUEL BERNAS y DIAZ dtd 14 July 2013
11. SS of DENNIS PALOMAR y DAVID dtd 17 Jun 2013 & 23 July 2013
12. SS of CLOTILDO CUIZON JR. y ESGUERRA, 21 & 25 Jun 2013
13. S.S. of MANUEL GRUTA y MENDOZA, 08 Jul 13 & 25 Jul 13
14. S.S. of ANGELITO INLAYO y MENDOZA dtd 08 July 2013
15. S.S. of DENNIS DUMAGUING y HERNANDEZ dtd 08 July 2013
16. S.S. of ROBERT LAO y SY dtd 06 July 2013
17. S.S. of JAMES MARTIN RAMIREZ y RAMOS dtd 03 July 2013

18. S.S. of EPHRAIM SILANG y BRAVO dtd 26 June 2013 & 23 July 2013
19. S.S. of JOSELITO ZAMORA y CALUZOR dtd 25 July 2013 & 08 July 2013
20. S.S. of SHERHAN MOHAMMAD y PICCIO dtd 04 July 2013
21. Affidavit executed by SFO1 PEDRITO R POLO dtd 16 July 2013
22. Affidavit Executed by FSINSP FELIX L ABAD 16 July 2013
23. S.S. of CHRISTIAN MA RIVERO y VIACRUSIS dtd 08 July 2013
24. S.S. of DAVE ANDREW OPISO y FRANCISCO dtd 05 July 2013
25. S.S. of MARY JOY M CRUZADO dtd 10 July 2013
26. S.S. of CHARICE BENETUA y DUMOGHO dtd 08 July 2013
27. S.S. of GAIL GOCHANGCO y GONZALES dtd 15 July 2013.
28. S.S. of JOHN ALER y MADERA dtd 12 July 2013
29. S.S. of RYAN JOSEF GARVIDA y SANTOS dtd 15 July 2013
30. S.S. OF KARLA ROCHELLE K. DEL ROSARIO dtd 09 July 2013
31. S.S. of JOSEPH LAURAS y COMON dtd 08 June 2013
32. S.S. of ENECITO LAMALINAO y TOCA dtd 09 June 2013
33. S.S. of BOBBY BALLON y LORELLA dtd 09 June 2013
34. S.S. of RIO ESCOTE y PANGILINAN dtd 04 July 2013
35. S.S. of JEORGE SALVADOR IBARRETA, JR y DE VILLA, 04 Jul 13
36. S.S. of MA. GRACIA HULSE y DIEZ dtd 05 July 2013
37. S.S. of REMILYN SUAREZ y SODSOD dtd 06 June 2013
38. S.S. of RODENTO BARBOSA y LOPEZ dtd 03 July 2013
39. S.S. of EVELYN LEVISTE y CABUGAO dtd 04 July 2013
40. S.S. of JOHN MARK ABELLA y BIYO dtd 09 July 2013
41. S.S. of JERWIN TAGAILO y RACAZA dtd 09 July 2013
42. Affidavit executed by JHONMER CAMPO Y BUALLA dtd 07 July 2013  
9 (Annex "SSSS")

**b. Sworn Statements taken by CIDG-PNP: (Annex "VVVV")**

1. S.S. of Albert Kayson y Marcial dtd 04 June 2013
2. S.S. of Arsenio Contado Jr y Cruz dtd 04 June 2013
3. S.S. of Bonifacio Relox y Norico dtd 03 June 2013
4. S.S. of Dave Andrew Opiso y Francisco dtd 05 June 2013
5. S.S. of Ephraim Silang y Bravo dtd 05 June 2013
6. S.S. of Erwin S. Mariano dtd 05 June 2013
7. S.S. of Jazwel Partosas y Magnaye dtd 05 June 2013
8. S.S. of Joselito Zamora y Calusor dtd 04 June 2013
9. S.S. of Jerwin Tagailo dtd 05 June 2013
10. S.S. of Karla Kangleon y Arcilla 02 June 2013
11. S.S. of Kim Christian Magtolis y Alieg dtd 02 June 2013
13. S.S. of Maribel Laroza y Libo-on dtd 02 June 2013
14. S.S. of Medwin Gutierrez y Bularon dtd 01 June 2013
15. S.S. of Michael Engracia y Sarmiento dtd 04 June 2013
16. S.S. of Nebres Falcasantos y Wines dtd 01 June 2013
17. S.S. of Nicole Estanda y Llanera dtd 04 June 2013
18. S.S. of Orlando Agravante y De Leon dtd 01 June 2013
19. S.S. of Robert Lao y Sy dtd 02 June 2013
20. S.S. of Rodel Gimena y Mendoza dtd 04 June 2013
21. S.S. of Ruel Bernas y Diaz dtd 07 June 2013
22. S.S. of Van Monroe Mitra y Ruby dtd 03 June 2013

**c. Sworn Statements taken by Taguig -PNP: (Annex "WWWW")**

1. S.S. of Allan Poole y Douglas dtd 03 June 2013
2. S.S. of Angelito Inayo y Mendoza dtd 04 June 2013
3. S.S. of Bobby Ballon y Lorella dtd 04 June 2013
3. S.S. of Clotildo Cuizon y Esguerra dtd 04 June 2013

4. S.S. of Danilo Gruta y Mendoza 04 June 2013
5. S.S. of Dennis Dumaguing y Hernandez dtd 04 June 2013
6. S.S. of Dennis Palomar y David dtd 02 June 2013
7. S.S. of Edgardo Inlayo y Atanasio dtd 04 June 2013
8. S.S. of Enecito Lamanilao y Toca dtd 04 June 2013
9. S.S. of Helen Siguenza y Macalipay dtd 03 June 2013
10. S.S. of Herminia Ochoa y Espana 02 June 2013
11. S.S. of Joel Gimena y Mendoza dtd 04 June 2013
12. S.S. of Jerry Layug y Dela Cruz dtd 01 June 2013
13. S.S. of Jahdiel Lambino y Pagente dtd 04 June 2013
14. S.S. of John Mark Abella y Biyo dtd 04 June 2013
15. S.S. of Kevin Poon Yin Seow dtd 02 June 2013
16. S.S. of Joseph Lauras y Comon dtd 02 June 2013
17. S.S. of Luisito Nudalo y Sarmiento 05 June 2013
18. S.S. of Madeleine Dinglasan y Pfiffner dtd 02 June 2013
19. S.S. of Manuel Gruta y Mendoza dtd 04 June 2013 & 14 June 2013
20. S.S. of Nikki Karmen Gato y Cabangon dtd 04 June 2013
21. S.S. of Mohamed Sawy y Darder dtd 02 June 2013
22. S.S. of Orlando Agravante y De Leon dtd 01 June 2013
23. S.S. of Ramil Arsola y Roque dtd 01 June 2013
24. S.S. of Renato Javier y Florentino dtd 04 June 2013
25. S.S. of Renato Nestor Acibar y Cantong dtd 04 June 2013
26. S.S. of Renato Reynel Infante y Minimo dtd 04 June 2013
27. S.S. of Rionel Salcedo y Potot dtd 04 June 2013
28. S.S. of William Nimer y Lauron dtd 04 June 2013
29. S.S. of Sherhan Mohammad y Piccio dtd 05 June 2013

**d. Affidavit administered by NBI: (Annex "O")**

1. Maribel Laroza y Libo-on 03 June 2013
2. Joint Affidavit of Kevin Poon Yin Seow/Fiona Sze Meng Yuen dtd 03 June 2013
3. Jacinto Jandug y Borong dtd 02 June 2013

**e. Sworn Statement administered by a private lawyer (Annex "DDD")**

1. Marianne O. Cayton dtd 07 July 2013

**C. OTHER DOCUMENTS/CCTV/EMAIL/VIDEOS/**

**a. Documents from Securities and Exchange Commission Registration**

1. BONIFACIO GAS CORPORATION (ANNEX "X")
2. LADRIDO & DAVID CONST.SERVICES CORP (ANNEX "Y")
3. SERENDRA INC (ANNEX "Z")
4. JARDINE ENERGY CONTROL COMPANY INC.(ANNEX "AA")
5. HOME ALERT INC. (ANNEX "BB")
6. MECHATRENDS CONTRACTORS CORP (ANNEX "CC")
7. AYALA PROPERTY MANAGEMENT CORP(ANNEX "DD")
8. WORKSAVERS PERSONNEL SERVICES INC (ANNEX "EE")
9. LANTING SECURITY AND WATCHMAN AGENCY (ANNEX "FF")
10. MAKATI DEVELOPMENT CORP.(ANNEX "GG")

**b. Local Building Official documents (ANNEX "D", "E", "EEEE")**

**c. Taguig Fire Station, BFP documents (ANNEX "A", "F", "G", "H", "I")**



- d. Certified true copy Meter Readings from Direct Power, signed by LOUIE NUDALO, UMG Supervisor (Annex "XXXX")
- e. CCTV Footages for May 31, 2013 ( Annex "CCCC")
- f. Photos and Video footage sent by e-mail to F/SSUPT JAUDIAN from Marianne Cayton thru Atty. Raymond Parsifal A. Fortun (ANNEX "AAAAA")
- g. Photos from c+g interior design studio (ANNEX "AAAAA")
- h. Building Plans - Photocopy of the following for Sections B and C (ANNEX "YYYY"):
1. Master Plan signed by Abelardo M. Tolentino certified by Juan Jericho Francisco on June 9,2013 (Annex " YYYY ").
  2. LPG Piping Plan Layout and LPG AUTOCAD file for Section B (Annex " YYYY ").
  3. Electrical Plan Sec B & C signed by Romeo De Jesus (P.E.E.) certified by Juan Jericho Francisco on June 11,2013 (Annex " YYYY").
  4. Architectural as built plan signed by Danilo M. Bianito (PCE) certified by Juan Jericho Francisco on June 11 2013 (Annex " YYYY ").
  5. Schedule of Girders – B & C signed by Danilo M. Bianito,(P.C.E.) certified by Juan Jericho Francisco on June 11,2013 (Annex " YYYY").
  6. Mechanical Plan Sec. B & C signed by Froilan P. Asor (P.M.E) certified by Juan Jericho Francisco on June 11,2013 (Annex " YYYY").
  7. AFSS & fire Protection Plan signed by Eliezer J. Lao (P.M.E.) certified by Juan Jericho Francisco on June 11,2013 (Annex " YYYY").
  8. Plumbing/Sanitary as-built plan signed by Alfonso V. Peralta (P.S.E.) certified by Juan Jericho Francisco on June 09,2013 (Annex " YYYY").
- i. Logbook Section BB and BA Lobby (ANNEX "KK")

**Significant entries on 31 May 2013**

IN	OUT	
6:55		"Angelito with 2 comp"
1327H		"Angelito complain no power"
1923		"SG Facasantos procied to going up to unit 501 inform of expected visitors min chua 501B is no response & no open the door 5x - doorbill"
1938		"SG Falcasantos procied again to unit 501 & doobill again for douboll check & inform to min chua"
1949		"Min Chua assisted by SO Arsula & SG Falcasantos going up to unit"
	1956	"Min Chua"

- j. Logbook Drop-off Belize and Callery (Annex "LL")

**Significant entries on 31 May 2013**

IN	OUT	
656H		"Mr & Mrs San Juan"
1942H	2000H	"Ms Mint Chua escorted by SG Falcansantos to Unit 501B"

k. Logbook Basement 1 (Annex "MM")

Significant entries for renovation by RM Ladrido workers  
Delivery Construction supply  
Delivery of furniture - table sala set  
Full out scrap,"bakal", and debris

D. PHYSICAL EVIDENCE

- 1. Electrical switches, electric control panel, appliances, gas detector and others.<sup>11</sup>
- 2. Thirty three (33) specimens were submitted to DOST, such as LPG regulators, LPG meters, Metal LPG pipe, tiles, door parts, LPG flexible hose, paint, debris.<sup>12</sup>
- 3. Fourteen (14) specimens were submitted to NBI Forensic Division, such as ashes and debris, plastic bottle, door cabinet, gypsum board, paper, TV, pillow.<sup>13</sup>
- 4. Ten (10) specimens such as "spaycrete" wall and rebar dowel submitted to DPWH for strength test.<sup>14</sup>
- 5. One (1) Gas Range - "La Germania" Brand
- 6. One (1) Metal allegedly part of washing machine;
- 7. One (1) washing machine cylindrical metal part;
- 8. Four (4) pcs broken dinning chairs
- 9. Two (2) "Kitchen table top counter"
  - a. Kitchen table top counter from 501B; and
  - b. Exemplar/reference material taken from 301B
- 10. One (1) Main Door of 105B (shattered) - reconstructed
- 11. One (1) set Door Handleset
- 12. One (1) pair Rubber "Nike" Shoes of Angelito San Juan

E. Summary of Sworn Statements of some witnesses taken by IATF-CT:

1. In the SS of HERMINIA OCHOA y ESPANA<sup>15</sup>, 63 years old, single, retired Regional Sourcing Manager for Asian and Pacific and a resident of No. 49 Bunyi Street Buting, Pasig City, she disclosed that she knew Angelito San Juan for they were batchmates at Rizal High School Class 1967 and that she learned San Juan will be having his vacation in the Philippines when the latter informed her that he will attend the wedding of their batch mate's child – Willy Solapco on June 1, 2013. On May 31, 2013 they (Herminia Ochoa, Alicia Mendez, Ariel Mendez, and Arlean Mendez) fetched San Juan at the Terminal 2 of Ninoy Aquino Int'l Airport, where the latter arrived at 4:24 AM. Then they proceeded to McDonald's corner 32<sup>nd</sup> and 5<sup>th</sup> street in front of St. Luke Medical Center around 6:00 AM to take their breakfast and that at around 7:00 AM the affiant together with Arlean Mendez, Alicia Mendez and Ariel Mendez accompanied San Juan to Unit 501B at Two Serendra. That it was Ariel Mendez accompanied by his wife Alicia who opened the water valve and LPG inside the meter chase cabinet located outside, right portion when entering

<sup>11</sup> Per IATF Evidence Log Book, attached as Annex "DDDDD";  
<sup>12</sup> Idem;  
<sup>13</sup> Idem;  
<sup>14</sup> Idem;  
<sup>15</sup> SS of Herminia Ochoa, attached as Annex "HHH ";

unit 501B, while her nephew, Arlean switched on the main switch of Unit 501B, and she also said that those were opened because it was an SOP so that occupant could use the utilities anytime he wanted. After 30-40 minutes Ochoa asked San Juan to go with her to their house for it was still early to do the grocery and that they arrived at the affiant's house before 8:00 AM.

That at around 12:30 in the afternoon they went to S & R to buy San Juan's things. Then accompanied San Juan at the Basement Parking of Two Serendra and was helped by the Serendra Security Guard in carrying his water to his unit while she went home from thence. (Sagot 8)

That San Juan texted affiant at 1:53 PM that there was no power in the condo and told him to check if there was light on the hallway and he said there was. Then, San Juan told her that, "I feel suffocated". At 2:30 PM she called her sister Alicia Mendez and asked if she could call an outside electrician however Alicia said it is not possible so Alicia reported to the Two Serendra Admin that San Juan felt suffocated inside unit 501B (Sagot 09) Then, Alicia called her and said that they were doing an annual electrical maintenance which will last for three days and only the electric fan can be used. At 3:02PM, she called San Juan to tell him to open the sliding door or went out to the pool side so he will not be suffocated, but San Juan replied he would just go to Market Market. (Sagot 9)

That at around 6:49 PM, the affiant texted San Juan that she was leaving their house already and expected to see him in front of the lobby in 15 minutes where San Juan did not reply, then texted him at 7:15 PM that she was already in the front lobby drop off and informed the security guard at the door, "Paki sabi sa unit 501B na narito na ang sundo niya" and that while waiting, she tried to call San Juan's cellular phone for eighteen times but he did not answer. That the time of her calls were "7:13, 7:15, 7:18, 7:19, 7:20, 7:22, 7:23, 7:27, 7:28, used the US number roaming 7:29 Phil. Number 7:32, 7:34, 7:38, 7:42, 7:45, 7:46 used the US roaming number..." That after her last call she asked the guard again, "wala pa ba?" The security guard answered that he knocked on the door thrice but there was no answer from inside the unit. She told him to check the log book for it was impossible for San Juan to leave for they already talked that she will fetch him at 7:00 PM and it was his birthday. That while waiting her escort security officer, the affiant asked the front desk of the time the MERALCO came back and the front desk answered 06:00 PM. That when the security officer arrived, they went up and as they reached the door of unit 501B, she immediately knocked on the door several times and rang the doorbell successively. Not for long San Juan answered and slightly opened the door and told them, "Sory nakatulog ako." Then, Ochoa told him that their reservation was 7:00 and it was already 8:00 and their reservation might have been given away to others. He answered that he will just get dressed since he already took the shower; hence the affiant waited him at her car. (Sagot 10)

That on or about 7:57PM while the affiant was inside her car, fronting the Drop Off Lobby of Two Serendra in Mckinley Parkway Drive Bonifacio Global City, Taguig City, she heard a loud explosion and her car shook which she taught coming from her car. Then she saw security guards running from the lobby and heard him talking to someone on the radio saying 501 501. So she asked guard if it was her visitor's unit and he replied he was not yet sure. Thereafter she went back to her car, and when she looked to her right, "... ay nakita kung nakatayo si Angelito San Juan sa harap ng lobby na may tumutulong dugo sa kanyang dalawang kamay at nakita ko ang kanyang suot na polo na halos ay kwelyo nalang at manggas ang natira." (Sagot 06)

That she quickly approached San Juan and asked him what happened? and he answered that ***"I turned on the door knob I heard an explosion I was thrown on to the floor and felt electrocuted"*** she told him to ride to her car so she could bring him to the hospital, but San Juan said that they were getting him an ambulance and that the latter asked her to stay with him. That few minutes later the ambulance arrived and brought him to St. Luke's Medical Center.

That at the St. Luke's Medical Center, San Juan's state of mind was still clear and he was still able to talk to the affiant, ***"Please take my wallet, my Medical Insurance Health Card is there"***. He then asked her again: ***"Did you take my wallet"*** and she answered in affirmative. Afterwards, San Juan raised both of his hands and asked, ***"Why am I shaking? Why am I shaking? Why am I shaking"*** and the affiant told him to calm down and he said ***"im trying to"*** then she asked the doctor why he was shaking, and according to the doctor it was the effect of shifting of body fluid. (Sagot 06)

That the affiant heard one of the doctors asking San Juan if he was authorizing the affiant in his behalf, since he cannot sign and they cannot take his finger print. Then, he answered: ***"I am fully authorizing Ms. Ochoa to sign in my behalf"*** then the doctor requested her to sign for (1) Intubation, (2) Anesthesia and (3) Operating Room. Then, he was brought to the Operating Room she was not able to talk to him anymore due to the tube inserted to his throat. She further stated that while he was on the operating room she waited at the waiting lounge of the ICU with her nephew, Arlean and Armand, and his girlfriend Jacky; her sister Alice and her sister's husband – Bimboy (Ariel). That San Juan was brought to the ICU from the operating room. (Sagot 06)

Further, affiant was asked if she smelled unusual thing when she entered Unit 501B in the morning of May 31, 2013 and on the evening when she knocked San Juan at around 7:53PM, she answered that, ***"Mayroon po akong naamoy na parang bagong pintura."*** (Sagot 17)

**2. S.S ALICIA MENDEZ y OCHOA<sup>16</sup>**, 52 years old, married, plain house wife, residing at 151E Mendoza Street, Buting, Pasig City and a native of Pasig. She stated that Marianne Ochoa Cayton the unit owner of 501B is her niece, a daughter of her elder sister Aniana Ochoa Cayton. That sometime in December 2012 while her sister was on petition for 6 months she was introduced to the lobby guards as authorized representative of Marianne Cayton for Unit 501B to pay for the utilities and monthly dues, and that sometime in 2013 when she was prevented to enter the unit she went to Admin of Serendra where Marianne sent an e-mail authorizing the affiant as representative of unit 501B. (Sagot 11).

She averred that there was a renovation done last April 2013 after Holy Week that ended on May 30, 2013 ***"dahil nagkaroon pa ng pagkabit ng gripo na para daw sa washing machine ang sabi ng worker ng RM Ladrado at noong araw din ng May 30, 2013, tinurn-over sa akin ang susi ng unit, at nitong araw din na to tinanggap ko yung pina repair na apat (4) na dining chairs."*** (Sagot 12)

That on May 31, 2013 at around 5:21 A.M. affiant together with her husband Ariel, sister Herminia and daughter Arlean went to NAIA-2 to fetch San Juan, and thereafter at around 6:00 AM they took their breakfast at Mcdonald infront of St. Lukes Hospital at Global City and that, ***"xxx... at***

<sup>16</sup> SS of Alicia Mendez, attached as Annex "GGG";

sumunod noon ay pumunta na kami sa Unit 501B ng Two Serendra ng mga humigit kumulang 6:30AM at nag stay kami sa loob ng unit ng mga isang oras... xxx" (Sagot 09). She also averred that, Noong dumating si Angelito San Juan ng May 31, 2013 nang pagpasok namin sa loob ng Unit 501B ng mga humigit kumulang 6:30AM ay sinabihan ko ang asawa ko na buksan ang tubig, kuryente at LPG supply dahil ito ay SOP pag maygagamit ng unit. Binuksan ni Arlean ang main circuit breaker ng kuryente, at yung asawa ko naman ay binuksan ang tubig at supply ng LPG sa may cabinet sa labas ng unit 501B. (Sagot 19) That the location of supply of LPG, "Doon sa may cabinet ng LPG na walang susi na matatatgpuan sa labas ng unit na katabi ng cabinet ng metro ng tubig." (Sagot 16) That during renovation she is not aware if the LPG valve was open (Sagot 18), and that the LPG cabinet can be opened by any keys (Sagot 20).

That Marianne authorized Angelito San Juan to stay at the Unit 501B for nine (9) days and the authorization letter was given to the lobby guard when they entered Two Serendra last May 31, 2013. (Sagot 10)

When asked if she smelled LPG or heard sound of an alarm when she gave an instruction to open the LPG supply in the morning of May 31, 2013, she said that "Wala, dapat naamoy namin lahat yun kung meron." (Sagot 26)

That on May 31, 2013 when she was at her house at around 8:11 P.M. her sister Herminia Ochoa called and said that they brought Angelito San Juan to St. Lukes Hospital, Global City and told them to be there together with her nurse son Arlean in the emergency room, and immediately they proceeded at the hospital. There she knew about the explosion at unit 501B owned by her niece Marriane (Sagot 6).

**3. S.S of NEBSTER FALCASANTOS y WINES<sup>17</sup>**, 28 years old, single, a Graduate of Bachelor of Science in Criminology, residing at 8221Unit B2, Dapitan Street, Guadalupe Nuevo, Makati, City, a security guard of Lanting Security and Watchman Agency, assigned at Two Serendra Bonifacio Global City, Taguig City and a native of Zamboanga City. Stated that on May 31, 2013 at around 1938H, while he was conducting roving inspection Security Guard (SG) Daniel Talay, told him over the radio to proceed to unit 501B Tower BA to see if there was anyone inside the unit, because no one answered at the unit intercom, then he proceeded to unit 501B and rang the doorbell but no one answered, thus he informed SG Talay about it. That at around 1948H same date he received another radio call from SG Talay, asking him to go back to unit 501B and to recheck if there was anyone inside the unit because the visitor (Herminia Ochoa) was worried about the occupant because the latter was not responding to the call and text messages. Thus, he went back to unit 501B and rang the doorbell three times but still no one responded. SG Talay, told him to proceed at Drop Off lobby to accompany the unit visitor together with Security Officer (SO) Ramil Arsula. That at around 1950H to 1955H the affiant together with SO Arsula and Herminia Ochoa and proceeded to unit 501B, "xxx... when we arrived Miss Ochua started ringing the doorbell, shaking the door knob on the door. I heard a voice from the unit and a few moments later. The door opened partially. I saw Mr. San Juan head peeking from the door in such a way that his body was hidden by the door. I noticed a smell similar to the fresh paint. SO Arsula, asked Mr SanJuan if he was ok Mr San Juan replied he was ok... xxx." (Sagot 06 in English language) Then they left Herminia Ochoa, then few moments later while he was having conversation with BA lobby guard, he saw Herminia Ochoa stepped out from

<sup>17</sup> SS of Nebster Falcasantos attached as Annex "QQQ";

the elevator and told them she will wait outside as she had a dinner with San Juan.

That at around 8:08PM he heard and felt "strong shockwaves," and because of the debris he ran to the function 2 (function room) and took shelter for few seconds, that when he ran back to BB Tower he saw San Juan walking along the Ground floor hallway where the fire exit is located. That, "xxx... San Juan, very bloody I immediately helped Mr San Juan, I asked him what had happened he replied that WHEN HE WAS OPENED THE DOOR SUDDENLY EXPLODED. I retrieved a wheelchair, put Mr San Juan on it and brought him into the drop off lobby... xxx."(Sagot 08)

He said that when they (along with Herminia Ochoa and SO Arsola) went to unit 501B and Mr San Juan opened the door he smelled like fresh paint coming from unit 501. He also averred that after the explosion he saw a smoke color gray in the hallway at ground floor of tower BA that quite suffocating. Further, he noticed water coming out from the LPG cabinet in between the doorway of Unit 105 and Unit 103 that caused flood in the hallway.

**4. S.S. of RAMIL ARSOLA Y ROQUE<sup>18</sup>**, 36 years of age, married, residing at No. 438 Inocencio St., Velasquez, Tondo Manila, Security Officer of Lanting Security and watchman Agency, assigned at Two Serendra Global City and a native of Calamba Laguna. He narrated that at around 7:49 PM he asked Mrs. Ochoa of her intention at unit 501B, and she replied that she was worried with her guest that she was calling Mr San Juan on his cellular phone 12 times but he did not reply, thus they accompanied Herminia Ochoa together with SG Nebster Falcasantos. Affiant continued that when they arrived at Unit 501B suddenly Mrs Ochoa knocked the door loudly and used the door bell until they heard a noise inside and later San Juan opened the door partly and he saw only the face of San Juan and that Mr San Juan just woke up that time. He also said that he remembered Mrs Ochoa entered the unit and he asked them if they need maintenance and he heard their conversation that they do not need maintenance before Mrs Ochoa closed the door, then affiant and SG Falcasantos left unit 501B. That when he proceeded to CC lobby to conduct an inspection, he heard a very loud explosion and when he went outside from Tower C, CC lobby ground floor, he suddenly saw a huge fire coming from the hall way of 5<sup>th</sup> floor of Tower BA. He also said that he saw Mr San Juan wounded and his cloth at the back was burned and he was accompanied by SG Falcasantos going to Lanting Ambulance and brought to St Lukes Hospital.

That on May 31, 2013 there was an Electrical Power interruption from 8:00 am to 6:00 pm. He also said that there was a loud explosion before he saw a huge fire coming from 5<sup>th</sup> floor. He further stated that he smelled nothing when he accompanied Mrs Ochoa to Unit 501B. (Sagot 19)

**5. SS. of DANTE ROSAURO Y SALUDAGA<sup>19</sup>**, 35 years old, married, residing at 1053 Bonifacio Global City, Taguig City, a native of Cebu City. Stated that on May 31, 2013 he was on duty at CCTV Tower "B" and "C" when at around 7:59 pm he heard a loud explosion from Tower "B" and immediately activated the Emergency Brigade Team and proceeded to the scene, and after more or less 5 seconds the Fire Detection and Alarm System (FDAs) Panel alarmed

<sup>18</sup> SS of Ramil Arsola, attached as Annex "RRR";

<sup>19</sup> SS of Dante Rosauro, attached as Annex "SSS";

together with the shut down of elevator 1 & 2 and the alarm did not stop and even the LOG event of FDAs was very fast that he cannot read. (Sagot 6)

Further stated that before the explosion, based on the log book record the FDAs Panel activated on May 6, 2013 at unit 501B twice the first was on 9:50 AM smoke/heat alarm (N21-1031) and the second time was 10:05 AM at unit 501B under construction (Grinder). (Sagot 7).

Further, he revealed that the smoke detector immediately activated when he heard the explosion (Sagot 8) and he stated that before the explosion there was no monitored gas leak on FDAs gas leak detector.

**6. S.S of JACINTO JANDUG y BORONG<sup>20</sup>**, 33 years old, married, a second year college of BS Criminology, residing at No. 98 Ramos Compound, Rosario, Pasig City, a security guard of Lanting Security and Watchman Agency, assigned at Two Serendra, McKinley Parkway Drive, Bonifacio Global City, Taguig City as roving guard at Fire and Life Safety Inspection and a native of Butuan City, he narrated that on or about 8:00 PM on May 31, 2013 he heard a sudden explosion. He immediately went to the ground level to verify the matter and saw people on panic and thick smoke on building Belize, tower BA. Hurriedly, he proceeded to their security office to wear the fireman suit as member of Brigade Emergency Team (EBT) together with SG Edison Padaboc and responded to the affected area and helped the residents to evacuate. He also stated that he noticed at the 5<sup>th</sup> floor a thick smoke color gray at the hallway, and took the red fire extinguisher and assisted the Fire Safety Officer of Taguig rescue to put off the fire inside the LPG Meter Cabinet near the door of unit 506B.

He also said that upon his arrival at the area he saw the maintenance supervisor and his subordinates and also janitors helped the unit residents in evacuating the area to a safe one. He further stated that "ang napansin ko lang po ay masakit sa mata ang usok, at hindi ko maintindihan ang amoy kasi masakit din sa ilong at nahirapan po kami huminga at sumisikip po ang dibdib ko (sagot 8). He disclosed that based on security SOP, unit owners will be allowed to bring flammable and combustible materials upon securing approval from the Engineering Office and after verification and inspection. His statement was corroborated by **7. SS of SG EDISON PADABOC y PORTICO<sup>21</sup>**, Security guard of Lanting Security and Watchman Agency assigned at Two Serendra, McKinley Parkway Drive, Bonifacio Global City, Taguig City as roving guard at Fire and Life Safety, residing at Blk 322 Lot3, Waterbird Street, Barangay Rizal, Makati City and a native of Loon Bohol.<sup>22</sup>

**8. SS of ADRIAN GERONIMO y MEDRANO<sup>23</sup>**, 28 years old, single, an employee of Jardine Energy Control (JEC), as Maintenance Supervisor, assigned at Two Serendra, McKinley Parkway Drive, Bonifacio, Global City, presently residing at Paoville 323, HPA Fort Bonifacio, Taguig City, and a native of Nueva Ecija, he stated that at around 8:00 PM of May 31, 2013 he was at the CCTV Room particularly Section D and E when the door of CCTV room shook then the operator of Section B and C told him to proceed at Tower BB lobby and that there was an explosion.

That when he arrived at Tower B-B lobby at around 8:02 PM in the evening same date, he said that "nakita ko na yung mga pinto sa Ground Floor

<sup>20</sup> SS of Jacinto Jandug, attached as Annex "UUU";

<sup>21</sup> SS of Edison Padaboc attached as Annex "VVV".

<sup>22</sup> SS of Edison Padaboc, attached as Annex "VVV";

<sup>23</sup> Based on SS of Adrian Geronimo attached as Annex "XXX".

ay mga nakabagsak na pintuan at kesame, pumasok ako sa Tower B-B lobby dumeretso ako sa fire exit at umakyat ako pataas hangang 3<sup>rd</sup> Floor at duon ko inabutan ung mga Guard, Janitor at Maintenance personnel na sinisira nila ang mga pinto ng unit 308B at tinulungan ko na silang buksan yung Unit 308B at ng mabuksan na namin nagtungo kaagad ako sa 5<sup>th</sup> Floor na tinangka kong pasukin pero di ko kinaya ang usok at dami ng nakakalat na bumagsak na mga kesame kaya nagtungo na ako sa 6<sup>th</sup> Floor na may bit-bit na fire extinguisher kasama ang mga guard at janitor pinagkakatok naming ang mga pinto ng mga bawat Unit hangang sa umabot kami sa 8<sup>th</sup> Floor ng Tower B-B at Tower B-A at kami ay bumaba na sa playground " (Sagot 6).

He also stated that while at the playground he informed Ryan Garvida, a Technical Engineer Robert Bataller was the one manning the Fire Pump informed him also that he already shut-off all breakers at Tower B-A and Tower B-B.

**9. JOSELITO SEMANIA y CORDENETE,**<sup>24</sup> 34 years old, married a security guard of Lanting Security and Watchman Agency and assigned at Two Serendra, residing at Blk 7 Lot 37 Gawaran Avenue St. Joseph Homes, Molino 7 Bacoor, Cavite and a native of Tiwi Albay, stated that he was on duty together with SG JOSEPH LAURAS at around 2002H to 8005H when they heard a sudden explosion at upper right portion of BB and BA Tower, "ito ay isang napakalakas na kalabog ang tunog nito". Then he saw a color gray smoke from 3<sup>rd</sup> floor to upper portion of building Tower BA and heard screams from the residents asking for help, hurriedly he assisted them to the fire exit and to a safe place. He further stated that some residents were trapped inside their units and one unit owner Mr Christian Hausted from 310B helped him to force open the doors. He said that at around 2020H "Kahit na nakaramdam na ako ng pagsikip dahan dahan kong ibinaba ang ilan residente sa lugar at dito ay may nasalubong ako na myembro ng Jardin Energy Control (JEC) group. Sinubukan ko na tumulong sa ika-lima palapag pero mausok at madilim sa lugar. Wala po ako nakita apoy. Dahil hirap ako huminga bumaba na ako." (Sagot 6)

He averred that the sprinkler system activated after the explosion as he saw water at the hallway. (Sagot 8)

**10. S.S of RUEL BERNAS y DIAZ**<sup>25</sup>, 30 years old, single, a Safety Officer of Aga & Sons Construction and a Volunteer of Taguig Rescue, and residing at Room 301, Building 4, Centennial Village, Western Bicutan, Taguig City, he stated that on or about 08:00 PM of 31 May 2013, as he was crossing McKinley Park Drive to Market Market with his girlfriend, when they heard a loud explosion and that he saw that something had fallen over an Abenson Mini Van Truck and nobody was helping or leading the situation that time and that the Market Market Medics were in panic, as if they did not know what to do. That he checked the carotid pulse for vital signs of the three victims inside the Abenson van; however, they already have zero vital signs. That he immediately went to the blast site, wherein one of the security guards pointed out the fastest way to reach the 5<sup>th</sup> floor level where the explosion originated. That at the hallway to the left, he saw smoke and smelled LPG Gas – which is usually used for cooking. He added that the source of the smoke with fire was a small cabinet on the right of the doorway. He quickly used the green fire extinguisher which was brought by the security to put the fire out. Two fire extinguishers were used before the fire was smothered. Mr. Aguilar arrived at

<sup>24</sup> Based on SS of Joselito Semanie, attached as Annex "YYY".

<sup>25</sup> Based on SS of Ruel Bernas, attached as Annex "ZZZ".



the same time with a K9 and its handler Hermano from the Market Market Medics and they checked each unit to see if there are still people left inside. When they reached the door of unit 501B, he still smelled LPG Gas, and that when they were sure that nobody was left, they quickly went down outside.

**11. SS of DENNIS PALOMAR Y DAVID<sup>26</sup>**, 46 years old, married residing at Lot 12 Blk 37, Kamias Street., Green Woods Cainta Rizal, General Manager of Bonifacio Gas Corporation stated that "Ang Serendra Incorporated ay isa sa aming mga customer na kami ang nag Supply ng LPG at mayroon po kaming Supply Contract between Serendra Inc. at Bonifacio Gas Corporation" (Sagot 07). And further said that: "xxx Base sa kontrata, ang aming responsibilidad ay hanggang property line lamang ng Serendra" (Sagot 08).

Further, disclosed that the common supply of LPG is on commercial grade with the composition of 70% Butane and 30% Propane (Sagot 11). Also disclosed that he was not sure of the percentage proportion of Ethyl Mercaptan to mix with LPG, however based on the Material Safety Data Sheet, about 0.1 % of Ethyl Mercaptan plus others... (Sagot 12).

**12. SS OF CLOTILDO CUIZON JR. y ESGUERRA<sup>27</sup>**, 33 years old, married, employed as painter at RM Ladrido Construction Services Corporation for more than eight (8) years and residing at Zone 12, Unit-1, Baybay Sapa, Mayamot, Antipolo City. In his sworn statement dated 08 July 2013, stated that he was one of the workers who worked at Unit 501B Two Serendra and they started the renovation last April 1, 2013 and they finished the work last May 23, 2013. (Sagot 08) He was accompanied by Danilo Gruta, Rodel Gemina, Joel Gemina, Angelito Inlayo along with Manuel Gruta who act as their Foreman/Supervisor. At first they were instructed to chisel the wall in order to demolish the division, after which, they constructed a division using a metal pairing and gypsum board. Then he was assisted by Joel Gemina in painting and applying poly tuff coating at the cabinet. They finished their job at the said unit last May 23, 2013. That last May 27, 2013, he cleaned droplets of paints on the floor tiles and cabinet and retouched paints with Dennis Dumaguig. They finished the job last May 29, 2013 at around 5:00 PM and that the following day, May 30, 2013 at around 11:30 noon, Mr. Angelito Inlayo went to his house and said that he (Angelito) was instructed by Manuel Gruta to get the door key because someone will visit Unit 501B after which he gave the key. (Sagot 09)

He stated that they used water based latex boysen paint on the wall and Quick Dry Enamel mixed with thinner for cabinet. He further disclosed that there are three (3) TV, one (1) electric fan, two (2) washing machines, one (1) refrigerator and one (1) oven gas range found in the kitchen (Sagot 15). He also averred that he saw a hose connected to the Oven Gas Range but he did not know where it is connected because he just saw the said hose when he removed the Oven Gas Range to paint the wall behind it which he quickly put back in its place after he finished painting. (Sagot 16).

However, in his supplemental statement taken by IATF-CT dated 25 July 2013 he revealed that, "Bali bago ginawa ang cabinet ng washing machine noong May 7, 2013 ay pinatangal muna ni Manuel Gruta kay Reynel Empante ang LPG hose na nakakabit sa gas range, at pagtanggap ni Reynel ay inamay nya at sabi nya ay patay naman daw dahil wala naman syang na amoy o kaya ay lumabas na hangin mula sa hose, at pagkatapos ay nilabas ang gas range

<sup>26</sup> Based on SS of Dennis Palomar, attached as Annex"FFFF".

<sup>27</sup> Based on SS of Clotildo Cuizon Jr, attached as Annex"EEEE".

mula sa kinalalagyan nya at nilipat sa sala ang gas range para makakilos ng maluwag ang karpentero." (Sagot 05) That, "Noong May 17, 2013 ay ibinilin sa akin ni Manny Gruta na ibalik ang gas range sa pwesto sa may kusina, kaya ibinalik namin ni Joselito Zamora sa pwesto ang gas range, at dahil hindi ko alam mag kabit ng hose ng LPG ang pinakabit ko ay si Joselito, dahil siya ang may gamit na screw driver. At sa kadahilanan din na tapos na ang mga gagawin doon sa kusina at pag pintura kaya pinabalik na ang gas range sa pwesto." (Sagot 06)

**13. SS of MANUEL GRUTA y MENDOZA<sup>28</sup>**, 45 years old, married, residing at Number 28, Cadena de Amor Street, Industrial Valley Complex, Marikina City, employed as Foreman and Supervisor at RM Ladrado Construction Services for the period of four (4) years, he said that as Foreman and Supervisor at RM Ladrado, part of his duties and responsibilities are: to secure necessary permits like working permit, purchase necessary materials, assign personnel to the scope of their project, supervises their personnel on site and recommend if there's a need to terminate certain employees. He averred that they started the renovation of 501B after the Holy week on April 1, 2013 and they finished it last May 18, 2013, and on May 23, 2013 with the designer they turned-over the unit to Marianne Cayton owner of 501B, then the owner showed them a punch – list that they have to retouch the painting, and clean the CR" (Sagot 09).

He narrated that their scope of work is carpentry, painting, electrical, plumbing masonry at tile setting. That their task were: to make the original one bedroom into two bedrooms; demolished the concrete wall in between the bathroom and living room where the washing machine was; to make cabinets for the two bedrooms; to build beds for the two bedrooms; to put up open shelves in the living room by the main door and behind the CR under the TV; to place the washing machine inside the cabinet beside the CR almost in front of the range; to add partition inside the CR for the shower area; to set tiles on the area which the concrete wall was demolished in the living room; to set tiles on the CR flooring and wall; to put water supply and drain on the washing machine inside the cabinet; to transfer the circuit breaker behind the CR wall; to add four (4) convenience outlets - two (2) in the new bed room, one (1) living area and one (1) for the washing machine; added three (3) lights in the living area just above the TV and transferred the outlet for the lights; to build a drop ceiling in which he asked permission from Engr. Muhammad, Two Serendra Building Engineer because that was not part of their scope of work, and that they were allowed. The ones who connected the sprinkler are from Alpha Plumber, that they just raised its location since the partition was removed. After which the whole unit was painted." (Sagot 11).

That for the renovation work at Unit 501B, he assigned the following persons: "Joselito Zamora and Renato Javier for carpentry. Painter - Dennis Dumagging and Clotildo Cuizon, painter and time keeper. Painter and carpenter helpers –Arsenio Contado, Edgardo Inlayo, Albert Kayson, Rodel Gemina and Joel Gemina. The electrician is Danilo Gruta. The plumber is Rayniel Infante, and Driver Helper – Angelito Inlayo. While the mason is Nestor Acibar" (Sagot 13).

He disclosed that he was not informed and did not know that there was an LPG supply inside 501B nobody informed him nor does he know about the supply of LPG to Unit 501B what he knew was he saw that there's a range in

<sup>28</sup> Based on SS of Manuel Gruta, attached as Annex "FFF".

the kitchen and he did not bother to know if it is LPG or Electric because it is not in their scope of work. (Sagot 19)

However, in his supplemental statement taken by IATF-CT last 25 July 2013 he disclosed that the cabinet for washing machine was part of their scope of works but the cutting of "kitchen counter top" was not included and that they sought permission from the designer (C+G Interior Design Studio) because the gas range will not fit. That, "Ang pagkakaalam ko ay si Reniel Infante ang nagtanggag ng flexible hose sa gas range pero hindi ko alam kong sino ang naglipat kasi wala ako doon." That sometime on May 16 or 17, 2013 he instructed Clotildo Cuizon and Joselito Zamora to return the gas range in its appropriate place, but admitted that when the gas range was returned to its place may be he was not around.

**14. SS OF ANGELITO INLAYO Y MENDOZA<sup>29</sup>**, 34 years old, single, employed as driver and helper at RM Ladrado Construction Services Corporation for almost three (3) months and residing at 007 Sitio Kasoy II, Mabungan, Antipolo City. In his sworn statement dated 08 July 2013, he averred among others that he drove and accompanied laborers in Unit 501B of Two Serendra. (Sagot 12)

He narrated that before lunch of May 30, 2013, Manuel Gruta, their foreman, called him and told him to return the key to Unit 501B the owner's Aunt named Alice and he had to connect a faucet at the washing machine in the said unit. He then went to Clotildo Quizon's house in Baybay Sapa, Mayamot, Antipolo City to get the key from him and proceeded to Serendra, Taguig where he arrived around one o'clock in the afternoon on the said date. (Sagot 19) As he reached Unit 501B, he saw a woman standing in front of the door outside the unit. He gave her the key and she opened the door and let him in. As he entered, he proceeded to the cabinet with the washing machine inside it. Beside the said cabinet is a pipe for faucet connection. He connected the faucet then left Unit 501B after asking permission from the woman. (Sagot 20)

He also averred that he did not smell anything strange before entering the kitchen on his way to the washing machine cabinet. (Sagot 26)

**15. SS OF DENNIS DUMAGUING y HERNANDEZ<sup>30</sup>**, 43 years old, married, employed as painter at RM Ladrado Construction Services Corporation for almost a year and residing at Baybay Sapa Unit 2, Barangay Mayamot, Antipolo City, he stated that they finished the painting of Unit 501B of Two Serendra on May 18, 2013 but Clotildo Cuizon and himself on May 27, 28 and 29, 2013 went to Unit 501B for paint retouching and for cleaning the tiles of paint drops and that they did not move the gas range and refrigerator while they cleaned the kitchen area.

When asked if they have a key to the door of Unit 501B and to the Water and LPG Meter Cabinet which is located outside the said unit, he answered that they only have a key for the door which Clotildo kept but they did not have a key for the Water and LPG Meter Cabinets. Dumaguining was asked further how they were able to open the water valve inside the meter cabinet and if key is needed to open it, he answered that the Meter Cabinet did not have a key and its door is not locked so they can open the valve for water.

<sup>29</sup> SS of Angelito Inlayo attached as Annex "MMM".

<sup>30</sup> SS of Dennis Dumaguining, attached as Annex "PPP".

He also said that it was Clotildo Cuizon who opened the door and light and gave instruction to open the water valve inside the meter cabinet when they arrived in the morning during renovation of the said unit, while in the afternoon before leaving, it was still Clotildo Cuizon who turned off the breaker for the lights and closed the door including the water valve inside the meter cabinet. He also said that they painted the kitchen area but he was not the one who painted in the kitchen. He only painted the master's bedroom and the guest room. It was Clotildo Cuizon who painted the kitchen area. That It was on May 13, 2013 when Clotildo Cuizon finished painting the kitchen wall.

**16. SS OF ROBERT LAO y SY<sup>31</sup>**, 39 years old, married, President of ALVEO Land Corporation and residing at 508B Two Serendra, McKinley Drive, Bonifacio Global City, Taguig City, President of ALVEO Land Corporation, he said that they were real estate developer and that they developed subdivisions and condominium projects. ALVEO is also one of the owners of Serendra, Inc. who is the developer of Serendra condominium project. He also said that he did not smell anything unusual before and after the explosion.

He narrated Serendra Inc. started selling and developing projects in 2004 and that Two Serendra had five (5) sections for the low rise and four (4) sections for the high rise. That the first were finished was Section A in 2007 and Section B in 2008.

He averred that they have building permits approved by the Office of the Building Official of Taguig because before a building is constructed said permits are needed and after the construction of building they also secured Occupancy Permit and Fire Safety Inspection Certificate from the Bureau of Fire Protection. That the LPG pipe line installation plan was also included in the construction of the building but they also have a contractor for the installation. He also said that the APMC and UMG were in charge for the maintenance of the Electrical, Mechanical LPG Pipe-in System, Structural, Sewer, Gen-set, Day Tank, Automatic Sprinkler System, Standpipe and Alarm Smoke/Fire Detector.

He said that buildings of Two Serendra were insured and that the APMC, being the property manager of Serendra Condominium Corporation is implementing Policy Guidelines before and after renovations. He further disclosed that being one of the unit owners he does not have a duplicate key of the LPG meter cabinet and if facilities experience problems he quickly call the maintenance.

**17. S.S OF JAMES MARTIN RAMIREZ y RAMOS<sup>32</sup>**, 29 years old, single, employed as Technical Engineer in Bonifacio Gas Corporation and residing in 2276 Cinco de Junio St., Pasay City, he said that the Bonifacio Gas Corporation is the supplier of LPG to Two Serendra and based on Subscription Contract of Serendra, Bonifacio Gas Corporation will supply LPG gas up to property line only. (Sagot 10) He added that he did not know who installed the LPG pipe line from the property line to the unit owners inside Two Serendra.

He stated that being a Technical Engineer of Bonifacio Gas Corp., he monitored and scheduled the refilling of LPG; managed the meter reading;

<sup>31</sup> Based on SS of Robert Lao, attached as Annex "GGGG".

<sup>32</sup> Based on SS of James Martin Ramirez, attached "KKK".

helped in project monitoring and face customer regarding their technical concerns. He has been working as a Technical Engineer for a year and three months, and that he has trainings and seminars on LPG product knowledge and Safety Training, Fire Protection and Prevention and Electro fusion installation and technology. (Sagot 14)

He also stated that there is no difference between the types of their product LPG gas to other commercial LPG gas, except that "ang aming supply patungo sa costumer ay pine in at vapor form tapos ay regulated na ang pressure." (Sagot 15) Their LPG supply is from Pilipinas Shell and transported to their Tank Farm by a lorry truck and hauler EMME Subic. That the delivery is two (2) to three (3) times in a week. That the LPG contains Propane and Butane in which Butane is 70% and Propane is 30%. That there are no other chemicals mixed with it, and that the LPG product has a mercaptan odorant.

He said that Bonifacio Gas Corporation is a joint venture of Pilipinas Shell at Fort Bonifacio Development Corporation.

He said that if there is a leak inside Serendra, their maintenance is the one who should shut off the main valve inside the building.

He averred further that they do not have a chemist but they have a portable gas leak detector with Cosmos and Mirico Brand which were all brand new and were just purchased this year.

That in case of accident and or emergency they have an Emergency Response Plan.

**18. SS of MR. EPHRAIM SILANG y BRAVO<sup>33</sup>**, 40 years of age, male, married and resides at 44 Yale St., Brgy. E. Rodriguez, Cubao, Quezon City, a native of Pangasinan, currently employed at Bonifacio Gas Corporation as a Technical Manager, finished Bachelor of Arts in Mechanical Engineering at Saint Louis University, Baguio City, a registered mechanical engineer since 1997, he narrated that the owner of the Bonifacio Gas Corporation is partly owned by Pilipinas Shell and Fort Bonifacio Development Corporation, the General Manager is Dennis Palomar. He said that the supplier of their LPG gas to their plant is Pilipinas Shell. He further stated that the storage tank of their LPG is four (4) with 11,400 gallons capacity each but just 85% of the capacity is used. He also said that there is no LPG meter installed in the tank farm. He disclosed that the distribution of the LPG from the tank to the client is it comes from a lorry truck of EMME – Subic Company who is a hauler of Pilipinas Shell which delivers it to the storage LPG tank farm in a liquid form. From the storage tank, the liquid form LPG will be pushed upwards by the pressure of about 60-80 psi going to the metallic piping coil with a vaporizer inside it that has a hot water with a temperature of about 60-70°C so that the liquid LPG will transform into gaseous state. After that, the gaseous LPG will go through the first stage regulator to maintain the 15 to 20 psi going to the distribution system that supplies the buildings.

He further stated that what he knows about the ratio of propane and butane of a typical commercial LPG is 30% and 70% respectively. Ethyl Mercaptan is also mixed with the LPG. He disclosed that during delivery, a tank has 80% of LPG inside; they open the bleeder to determine the liquid level if it reached the fixed ullage gauge, at this point they can already smell

<sup>33</sup> Based on SS of Ephraim Silang, attached as Annex "JJJ".

that there is an odorizer from the LPG. After the delivery, when they unplug the hose there is usually a foul smelling odor that the tank emits.

That they use medium density polyethylene pipe or MDPE for their LPG distribution system. That the sizes are: for the mainline is 8 inches, branch line is 4 inches, service line is 2 inches but the service line depends on the demand of the client. One Serendra, Two Serendra, and Serendra Commercial has one service line each with 4 inches in diameter (Sagot 18). The length of the whole LPG main distribution system is about 8km within Global City. The piping line from the tank farm to the service line at Two Serendra is about 2.5km that can be found at the basement.

He enumerated the safety features of their LPG distribution system which are as follows: at the tank farm, there is an excess flow valve that closes if it detects a sudden flow of gas like if there is a sudden damage from the lines; another is an emergency shut off device that can close all the valves at once; there is also a seismic valve that closes if it detects tectonic movements from the ground. And in case the valves would not work, there is a manual shut off valve. The tank farm is also equipped with gas leak detectors that sounds an alarm if there is a gas detected and a sprinkler system will activate in case there is a fire. There is also a "fire water tank" that holds 10,000 gallons of water; there is a nearby fire hydrant outside the tank farm. At the pipeline distribution system, there is a sectional valve to isolate the pipeline that is broken.

**19. SS of JOSELITO ZAMORA y CALUZOR<sup>34</sup>**, 39 years of age, married, carpenter under RML (Richard Macuja Ladrido) Construction Services, born at Dingalan Aurora, whose parents are originally from Naval, Leyte, currently residing at Phase 4, Package 5, Block 16, Lot 1, Bagong Silang, Caloocan City, that he started to work on the said unit on April 01, 2013 wherein he made a cabinet, bed, and TV rack for Unit 501B. He made the cabinet at a warehouse of their foreman Manuel Gruta in Marikina City, since the tools are there and it is their working area. On April 15, 2013, they brought the items to Unit 501B of Two Serendra for installation.

On May 18, 2013 he was able to finish the job but there were still workers that came the next Monday, the owner was there and slept on the unit on May 21, 2013. Somebody called their boss telling them that repairs are still needed on the items they have made, that is why on May 23, 2013, there were still workers that had worked on the unit and done some cleaning. On May 28, 2013, he went back to the unit and brought the "punchlist".

That he made four (4) cabinets; one for the Master's Bedroom, one for the Guest Room, one for the living room beside the main door, and one for the comfort room. Two (2) bed casings, and two (2) TV racks (Sagot 25). He also has done carpentry works on the kitchen wherein he has removed the shelves to put the washing machine inside. It was not included in his job but he was instructed by Manny (Manuel Gruta) to do it.

**20. SS of SHERHAN MOHAMMAD y PICCIO<sup>35</sup>**, 26 years of age, single, residing at No. 1246 Rosarito Street, Sampaloc Manila and native of Zamboanga City. He said that he is working as a Technical Assistant or Building Engineer of Worksavers Personnel Services Incorporated and is assigned at Two Serendra, he stated that on January 14, 2013, they received

<sup>34</sup> Based on SS of Joselito Zamora, attached as Annex "NNN".

<sup>35</sup> Based on SS of Sherhan Mohammad, attached as Annex "LLL".

a proposed plan through an electronic mail of C+ G Design Studio, contractor of Marian Cayton, the unit owner of unit 501B. The scope of work of the proposed renovation on Unit 501B, as he could remember was to make the one bedroom into two bedroom unit, but he could not remember the details. He made sure that the LPG line was not included in the proposed plan, but he was not sure if the sprinkler system was included.

That after the renovation of Unit 501B, he was not able to make an inspection since the unit owner has not made their own final inspection and has not submitted a final as-built plan that would be the basis for their inspection.

As he can recall, before the explosion happened, the unit owner or the contractor of Unit 501B has already requested for a final inspection but the as-built plan still needs to be submitted to be the basis of their inspection.

That when Unit 501B was renovated, there was no building permit from the Building official nor from the Bureau of Fire.

**21. Affidavit executed by SFO1 PEDRITO R POLO<sup>36</sup>**, 45 years of age, married, presently residing at #48 Col. Bravo Street, Zone 3, Signal Village, Taguig City, a member of the Bureau of Fire Protection and designated as Investigator at Taguig City Fire Station, Taguig city, stated the following:

"1. That on 05 June 2013, on or about 1400H, verbal instruction was received by SINSP FELIX ABAD from Officer-in-Charge, BFP and was relayed to the undersigned;

2. That, about 1525H of 05 June 2013, the undersigned was tapped by SINSP Abad to assist him to do sniff tests on the nearest restaurant which is the Brazilian Restaurant at Two Serendra. Accompanied by the Security Guard of lobby BA, we asked permission from the restaurant manager to check their kitchen area and to turn on the burner, without flame to test its odor. Since SINSP Abad is having a problem with his sense of smell at that moment, he requested me the do the sniff test as well, and we came out with the same result that it is negative of Mercaptan odor. The first sniff test on the burner came out negative. After a while, we went back to the command post to report the said activity. We were told by the representative of Bonifacio Gas farm to have it checked again; and

3. That, at 1535H, we went back to the said restaurant with the General Manager of Boni Gas Mr. Dennis Palomar and observed the same procedure. But this time, the Boni Gas personnel requested the chef to turn off the exhaust fan. Again, I was requested by SINSP Abad to do sniff test, and by this time, I was able to smell the Mercaptan from a distance of more or less one to two inches from the burner."

That the said sniff test was witnessed by **22. FSINSP FELIX L ABAD<sup>37</sup>**, 52 years of age, separated, presently residing at #165D, Santolan Road, West Crame Extension P1, San Juan City, a member of the Bureau of Fire Protection and designated as Chief Personnel/Chief PIS at Headquarters Fire District IV, NCR.

<sup>36</sup> Based on Affidavit executed by SFO1 PEDRITO POLO, attached as Annex"LLLL".

<sup>37</sup> Based on Affidavit executed by FSINSP FELIX L ABAD, attached as Annex"KKKK".

**23. S.S CHRISTIAN MA RIVERO y VIACRUSIS<sup>38</sup>**, 29 years old, married, Property Manager of Ayala Property Manager Corporation or APMC and assigned at Two Serendra, residing at 1716 M.H del Pilar Street, Malate, Manila and a native of Olangapo disclosed tha the electric and LPG facilities were managed by Utilities Management Group or UMG or Direct Power and the Water was managed by the APMC.

That the renovation of unit requires the approval of Engineering Department through the recommendation for approval of Building Engineer, Engr. Sherham Mohammad which will be approved by Chief, Engineer Rio Escote including the affiant. That the Engineering Department will require the following: Scope of Works, preliminary plans, name of workers with NBI or police clearance, authorization letter from unit owner, construction bond worth fifty (50) thousand pesos, security and maintenance fee five (5) thousand pesos a month.

He said that based on their records the renovation of unit 501B last April 2013 had approval. (Sagot 14). That their must be a fire extinguisher inside the unit, and that they must wear shoes, pants and working clothes.

That based on their record Marianne Cayton the unit owner of 501B gave authorization to Mr Angelito San Juan dated May 31, 2013 to June 9, 2013. He further said that the unit owner has no duplicate copy of key of LPG Meter Cabinet. Finally he said that the owner is responsible for the permit in renovation, and their role was to see to it that the renovations was compliant to the construction and design outlines of Condominium Corporation.

**24. S.S. of DAVE ANDREW OPIISO y FRANCISCO<sup>39</sup>**, 42, years old, married, employed at Direct Power Services Inc., as Associate Director since April 2012 to present, residing at 19 Sarmiento town Homes, Sanville Subdivision, Culiati, Quezon City. He stated his duties and responsibilities as Associate Director of Direct Power as responsible to the general management of the staff or employee assigned at department like Retail Electricity Supply (RES) Department, Research and Development (R & D), and Utilities Management Group (UMG).

He said that they were tasked to do the daily management of electricity and LPG distribution facilities of Serendra Inc at Two Serendra, like customer services, requests for activation and de-activation of electricity and LPG of a unit, complaints and clarification on facilities under the Serendra Inc., meter reading for billing of unit owners and represent the Serendra Inc any matters in connection with electricity and LPG. (Sagot 7)

He revealed that Serendra Inc was the developer of Two Serendra and the owner of electricity and LPG distribution facilities and the scope of distribution facilities started from mother meter until to the unit sub meters, and the Direct Power tasked by Serendra Inc to do the facilities management of electric and LPG distribution facilities on Two Serendra, and the Direct Power was the sole provider of Serendra Inc and had no connection to the unit owners. (Sagot 8)

<sup>38</sup> Based on SS of Christian MA Rivero attached as Annex "MMMM".

<sup>39</sup> Based on SS of Dave Andrew Opiso, attached as Annex "NNNN".



He averred that it is mandatory in the policy of Serendra to have a gas detector and automatic shut-off device before activation of the LPG supply in a unit (Sagot 19).

That the unit owner is not authorized to open the LPG cabinet door especially in the opening of ball valve of LPG and there is a procedure to follow in the request of activation or deactivation (Sagot 20).

That according to the House Rules of Serendra Condominium Corporation, the first responsibility of unit owner is to have an automatic LPG safety device and it is their responsibility to inspect for their safety and they were provided with safety tips that were printed at the back of their billing statement (Sagot 21-22).

That if the unit owner will not occupy the unit they have to request for temporary deactivation of LPG supply (LPG safety tips) and reactivate if they return but if no request made by the unit owner, and that they don't have the right to deactivate the LPG supply, (Sagot 23) the same procedure on renovation of unit. He further stated that "Pag may lindol ang earthquake valve ang gagana na ang intensity ay at least 4, mayron din sa main LPG room kung saan nandoon ang tatlong mother meter ng Two Serendra ng gas leak detector na may automatic shut off device, at sa mga riser naman ay merong manual shut-off valve" (Sagot 25).

**25. SS of MARY JOY M CRUZADO<sup>40</sup>**, 31 years old, single, presently residing at Lot1 Blk 2 Phase 11 Victoria Ville, Panapaan, Bacoar Cavite, working as Utilities Officer at Direct Power Services Inc. (DPSI), she said that the schedule of maintenance of electricity is annual while the LPG is semi-annual. Only electricity and LPG is owned by Serendra Inc., which is under their responsibilities, while inside the unit resident it is the responsibility of the unit owner as it is private property (Sagot 28 - 29). If there are problems to electricity and LPG they directly report it to Admin of Serendra Condominium Corporation (SCC) and the APMC will respond to them (Sagot 29).

She further averred that the Power Partners is the contractor for electrical while Mecha Trends for LPG. Both have a contract with the UMG Serendra Inc., The DPSI subsidiary of Ayala Land. The DPSI organizational structure composed of Alfie Reyes, Chief Operating Officer, Dave Opiso, Associate Director, under Mr. Opiso two (2) Sub-unit; Retail Electricity Services (RES) and Utilities Management Group (UMG). The RES officer is Pinky Lambino while she is for UMG Serendra, Marvin Punsalan (Serendra), Earvin Narvacan (Serendra), Rochelle Galang (The Columns and Legazpi Village-TCLV) and Jennifer Ignacio (Celadon Park and Residences) (Sagot 38).

**26. S.S of CHARICE BENETUA y DUMOGHO<sup>41</sup>**, 36 years old, married, presently residing at no. 89-F Mapang-akit St., Brgy Pinahan, Quezon City. Stated that on June 22, 2012 when Marriane Cayton unit owner of 501B contacted and asked her for interior design services, and on August 29, 2012, she approved the final design submitted by them. (Sagot 9)

That she contacted the RM Ladrido Construction on October 29, 2012, and on December 5, 2012, RM Larido e-mailed the Final Quotation to their company which they immediately e-mailed to Marianne for approval (Sagot

<sup>40</sup> Based on SS of Mary Joy Cruzado, attached as Annex"OOOO".

<sup>41</sup> Based on SS of Charice Benetua, attached as Annex"III".

16). That by December 6, 2012, Marianne accepted the proposal of RM Ladrado (Sagot 17).

January 14, 2013 they e - mailed Engr. Mohammad (Engineer in-charge of Two Serendra) proposed designed drawings and he replied on January 22 with notes of Renovation, Guidelines and Other Requirements for the Contractor to Comply. And they sent the e-mail of Engr. Mohammad to RM Ladrado for compliance. (Sagot 18).

During one of her visits, around the first week of May 2013, Manuel Gruta, foreman of RM Ladrado, suggested that they need to adjust the cabinet as their original layout was not possible and she answered, "Okay as long as walang tatamaang linya at magpaalam sa Admin ng Serendra." (Sagot 42) That Engr. Mohammad or any representative of Two Serendra Admin does not accompany them on site visits instead the Security Guard escorted them to the unit (Sagot 43). Her statement was corroborated by **27. GAIL GOCHANGCO y GONZALES**<sup>42</sup>, 37 years of age, single, an Interior Designer, residing at No. 54 Cenacle Drive Sanville, Quezon City. She stated that she is an Interior Consultant and Marketing at C+G Interior Design Studio.

**28. SS of JOHN ALER y MADERA**<sup>43</sup>, 46 years old, married, employee of Makati Development Corporation as one of the Supervisor Mechanical, Electrical, Plumbing, Fire Protection and Sanitary (MEPFS), residing at 756 Josefina Street, Sampaloc, Manila and a native of Bicol (Sagot 4).

In his sworn statement dated 12 July 2013 stated that "xxx yung human waste na galing sa mga condominium Units ay mayroon siyang collector pipe na kong tawagin ay Soil Pipe (SP) na plabas ng building pa punta sa pipe line sa Central Sewage Treatment Plant (STP) ng Bonifacio Global City (BCG) at yung sa sewer naman ay isa (1) lang matatagpuan sa Basement 2 Section C at ang napupuntang dumi doon ay galing sa Compost Room ng Common Area ng Basement 1 & 2 at kung tungkol naman sa Sump Pit ay tatlo (3) po na matatagpuan sa Basement 2, Section B & C ang pumapasok sa Sum Pit ay mga tubig lang na galing sa parking drain, plenum drain, oil interceptor overflow at perforated pipe." (Sagot 21) Further, stated that "Ang main collector ay Poly Vinyl Chloride (PVC at size ng bawat isa ay dalawang (2) 6 inches (150 mm diameter) at dalawang (2) 8 inches (200 mm diameter) at ang nasasakupan nito ay building BA at BC." (Sagot 22). When the affiant asked why the human waste does not pass thru the sewer/sump pit of Two Serendra and goes directly to Central Sewage Treatment Plant of BGC he answered that "Kasi po ang standard ng Bonifacio Global City ay Centralized ang Sewage Treatment Plant (STP) at hindi pinapayagan na magkaroon sa loob ng building ng Sewage Treatment Plant (STP o kaya ay Septic Tank." (Sagot 23) His statement was corroborated by witness **29. RYAN JOSEF GARVIDA y SANTOS**<sup>44</sup>, 24 years old, single, Worksavers Personnel Services, Inc. assigned at Two Serendra as Technical Assistant, a resident of No. 5323 Diesel Street, Barangay Palanan, Makati City and a native of Ilocos Norte.

## VI. ANALYSIS/FINDINGS:

### A. TIME LINE / SEQUENCE OF EVENTS LEADING TO EXPLOSION

<sup>42</sup> Based on SS of Gail Gochangco, attached as Annex"IIII".

<sup>43</sup> Based on SS of John Aler, attached as Annex"PPPP".

<sup>44</sup> Based on SS of Ryan Josef Garvida, attached as Annex"UUUU".

**Note:** *The following sequence was based on submitted pertinent documents/certificates and sworn statements.*

- 25 October 2004**      **Building Permit** No. BP - 648 - 04 dated 25 October 2004 for Dist 2, Sect B & C signed by ARCH. HILDA P. CANDELARIO, Local Building Office, Taguig City.<sup>45</sup>
- Sometime in Nov 2004** **Section Belize was constructed where Unit 501B was located**
- 1 Aug 2007**      **FSIC for Occupancy Permit** signed by CINSP VIRGILIO B DE LA PAZ, Fire Marshal, was issued to SERENDRA I - B;
- 22 April 2008**      **Certificate of Occupancy** No.15 - 08 - 0104 dated 22 April 2008 for Serendra Dist. 2, Sec. B, Tower BA was issued by ARCH. HILDA P. CANDELARIO, Local Building Office, Taguig City.<sup>46</sup>
- 22 Apr 2008**      **Cert. of Occupancy** for Serendra Dist. 2 Sec. B. Tower BA signed by Arch. Hilda P. Candelario, Local Building Office;
- 13 May 2008**      **FSIC for Occupancy Permit** signed by INSP ROLANDO T REODIQUE, Acting City Fire Marshal was issued to Serendra Inc., District SEC B<sup>47</sup>;
- 17 Aug 2009**      **Sometime in 2007 Marianne Cayton purchased Unit 501B but Condo Certificate Title No. 2877 for Unit 501B was issued only in 2009**<sup>48</sup>;
- 27 Jan 2011**      **Certificate of Operation Airconditioning System / Mechanical Ventilation** for Two Serendra Phase 2A, Section B & C, Fort Bonifacio, Global City, Taguig City signed by ENGR. MARCELO M. SERPA JUAN<sup>49</sup>;
- Certificate of Operation Machinery** for Two Serendra Phase 2A, Section B & C, Fort Bonifacio, Global City, Taguig City signed by ENGR. MARCELO M. SERPA JUAN, Building Official<sup>50</sup>;
- 24 Feb 2011**      **Certificate of Annual Electrical Inspection** for TWO SERENDRA CONDOMINIUM CORPORATION signed by ENGR. MARCELO M. SERPA JUAN, Building Official;<sup>51</sup>
- 21 June 2011**      **FSIC for Business Permit** with Control No: R16 - 85892 signed by CINSP JUNITO F MASLANG was issued to TWO SERENDRA<sup>52</sup>

<sup>45</sup> Per letter of Atty. Jose Luis G. Montales, OIC, Office of the City Administrator, Attached as Annex "V";

<sup>46</sup> Per letter of Atty. Jose Luis G. Montales, OIC, Office of the City Administrator, Attached as Annex "V";

<sup>47</sup> Attached as Annex "F";

<sup>48</sup> Per Sworn Statement of Marianne Cayton dated 7th June 2013, attached as Annex "DDD";

<sup>49</sup> Annex "XIX";

<sup>50</sup> *Idem*;

<sup>51</sup> *Idem*;

<sup>52</sup> Attached as Annex "G";

<b>21 March 2012</b>	<b>Certificate of Operation Machinery</b> for Two Serendra Phase 2A, Section B & C, Fort Bonifacio, Global City, Taguig City signed by ENGR. MARCELO M. SERPA JUAN, Building Official; <sup>53</sup>
	<b>Certificate of Operation Airconditioning System / Mechanical Ventilation</b> for Two Serendra Phase 2A, Section B & C, Fort Bonifacio, Global City, Taguig City signed by ENGR. MARCELO M. SERPA JUAN, Building Official <sup>54</sup>
<b>15 August 2012</b>	<b>Certificate of Annual Electrical Inspection</b> for TWO SERENDRA CONDOMINIUM CORPORATION signed by Engr. Marcelo M. Serpa Juan, Building Official <sup>55</sup>
<b>22 Nov 2012</b>	<b>FSIC for Business Permit Application with Control No: R- 16 - 91077</b> <sup>56</sup>
<b>1 Apr - 29 May 2013</b>	<b>Renovation of Unit 501B owned by Marianne Cayton</b>
<b>07 May 2013</b>	<b>Flexible hose of gas range was disconnected by Reynel Infante and moved the range to the living area (sala).</b> According to Clotildo Cuizon Jr, "Bago ginawa ang cabinet ng washing machine noong may 7, 2013 ay pinatanggal muna ni Manuel Gruta kay Reynel Empante ang LPG hose na nakakabit sa gas range, at pagtanggal ni Reynel ay inamoy nya at sabi nya ay patay naman daw dahil wala naman syang naamoy o kaya ay lumabas na hangin mula sa hose, at pagkatapos ay nilabas ang gas range mula sa kinalalagyan niya at nilipat sa sala ang gas range para makakilos ng maluwag ang karpentero." <sup>57</sup> This was corroborated by Joselito Zamora. <sup>58</sup>
<b>22 May 2013</b>	<b>Last visit of Marianne Cayton of Unit 501B to check the progress of the renovation</b> <sup>59</sup>
<b>23 May 2013</b>	<b>Turn - over by RM Ladrado and "c+g Interior Design Studio" to the Unit Owner Marianne Cayton.</b> However, owner gave punch list for retouch of painting, cleaning the bathroom and the two (2) bedrooms
<b>27 May 2013</b>	<b>Manuel Gruta instructed Clotildo Cuizon Jr and Dennis Dumaguing to return to Unit 501B to clean and retouch splatter of paint.</b> <sup>60</sup>
<b>28 May 2013</b>	<b>As per Manuel Gruta he instructed Clotildo and Dennis to finish the cleaning and retouching - they said that it</b>

<sup>53</sup> Annex "XIX";

<sup>54</sup> *Idem*;

<sup>55</sup> *Idem*;

<sup>56</sup> Attached as Annex "H";

<sup>57</sup> Extracted from Supplemental Statement of Clotildo Cuizon Jr, attached as Annex "EEE";

<sup>58</sup> Statement of Joselito Zamora, attached as Annex "NNN";

<sup>59</sup> Per Sworn Statement of Marianne Cayton, attached as Annex "DDD";

<sup>60</sup> Extracted from SS of Clotildo Cuizon, corroborated by Manuel Gruta, attached as Annex "EEE" & "FFF" respectively;

was finished already. Thus, he told them to return on 29 May 2013 to clean the unit.<sup>61</sup>

29 May 2013

Clotildo Cuizon and Dennis Dumaguing completed the cleaning of Unit 501B, that per Clotildo Cuizon "natapos namin ang aming trabaho ng hapon, at mga bandang 5PM sinarado ko na po ang pintuan ng Unit 501B, pero bago kami umuwi ay pinatay ko muna ang main breaker ng kuryente at sinara naman ni Dennis Dumaguing ang valve ng tubig pagkatapos ay umuwi na po kami at dinala ko ang susi sa aming bahay."<sup>62</sup>

30 May 2013

Angelito Inlayo, turned-over the key of Unit 501B to Alicia Mendez, and that Inlayo connected the faucet for washing machine.<sup>63</sup>

31 May 2013

There's a temporary power interruption to give way for the annual preventive maintenance of electric facilities in Two Serendra from 8AM to 5PM as per certification issued by John Inovero, Head Concierge and Jorge Ibarreta, District Property Manager, Serendra dtd May 23, 2013. "The affected towers will have emergency power from the property generator."<sup>64</sup>

As per Alicia Ochoa - Mendez at around 5:21AM her husband, son Arlean and Herminia, fetched (Angelito) San Juan at NAIA -2, who arrived from "Amerika" on board Philippine Airlines. That past 6AM they ate at Mcdo then at around 6:30 AM Angelito San Juan, Herminia Ochoa, Spouses Alicia Mendez and Ariel Mendez, and their son Arlean Mendez arrived at unit 501B. That upon arrival at unit 501B, and as an SOP, utilities were opened/turned-on including LPG valve inside the LPG meter cabinet of Unit 501B by Ariel Mendez per statement of Herminia Ochoa, "Si Ariel Mendez po kasama si Alicia na kanyang asawa"(Sagot 11).<sup>65</sup> This was confirmed by Alicia Mendez in her statement" at yung asawa ko naman ay binuksan ang tubig at supply ng LPG sa may cabinet sa labas ng unit 501B" (Sagot 19).

1:27PM The security logbook at the Lobby recorded that San Juan complaint of "no power"

At around 1:53PM Angelito San Juan texted Herminia Ochoa that, "There is no power in the condo." Then at 1:55PM Herminia Ochoa phoned Angelito San Juan and the latter informed her, "I feel suffocated." (Sagot 09)

That from 7:19PM to 7:46PM Herminia called 14 times Mr. Angelito San Juan on her cellphone but San Juan did not

<sup>61</sup> Extracted from SS of Manuel Gruta, attached as Annex"FFF";

<sup>62</sup> Extracted from SS of Clotildo Cuizon, Sagot 09, attached as Annex"EEE";

<sup>63</sup> Extracted from SS of Angelito Inlayo, Manuel Gruta and Alicia Mendez, attached as Annex"MMM", "FFF" & "GGG" respectively;

<sup>64</sup> Per letter dated May 23, 2013 signed by John Inovero and Jorge Ibarreta, attached as Annex"XVIII";

<sup>65</sup> Per SS of Herminia Ochoa in Sagot 11, attached as Annex "HHH", this was corroborated by Alicia Mendez in her SS, attached as Annex"GGG";

respond, she then went up to Unit 501B, Mr San Juan said "sorry natulog ako magbihis lang ako." She said "Hintayin kita" and around 7:57PM while waiting for San Juan in front of the Drop - Off Lobby, Two Serendra, **she heard a loud explosion.** Thereafter, she saw Angelito San Juan in front of the Lobby with blood dripping from his two hands. **She immediately approached and asked him what happened?** He replied "I turned on the door knob I heard an explosion I was thrown on to the floor and I felt electrocuted" (Sagot 06)

**8:20 PM** "The UMG Contractor personnel heard of loud blast, immediately they run towards LPG main room and shut off the valve"<sup>66</sup>

**9:30 PM** "The electric power supply was off."<sup>67</sup>

*(Note: The following sequence was based on the CCTV footage on 31 May 2013. "the existing time recording programmed in the CCTV Monitoring installed at Two Serendra to include Drop-off lobby/Tower lobby and elevator. Based on GMT + 8 Meridian Time, it was pattern on biometric used by Security Time-in and Out." as per Certification by JEFFREY R. DAGDAG, CSP, Chief Security Two Serendra Condominium dtd July 15, 2013 attached as Annex "XIII".)*

**CH 14** **(Note: CCTV Channel 14 was installed at the drop - off Lobby Section B and C)**  
**6:51:37** - Alicia Mendez entered the drop-off lobby Section B C;  
**6:51:52** - Angelito San Juan entered the said lobby;  
**6:51:54** - Herminia Ochoa also entered the said lobby;

**CH 1** **(Note: CCTV Channel 1 was installed inside Elevator No.2 at the BA and BB)**  
**6:54:20** - San Juan, Herminia and Alicia were seen inside the elevator for Section B Tower A the building where 501B was located;  
**6:56:57** Ariel Mendez and son Arlean were seen entering the elevator carrying luggages and One (1) box.

**CH 2** **(Note: CCTV Channel 2 was installed inside Elevator No.1 at the BA and BB)**  
**7:28:54 AM** San Juan, Herminia and Alicia, Ariel and Arlean were seen entering the elevator (at the 5th floor, Section B Tower A where 501B is located on their way out of the building)

**Ch 1**  
**PM**  
**13:26:06** A security guard and San Juan were seen entering the  
**(1:26:06 PM)** elevator carrying groceries

<sup>66</sup> Per Report signed by JEFFREY R DAGDAG, CSP, Chief Security, Lanting Security & Watchman Agency dtd June 1, 2013, attached as Annex "XIII";  
<sup>67</sup> *Idem.*

**CH 11 (Note: Installed at the lobby of BA and BB)**

**19:41:35 (7:41:35 PM)** *Herminia Ochoa seen at the building Lobby of BA;*

**19:47:50 (7:47:50PM )** *Herminia was seen waiting at the Lobby area of BA*

**19:56:32 (7:56:32PM)** *Herminia was seen at the drop off area of B & C*

**19:59:31 (7:59:31PM)** *Momentary flash of light can be seen at the back of the Security Guard counter*

**CH 2**

**19:59:31 (7:59:31PM)** *A woman in yellow shirt with red back pack was seen inside the Elevator 1, when the Blast Pressure Front reached her.*

**CH 2**

**19:59:32 (7:59:32PM)** *Two (2) unidentified women inside the Drop-off area instinctively covered their ears when they heard the explosion.*

**CH 14 (Note: CCTV Channel 14 was installed at the drop - off Lobby Section B and C)**

**20:00:43 (8:00:43 PM)** *SG Ramil was seen at the drop - off B & C lobby getting hold of a Fire Extinguisher.*

**20:02:57 (8:02: 57 PM)** *Angelito San Juan (upper clothing singed) was seen at the drop off lobby of Section B&C shortly after the explosion assisted by SG Nebster Falcasantos and Jhonmer Campo.*

**20:07 (8:07 PM)** *After the explosion The Fire Alarm triggered after the blast. (Control Panel (FACP) located at the Centralized Command Center at Basement 1 Security Office.)<sup>68</sup>*

#### **B. The ruling out of Bombing Angle as the cause of the explosion -**

We concur to the ruling out of the presence of explosives/explosive ingredients based on the following:

##### **a. PNP Technical Support Platoon, Regional Public Safety Battalion signed by PSR INSP LEONIE ANN D. APALING, Platoon Leader dtd June 1, 2013 -**

"The Explosive Detection Canine have not shown any reaction indicating positive presence of explosives." Thus, the paneling operation was negative of Improvised Explosive Devices (IEDs) and explosive materials."

<sup>68</sup> Per Certification by Jeffrey R Dagdag, attached as Annex "XIII";

- b. PNP SPD SRU/EOD signed by PSR INSP MORRIS W GUMSINGAN dtd June 2, 2013 -**

" Finally, analysis made by EOD teams revealed that the caused of blast site maybe a gas explosion (pressure of confined gas) that made the wreckage of the unit and the damages of some other unit. Furthermore, the initial swabbing examination result of SOCO revealed that there was no presence of explosives."

- c. PNP, DISTRICT SPECIAL WEAPONS AND TACTICS/BOMB SQUAD,SPD Report signed by PCINSP ARIEL SOLOMON BAIT, Chief, DSRU/BOMB SQUAD dtd June 3, 2013 -**

" No signs of were manifested by all K9 dogs to indicate any presence of explosive components."

- d. PNP SPD Crime Laboratory, NExamined by PSINSP RENDIELYN L. SAHAGUN, Forensic Chemist, and Approved by PCINSP ABRAHAM V TECSON, Chief Chemistry Section dtd 06 June 2013-**

Re: Chemistry Report No. C-118- 13 - "NEGATIVE RESULTS to the tests for the presence of explosives and /or explosive ingredients.

- e. NATIONAL BUREAU OF INVESTIGATION Report signed GEORGE J DE LARA, Forensic Chemist II Forensic Chemistry Division (FCD) dtd July 1, 2013 -**

Physics Report Nos. P-13-129 and 130 – Swabs taken from the area of the explosion site gave "NEGATIVE RESULTS for the presence of explosives residue."

**Certification (RE: 13-129) dtd July 1, 2013 "NEGATIVE RESULTS for the presence of explosive and/or explosive ingredients i.e. TNT,PETN, Amatol,RDX,C-4, Black powder and ammonium Nitrate Fuel Oil (ANFO)"**

- f. NBI - COUNTER TERRORISM DIVISION Report signed by SI MAR SANTOS, Team leader, PBIU, Counter Terrorism Division and approved by ATTY. NONATUS CAESAR R. ROJAS, Director, NBI dtd June 6, 2013 -**

" After having processed the Inner Quadrant I (IQ1)which was nearest to the doorway of the Unit, the investigator found no signs of any seat of explosion. Likewise there was no crater either (Fig 39).

" The debris collected from IQ2, IQ3 and IQ 4 were examined and yielded no component or part of an explosive device. Soil sampling, which is procedural in PBI for examination for presence of explosive material/residue, cannot be made as there was **no crater found** in said unit."

" Also noteworthy is the fact that the mirror on the sheer wall inside Unit 501-B only sustained minor damage. This may be caused by the absence of a shattering effect which is on o the characteristics of an



explosion caused by a bomb or an explosive device (Fig. 48 and 49)

**C. The ruling out of other Flammable substances is based on the following:**

**a. NBI - FORENSIC CHEMISTRY DIVISION** Certification (P-13-121) signed by GEORGE DE LARA, Forensic Chemist II dtd June 11, 2013 – " Laboratory examinations conducted on the above mentioned specimens gave **NEGATIVE RESULTS** for the presence of Flammable Substance.

Certification (RE: 13-121) dtd July 1, 2013 signed GEORGE DE LARA, Forensic Chemist II - "NEGATIVE RESULTS for the presence of liquid flammable substance i.e. gasoline, diesel, lacquer thinner, kerosene, acetone, benzene, alcohol and other liquid organic compound." (ANNEX "TT")

**b. BFP - Arson Laboratory Section Report No. 2013-805-173** examined and prepared by SFO1 Ferlyn Marie T. Cabral, BFP and SFO1 Rhodora G Siena, BFP, approved by SUPT JOCELYN B COLLADO, Chief Arson Laboratoryb Section, dtd 04 July 2013 -

"Laboratory examination conducted on the above-mentioned specimen gave Negative Result for the presence of any flammable substance."

A certification signed by SUPT COLLADO dtd 26th July 2013 was issued in response to the letter of SRSUPT FENNIMORE V JAUDIAN,CFEI,CVFI, requesting to indicate what specific flammable substance included/covered under the "Negative Result for the presence of any flammable substance in the ALS Report No. 2013-805-173 dtd 04 July 2013 based on submitted partially burned brown paper marked as " C-248 - 13W, ASA", connotes the absence of " x x x gasoline, diesel, lacquer thinner, acrylic thinner, kerosene, acetone, paint, benzene, ethyl alcohol, methyl alcohol, toluene, isopropyl acohol, paint varnish, butyl alcohol, biodiesel and other liquid organic compounds." (ANNEX "CCC")

**D. The ruling out of Sewer (Methane) gas/air mixture explosion is based on the following:**

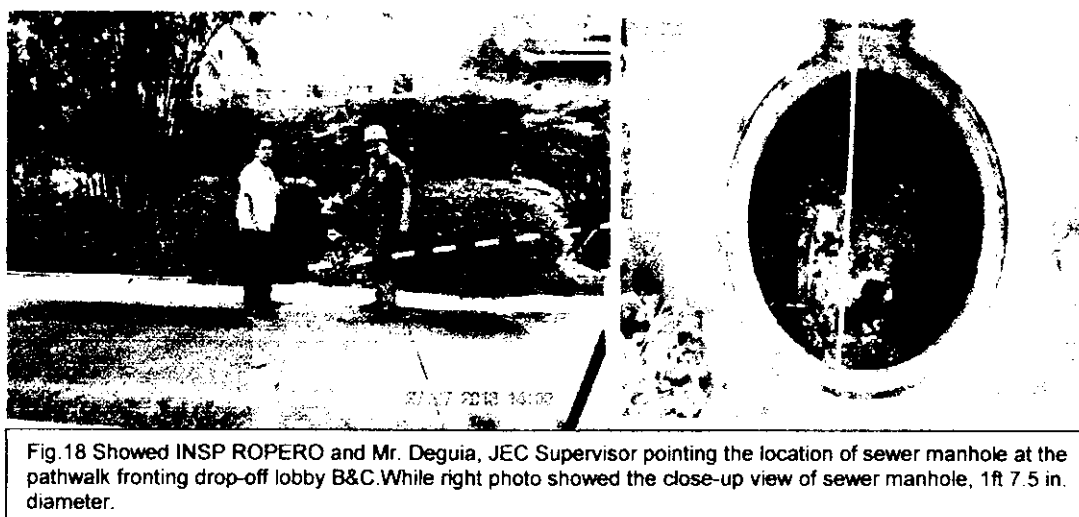
1. The nature of damage found at the Unit 501 B is consistent with the location of the fuel - LPGas is heavier than air (specific gravity air = 1.0, Propane 1.52 / Butane 2.0 - Pls. Ref: NFPA Table 18.8. Combustion Properties of Common Flammable Gases p. 136), that settled at the floor level, this is NOT consistent with Methane a lighter than air gas (Specific gravity air = 1.0, Sewage gas 0.79 - Pls Ref: NFPA Table 18.8). Further, the throw pillows that stuck at the ceiling and the Four (4) dinning chairs showed the following damages: legs broken and a hole left by the blast in each seat cushion - a clear indication that the involved fuel (LPG) was indeed located at the lower level;

2. "There's no indication as to the presence of Sewer gas/Methane in subject unit, because there's no septic tank in the

whole Section B Tower A (Pls. Ref: Technical Report of DR IDABEL BERNABE-PAGULAYAN, Forensic Consultant, IATF-DILG; and

3. That according to Engr. Ryan Josef Garvida<sup>69</sup>, Technical Assistant at Two Serendra - The human waste from condominium units had collector pipes called "soil pipe" that went outside the building going to the pipe line of Central Sewage Treatment Plant of Bonifacio Gas Corp. His statement was corroborated by Engr. Sherhan Mohammad and John Aler.

Ocular inspection conducted, we were able to trace the location of the sewer manhole where the human waste goes, which is located outside the building, approximately 49 meters from Tower BA. The location of the sewer manhole is in an open air and far apart from Tower BA and could not possibly accumulate methane at the said tower. (See figure 18)



## E. THE LPG EXPLOSION

### a. RENOVATION OF UNIT 501B

The "c+g Interior Design Studio" was contracted by Marianne Cayton for interior design services with regard to the renovation of Unit 501 where the final design was approved by Marianne on August 29, 2012 and RM Ladrado Construction Services was chosen by "c+g" to do the renovation job which Marianne accepted the quotation of RM Ladrado on 06 December 2012.<sup>70</sup> The scope of works for the renovation of Unit 501 according to Manuel Gruta, Supervisor/Foreman of RM Ladrado are: carpentry, painting, electrical, plumbing masonry and tile setting. The renovation was to make the original one bedroom into two bedrooms; demolished the concrete wall in between the bathroom and living room where the washing machine was; make cabinets for the two bedrooms; build beds for the two bedrooms; put open shelves near the main door and behind the CR under the TV; place the washing machine inside the cabinet beside the CR almost in front of the range; add partition inside the CR for the shower area; set tiles at the flooring of the demolished concrete wall area. laid tiles on the CR flooring and wall; put water supply and drain inside the cabinet where the washing was placed; transfer the circuit breaker behind the CR wall; add four (4) convenience

<sup>69</sup> Based on the SS of Ryan Josef Garvida (Sagot 08), attached as Annex "UUUU";

<sup>70</sup> Extracted from SS of Charice Benetua, attached as Annex "III" ;

outlets, two (2) in the new bed room, one (1) living room area and one (1) for the washing machine; added three (3) lights in the living room area just above the TV and transferred the outlet for the lights; built a drop ceiling where the sprinkler was raised from its original location, and painting of the whole unit.<sup>71</sup> (See also the scope of work for unit 501B submitted by C+G Interior Design Studio to Engineering Department of Serendra, attached hereto as Annex "XVI")

Based on our ocular examination of the kitchen area we discovered the following:

1. That the pantry cabinet was modified in order for the "Whirlpool" brand washing machine, front load type will fit in it. The increased in size of the said cabinet has greatly affected the area/space for the gas range, thus, the kitchen counter top with stainless sink and grease trap, was decreased in length by Eight inches and 73 centimeters (8.73 inches) in order to accommodate the size of the gas range (See Figure 19 & 20). Further, when counter top was cut Zamora revealed that he removed the gas leak detector which he described as "x x x mukhang kasing buzzer at kulay puti po to." from the siding where it was installed and later returned it there<sup>72</sup>. However, in order to have working space in fixing the cabinet and kitchen counter top, the gas range has to be moved to the living area and the flexible hose has to be detached. This was confirmed by Clotildo Cuizon Jr in his supplemental statement, "Bago ginawa ang cabinet ng washing machine noong may 7, 2013 ay pinatanggal muna ni Manuel Gruta kay Reynel Empante ang LPG hose na nakakabit sa gas range, at pagtanggal ni Reynel ay inamoy nya at sabi nya ay patay naman daw dahil wala naman syang naamoy o kaya ay lumabas na hangin mula sa hose, at pagkatapos ay nilabas ang gas range mula sa kinalalagyan niya at nilipat sa sala ang gas range para makakilos ng maluwa ang karpentero."<sup>73</sup> His statement was corroborated by Joselito Zamora.

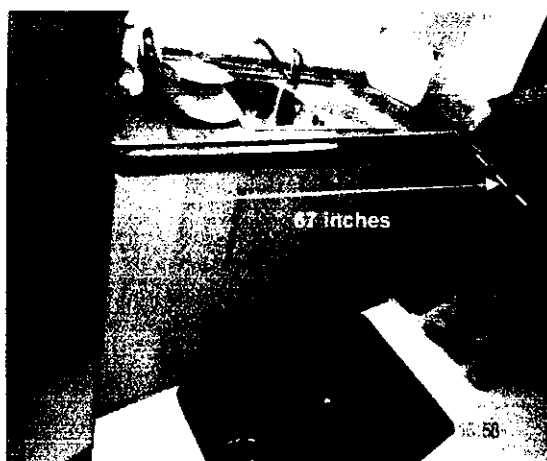


Fig.19 showed the typical size of kitchen counter top measuring 67 inches in length taken from Unit 802B.

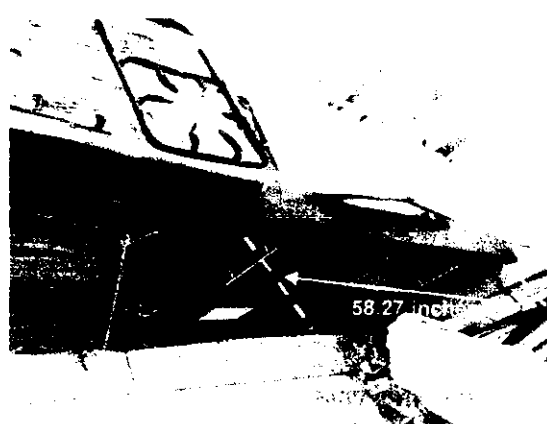


Fig.20 showed the kitchen counter top counter of unit 501B during explosion scene reconstruction measuring 58.27 inches, which showed that the length was reduced by 8.73 inches.

2. That the "Whirlpool" brand washing machine AWM 355 - Serial No. 02519425 (Size: **Lenght** 46 cm X **Width** 60 cm X **Height** 80) and Dryer - Brand, Model and Serial Number could no longer be found in the recovered parts - metal drum, Length: 40.64 cm (16 inches) and metal plate, that were recovered by SOCO, PNP at the scene of explosion and turned-over to IATF-CT, DILG. During the renovation the said washing machine and dryer was relocated from its original location to the kitchen area where the pantry cabinet was located. The typical size of the pantry cabinet is - Height 83 inches Width: 13.4 inches Length: 44 inches. With the said measurement

<sup>71</sup> Per SS of Manuel Gruta, attached as Annex "FFF";

<sup>72</sup> Extracted from Supplemental statement of Joselito Zamora dated 25 July 2013, attached as Annex "NNN";

<sup>73</sup> Extracted from Supplemental Statement of Clotildo Cuizon Jr, attached as Annex "EEE";

however, the washing machine and dryer will not fit inside the said cabinet. Thus, the pantry cabinet has to be increased in size towards the gas range area and the kitchen table top counter has to be decreased by shortening it by 9 inches. This was admitted by Charice Benetua, Interior Designer, in her statement that Manuel Gruta (Supervisor/Foreman of RM Ladrado suggested that they need to adjust the proposed layout as it is not possible, and she answered that, "Okay as long as no line will be affected and need to ask permission from the Admin of Serendra."<sup>74</sup> (See figure 21 & 22)

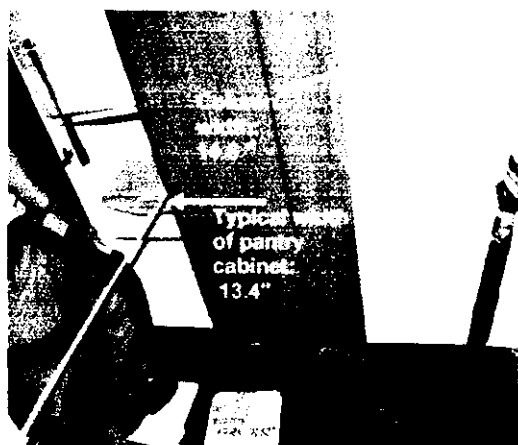


Fig.21 Showed the typical width of pantry cabinet at the kitchen area taken at Unit 301B and almost aligned with concrete column.

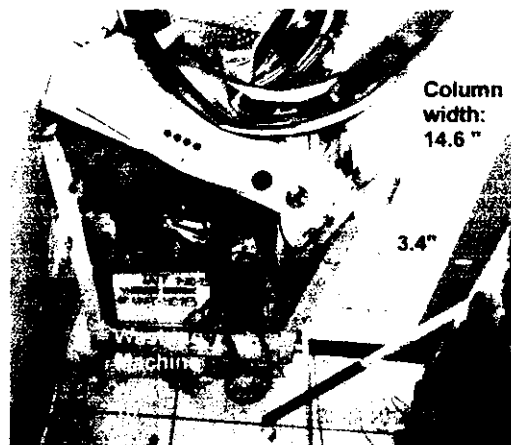


Fig.22 Showed during reconstruction at Unit 501B of the cabinet where the washing machine/dryer was relocated. The width of cabinet was increased to fit the wachine machine/dryer having a width of 18\".

3. Certification issued from the Building Official dated 12th July 2013 of Taguig City revealed that no Renovation Permit was issued to Marianne Cayton for the renovation of Unit 501B.<sup>75</sup> Likewise the Taguig City Fire Station issued a certification also that no Fire Safety Evaluation Clearance for the renovation of Unit 501B was issued.<sup>76</sup>

Futher, according to Engr. Sherhan Mohammad, Building Engineer at Two Serendra the renovation of Unit 501B had no corresponding Building Permit.<sup>77</sup>

#### **b. ESSENTIAL ELEMENTS OF GAS/VAPOR - AIR MIXTURE EXPLOSION:**

"In chemical explosions, the generation of high-pressure gas is the result of exothermic reactions wherein the fundamental chemical nature of the fuel is changed. Chemical reactions of the type involved in an explosion usually propagate in a reaction front away from the point of initiation.

Chemical explosions can involved x x x gases, vapors, x x x mixed with air." (Ref: Chapter 18. Explosions 18.2.3 Chemical Explosions. NFPA 921 2001 Edition p.132)

**1. Fuel Gases** - "Fuel gases such as natural gas and Liquified Petoleum (LP) gases, most often produce nonseated explosions. This is because these gases often are confined in large containers, such as individual rooms or structures and their explosive speeds are subsonic." (NFPA 921 2001 edition p. 135)

**2. Air as an oxidizer** - The atmospheric composition on Earth is largely governed by the by-products of the very life that it sustains. Dry air from Earth's

<sup>74</sup> Extracted from SS of Charice Benetua, attached as Annex "III";

<sup>75</sup> Per Certification from Building Official, attached as Annex "J";

<sup>76</sup> Per certification from Taguig City Fire Statton, attached as Annex "I";

<sup>77</sup> Per SS of Sherhan Mohammad, attached as Annex "LLL";

atmosphere contains 78.08% nitrogen, 20.95% oxygen, 0.93% argon, 0.038% carbon dioxide, and traces of hydrogen, helium, and other "noble" gases (by volume), but generally a variable amount of water vapour is also present, on average about 1%. (Ref: [http://en.wikipedia.org/wiki/Atmosphere\\_of\\_Earth](http://en.wikipedia.org/wiki/Atmosphere_of_Earth))

**3. The Initial Source of Heat** - The "Gaseous fuel-air mixtures are the most easily ignitable fuels capable of causing an explosion. Ignition temperatures in 700 °F to 1100 °F (370 °C to 590 °C) range are common. Minimum ignition energies begin at approximately 0.25 millijoules." (Ref: NFPA 921 2001 edition p. 136)

The coming together of the fuel in right concentration (LPG within the explosive limits), air as oxidizer and competent ignition source will caused an explosion.

### **c. INVESTIGATION DISCLOSED THE FOLLOWING -**

#### **c.1. Fuel Source**

There's one fuel involved in the explosion - The LPG vapor-air mixture coming from the detached black braided flexible hose (Fig. 22) with an opening of 9mm and pressure of 0.4psi the gas accumulated inside Unit 501B with Unit Volume of = 7.45m x 6.57m x 2.69m = **131.67cu.m**. The amount of gas that accumulated inside Unit 501B was reflected in the LPG meter of Unit 501B, at 35.22 cubic meters.

Prior to the explosion the initial LPG meter reading of Unit 501B on April 16, 2013 is 4.576 cu.m. and remained at 4.576 cu.m. on the weekly reading of LPG consumption conducted on April 23, April 30, May 7, May 15, May 24 and on May 28, 2013<sup>78</sup> (3 days before the explosion) of Unit 501B, indicating that it has no LPG consumption. Alicia Mendez, authorized representative of Unit 501B stated in her sworn statement that since December 2012 up to the time prior to the explosion she did not pay bills on LPG because the unit does not have LPG consumption.<sup>79</sup>

However after the explosion the LPG meter of unit 501B stopped at 39.796 cu. m. indicating that the gas that passed through the meter and accumulated inside the subject unit is 35.22 cu. m.

Be it noted that when the CIDG took the testimony of RM Ladrido workers who are involved in the renovation on June 4, 2013, all of them never mentioned that the gas range was moved to the living area and the flexible hose was detached from its connection. Even in June 21, 2013<sup>80</sup> when the IATF took the testimonies again of some of the workers to shed light and additional clarificatory questions on the said incident, they made it appear that the gas range was not repositioned during renovation and that according to Clotildo Cuizon Jr, painter, he merely moved slightly the gas range during his painting works, and that Manuel Gruta, Supervisor/foreman never mentioned of the renovation made at the kitchen area to hide the fact that the gas range was detached from its connection.

However, during the Explosion/fire Scene Reconstruction we found out that the "kitchen counter top" (where the sink is located) was reduced in size and the pantry cabinet for washing machine was increased in size towards the gas range area. (Fig. 20 & 19) Thus, we were able to establish that indeed the connection of flexible hose was detached from its connection intentionally, which was confirmed by Manuel Gruta, Clotildo Cuizon Jr. and Joselito Zamora in their supplemental statement taken by IATF-CT, DILG on 25 June 2013, to wit:

<sup>78</sup> Extracted from Section B LPG weekly reading, attached as Annex "II";

<sup>79</sup> Extracted from (Tanong 32) SS of Alicia Mendez, attached as Annex "GGG";

<sup>80</sup> Based on the SS of Manuel Gruta, Clotildo Cuizon Jr., Angelito Inlayo, Joselito Zamora, Dennis Dumaguang, attached as Annex "FFF", "EEE", "MMM", "NNN", "PPP", respectively;

1. Manuel M. Gruta, Foreman and Supervisor of Ladrado and David Construction Services (formerly RM Ladrado Construction Services) in his sworn statement<sup>81</sup> disclosed that he is the one who instructed Joselito Zamora to find ways so that the gas range will fit in the area and allowed Joselito to cut the kitchen counter top. **"Sa pag kakaalam ko ay si Reyniel Infante ang nagtanggap ng flexible hose sa gas range..."**<sup>82</sup> Likewise, Clotildo Cuizon disclosed that, **"Bago ginawa ang cabinet ng washing machine noong may 7, 2013 ay pinatanggal muna ni Manuel Gruta kay Reynel Empante ang LPG hose na nakakabit sa gas range, at pagtanggap ni Reynel ay inamoy nya at sabi nya ay patay naman daw dahil wala naman syang naamoy o kaya ay lumabas na hangin mula sa hose, at pagkatapos ay nilabas ang gas range mula sa kinalalagyan niya at nilipat sa sala ang gas range para makakilos ng maluwa ang karpintero."**<sup>83</sup> The statement of Cuizon was corroborated by Joselito Zamora.<sup>84</sup>
2. The statement of Gruta, Cuizon and Zamora jibed with the physical evidence; the drip of paint (in a perpendicular position with the hose) at the LPG flexible hose near the point of connection indicating that the hose was lying horizontally on the floor, which could be done only if it was disconnected from the gas range as shown in Fig. 23 & 24. The same observation was noted by SOCO in their report<sup>85</sup> dated 05 June 2013 relative to their examination of the black braided flexible hose which stated that, **"xxx...The flow pattern of a dried paint drip about 5.2 cm from the tip of Point B shows that the paint dripped on the hose while the hose is lying on its side and not while positioned vertically. The most probable way that this could happen is when the hose is lying on the floor. This means that for quite some time, the hose is not attached to the cooking range inlet."** Further, it is not impossible that a drop of paint will land on the hose while it was lying on the flooring considering that the renovators were even given a punch list by the unit owner to clean droplets of paints on the floor tiles and cabinet. Furthermore, the Advance Device and Materials Testing Laboratory, DOST's findings on the submitted samples gathered at the scene of explosion "coincide with the peaks of point A on the black braided flexible LPG hose as summarized in Table 2." (Report of Test dtd 29 July 2013 signed by BLESSIE A BASILIA, Ph. D. Division Chief, Materials Science Division, ITDI)
3. That based on the computation of the discharge rate of LPG vapor, the 35 cubic meter consumption as reflected in the LPG meter of unit 501B, discharging from a 9mm diameter hose at 0.4 psi pressure, could accumulate in approximately 13 hours and sixteen minutes, which could be traced back at the day when the LPG Gas valve was turned on by Ariel Mendez husband of Alicia Ochoa - Mendez. The 9 mm hole of the flexible hose as point of discharge can be had only if it is totally disconnected from its connection, since ocular examination of the LPG flexible hose revealed the absence of crack, puncture hole or any opening along the said hose line similar to the opening at the end of the hose mark point "B" that gas can escape to the Unit 501B. Further, in the Certification No. 2013-0-0684-42 dtd 03 July 2013 the Metals Industry Research and Development Center, DOST noted "Leak occurred at the damaged portion labeled Point A of the

<sup>81</sup> Extracted from Supplemental Statement of Manuel Gratula, attached as Annex "FFF";

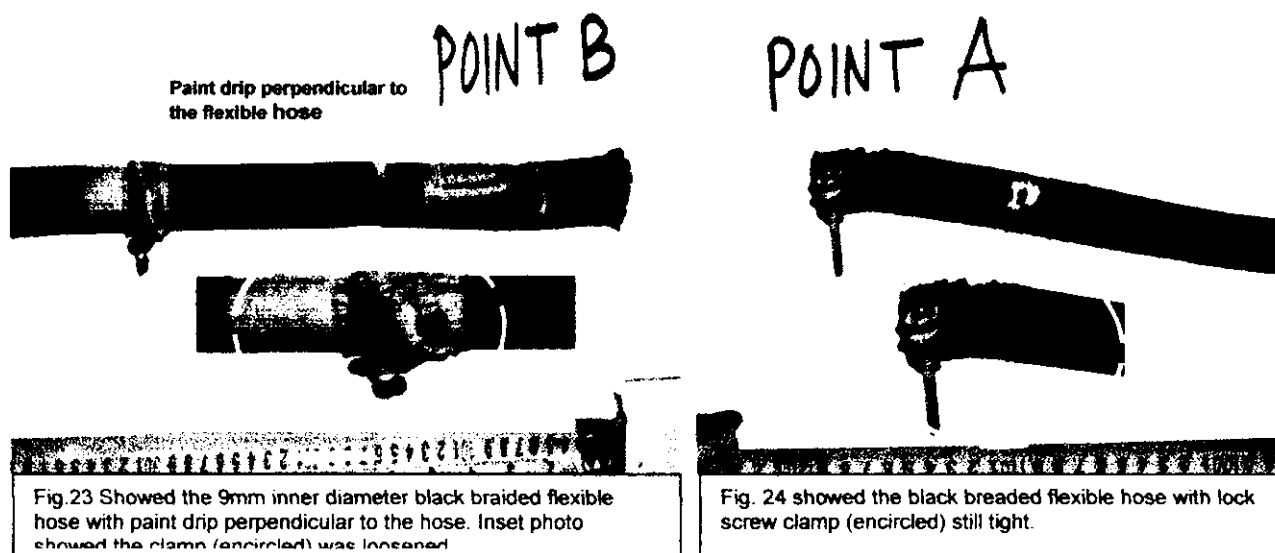
<sup>82</sup> Idem;

<sup>83</sup> Extracted from Supplemental Statement of Clotildo Cuizon Jr, attached as Annex "EEE";

<sup>84</sup> Per Supplemental Statement of Joselito Zamora, attached as Annex "NNN";

<sup>85</sup> SOCO Correlation Report, see Annex "Q";

braided hose" However, we believe that the damage portion at said point was caused by the explosion.



### c.2 COMPUTATION OF LPG – Explosive Limits<sup>86</sup>

Based on the Supply Agreement between Bonifacio Gas Inc. and Serendra Inc. dated 15 February 2007 the LPG product specifications as Annexed is: 30 - 40% Propane and 60-70% Butane<sup>87</sup>. According to Engr. Ephraim Silang, Technical Manager of Bonifacio Gas the ratio of propane and butane of a typical commercial LPG is 30% and 70% respectively.

Thus computing the explosive limits of Propane and Butane:

Volume of space of 501B = 7.45m x 6.57m x 2.69m = **131.67cu.m.**  
 While **35.22 cu.m.** amount of LPG was reflected at LPG meter of Unit 501B.  
 With the ratio of 30% -Propane and 70% - Butane LPG Composition:  
 The amount of Propane = 35.22 cu.m. x 30% = 10.5 cu.m.  
 The amount of Butane = 35.22 cu.m. x 70% = 24.5 cu.m.

Computing for the ratio of Propane and Butane with the air or space:

For Propane = 10.5 cu.m. / 131.67 cu.m. x 100% = 7.97%  
 For Butane = 24.5 cu.m. / 131.67% = 18.61%

Under Table 18.8 pp. 136 of NFPA 921, 2001 Ed., the explosive limits of Propane and Butane are as follows:

Propane Upper Explosive Limits (UEL) = 9.6% while Lower Explosive Limits (LEL) = 2.15%  
 Butane UEL = 8.5% while LEL = 1.9

Based on the above explosive limits, the Propane having the ratio with air or space of 7.97% falls within range of the LEL and UEL of propane between 2.15% to 9.6%

Hence, the involved gas is within the explosive limit.

Considering that the LPG consists of two hydrocarbons, the Propane and Butane, and based on the above computation of DR. IDABEL B. PAGULAYAN, IATF-CT, Forensic Consultant that propane is within the LEL and UEL, we are inclined to believe that said mixture of 35.22 cu.m. of LPG with 131.67 cu.m. of space or air is well within the explosive range that triggered the explosion.

### c.3 FLOW RATE OF LPG<sup>88</sup>:

<sup>86</sup> Based on the Technical Report of DR. IDABEL B. PAGULAYAN, Forensic Consultant, IATF-DILG, dated 02 August 2013, attached as Annex "AAA";

<sup>87</sup> Supply Agreement between Bonifacio Gas Inc. and Serendra Inc. dated 15 Feb 2007, attached as Annex "HH";

<sup>88</sup> *Idem*;





Further, in the Supplemental Statement of Clotildo Cuizon Jr. he said that on May 17, 2013 Manuel Gruta instructed him to return the gas range in the kitchen, and that the former and Joselito Zamora returned the gas range in its original position. That because he did not know how to reconnect the hose of LPG and Zamora had a screw driver he instructed Zamora to reconnect it, and that since his painting job in kitchen area was already done. On the other hand, Zamora affirmed that he was the one who reconnected the flexible hose, "Ako po ang nagkabit ng nasabing flexible hose kasi tinuro sa akin ni Reniel Infante kong paano ikabit. At ang kulay nito ay parang silver po kase light color lang ito, doon ko po ikinabit ang nasabing hose sa may likod ng gas range na mga 11 inches ang taas mula sa sahig, isinuot ko sa pamamagitan ng aking kanang kamay at halos ay paluhod ko po itong nilagay, at inabot din po ako ng mga sampung (10) minuto bago matapos ang pagkabit ng flexible hose sa nasabing gas range." (Sagot 10)

However, contrary to the claim of Joselito, the flexible hose is color black and not color silver, and the height of the "gas range inlet" for flexible hose connection is 26.18 inches and not 11 inches. (See Figure 35) Likewise, Clotildo's assertion that he instructed Joselito to reconnect the gas range flexible hose on May 17, 2013 because he had already done the painting job in the kitchen is inconsistent with the work permit on the succeeding days issued to them which sometimes he is the signatory as "Project In-charge", to wit: a. May 17, 2013- Painting/Carpentry Works; b. May 20, 2013 - Carpentry/Painting Works; c. May 21, 2013 - Carpentry/Painting Works; d. May 27, 2013 - "Punchlist Retouch"; May 28, 2013 - Retouch/Cleaning Works; e. May 29, 2013 - Retouch/Cleaning Works (See attach Annex "S").

Hence, we set aside the claims of Clotildo and Joselito that the LPG hose was reconnected on May 17, 2013. We strongly believe that those allegations are merely an expedient way to cover-up their lapses that in truth and in fact the flexible hose was not reconnected, based on the following circumstances:

1. That after the blast the clamp (with screw) of the black braided flexible hose at the connection point to "gas range inlet" is still loosened, (Fig.22) contrary to Joselito's claim that he used screw driver to reconnect the hose;

2. That Joselito does not exactly know the color of the flexible hose and the location of "gas range inlet", (Fig. 27) thus, his statement is merely a cover-up story to conceal that they failed to reconnect the flexible hose;

3. That we do not give credence also to the statement of Clotildo that he instructed Joselito to connect the flexible hose for the reason that he has already finished the painting job in the kitchen area, where in fact there are still painting and retouching done from May 17, 2013 and on the succeeding days or up to May 29, 2013.

4. That the gas discharge computation and actual simulation are consistent that the leak came from a 9mm opening, which is the inner diameter of black braided flexible hose, and this could be done only if the said hose is totally disconnected from the La Germania LPG gas range when the gas valve was opened in the morning of May 31, 2013.



Fig.27 showed left photo, the gas range inlet location at the back portion of gas range and its height to the floor at 26 inches. Photo in the middle showed the front view of the gas range. Lower Right Photo showed the color black braided flexible hose and Upper Right photo showed Point B is for gas inlet connection, where the clamp (encircled) is loosened and located 31cm to point B, indicating that it was pulled down and hose not connected to the gas range inlet prior to blast.

Thus, we're inclined to believe that the accumulation of LPG gas inside Unit 501 B was caused by the discharged of the LPG vapor from the black braided flexible hose which was intentionally removed by Reynel Infante, and left disconnected until the opening of the LPG valve by Ariel Mendez on 31 May 2013 that resulted to the accumulation of 35.22 cu.m. of LPG, such amount of gas was reflected also in the LPG meter of Unit 501B after the explosion.

#### c.4 VOLUME OF SPACE AT UNIT 501B

After taking the actual measurement of Unit 501B - We arrived at the following computation of the approximate volume of space of said unit:

$$\begin{aligned} \text{Volume} &= 7.45\text{m (L)} \times 6.57\text{m (W)} \times 2.69\text{m (H)} \\ &= 131.67\text{cu.m} \end{aligned}$$

#### c.5 SOURCE OF IGNITION

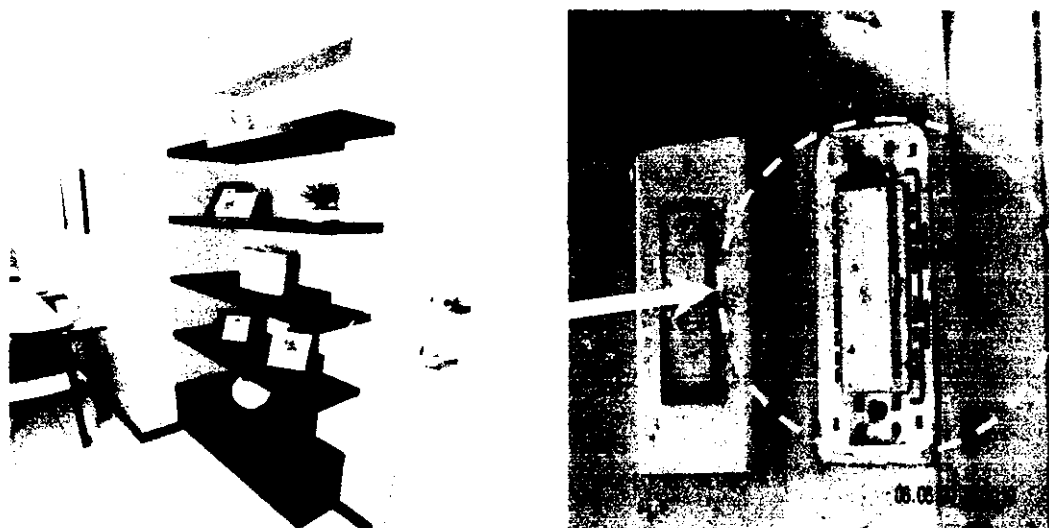


Fig.28 Showed the portion of the South wall near the main door prior to explosion (left photo) where the single and duplex switch was installed. Close-up photo (right) of the light switch taken after the blast, while the single switch (encircled at right photo) was probably the one that triggered the explosion when it was turned-off by Angelito San Juan.

We look at several potential sources of ignition in the subject unit that may trigger the LPG leak (i.e. Static arc/electricity, electric fan, ignition mechanism of gas range, light switches, etc...). However, the most plausible is the arc/spark generated from the light switch for the living area that was probably turned off by Angelito San Juan on his way out of the said unit and accidentally triggered the LPGas vapor - air mixture explosion. The location of the light switch, 1.01 meter above the flooring and installed at the South Wall near the left side portion of the main doorway of subject unit (See fig.27), jibed with the following:

1. The height of Angelito San Juan: 5'2", as per information from his brother Ruben. Further, the damaged upper clothing - "polo na halos ay kwelyo nalang at manggas ang natira" (SS of Herminia Ochoa), is consistent with the height of San Juan and in the light and victim's appearance that was captured by the CCTV at the drop off area shortly after the explosion;

2. The injury he sustained "Flame burn 72% total body surface area (head, neck, anterior and posterior trunk, bilateral upper extremities, bilateral thighs and legs)". Final Diagnosis signed by Dr. Christian Aro certified by MARIA CRISTINA T. REYES, RN, Head Medical Records Management Services, St Lukes Medical Center, dtd 25 July 2013. (ANNEX "OO"). Further, we are inclined to believe that San Juan was at the epicenter of the explosion, that's why he initially survived the blast and sustained burn injury on his whole body and was able to walk and reached the hallway ground floor where he was seen by SG Falcasantos and immediately brought to the nearest hospital for treatment but died later.

3. The findings of NBI Electrical Section REPORT # 13 – 06 – 002 issued on 18 June 2013 by ENGR. DAVID R. AOANAN, Chief Electrical Section, NBI:

"Evidence # "1 – A" & "1 – B" No indication of short circuit. Switches are in the "OFF" position.

**Remarks:**

Please be informed that switches, circuit breakers, plugs and receptacles all release arcs and sparks as contact open and close during normal operation."<sup>89</sup>

(Note: The said findings refers to the evidence submitted to NBI last June 7, 2013 - "One (1) gang Electrical switch with cover and pieces of electrical wires recovered at the concrete wall support of the main door of Unit 501B Inner Quadrant 1 mark as evidence # 1-A" signed by INSP OSCAR N ROPERO, IATF-CT)

4. Furthermore, as per certification issued by EDNA L. JUANILLO, OIC, Climatology and Agrometeorology Division dtd 15 July 2013 "that occasional lightning was reported/recorded at 6:46 to 7:20 in the evening" of 31 May 2013 and no showing of lightning on or about 7:59PM. Thus, we ruled out lightning as the one that triggered the subject explosion. (See attached Annex "XX-1")

#### **d. TRACING THE ROUTE OF THE EXPLOSION EFFECT**

Based on our examination and documenting the damage left behind by the LPG gas vapor - air mixture explosion at the Unit 501B (Unit Volume of 501B=7.45m x 6.57m x 2.69m = **131.67cu.m.**) and the surrounding structures/areas, we traced the

<sup>89</sup> Electrical Report from Engr. DaveAoanan, NBI Electrical Division, attached as Annex"VV";

route of the Blast Pressure Front (BPF) effect using the South (location of the ignition source/origin on the south wall of Unit 501B) to East directions in clockwise order.

*(Note: This does not necessarily mean the sequence of propagation/expansion, because "under ideal theoretical condition the shape of the blast front from an explosion would be spherical. It would expand evenly in all directions from epicenter. In the real world, the confinement or obstruction of the blast pressure wave changes and modifies the direction, shape and force of the front itself."(NFPA 921 2001 edition p. 134 )*

### Characterization of Explosion Damage

"The explosion of a material produces a large quantity of gases. These gases expand at a high speed and move outward from the point of origin. The gases and the displaced air moved by the gases produce a pressure front that is primarily responsible for the damage and injuries associated with such explosions.

The blast pressure front occurs in two distinct phases, based on the direction of the forces in relation to the point of origin of the explosion. These are the positive pressure phase and negative pressure phase." (Ref: NFPA 921 Edition 2001 page 133)

### SOUTH DIRECTION -

Positive Phase - is that portion of the **blast pressure front** in which the expanding gases are moving away from the point of origin. (NFPA 921 18.4.1.1. Edition 2001 page 133)

From the epicenter (source of ignition - Arc/spark from the light switch) located 1.01 meters above the floor and installed at the South wall left side/doorway of Unit 501B, (Fig.28) the propagation/expansion of the Blast Pressure Front (**BPF**) shattered the main wooden door (Fig. 29 & 30) into several pieces. Unit 501B is the most damaged unit at the explosion/fire, a clear indication that the explosion started inside the said Unit and not anywhere else, and it also jibed also with following:



Fig.29 Photo Show INSP OSCAR ROPERO with IATF-CT members piecing together the shattered remains of main door of Unit 501B.

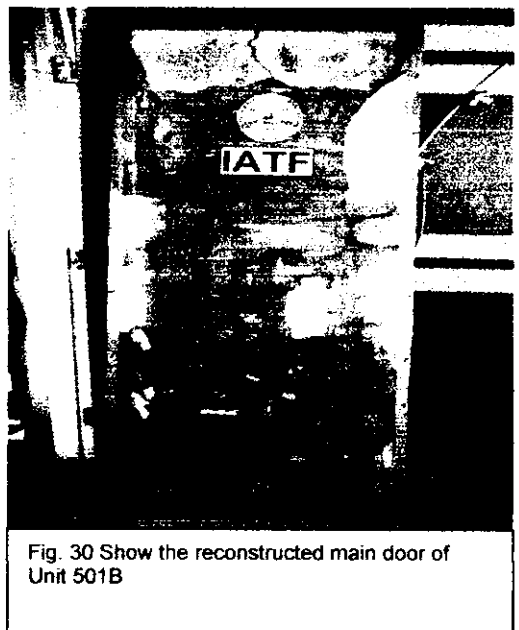


Fig. 30 Show the reconstructed main door of Unit 501B

1. The injuries sustained by Angelito San Juan - "Flame burn 72 % total body surface area (head, neck, anterior and posterior trunk, bilateral upper extremities, bilateral thighs and legs)". ( Final Diagnosis signed by Dr. Christian Aro certified by MARIA CRISTINA T. REYES, RN, Head Medical Records Management Services, St

Lukes Medical Center, dtd 25 July 2013 ANNEX "OO"), jbed with our findings that indeed San Juan was at the epicenter of the explosion. Further, the CCTV footage at the drop off Section B and C showed San Juan's upper clothing was singed/damaged consistent with the location of the ignition source 1.01 meter from the flooring. We believe San Juan was telling the truth when he was asked by Herminia Ochoa shortly after the explosion - What happen? He replied **"I turned on the door knob I heard an explosion I was thrown on to the floor and I felt electrocuted"**. That probably as he was about to leave the unit for dinner with Ms. Herminia he switched off the light switch as he was turning the door knob on his way out. The arc/spark from the switch triggered the explosion and San Juan was thrown to the floor.

Further, the explosion damaged the sprinkler line inside the subject unit releasing water which probably came in contact with the exposed electrical wires that were severed due to the explosion and could easily electrocuted San Juan as he was lying on the floor. This also jibed with statement of witness SG FALCASANTOS who "noticed water coming out from the LPG cabinet in between the doorway of Unit 105 and Unit 103 that caused flood in the hallway."

Moreover, the Nike right rubber shoe of San Juan was recovered at St Luke's Medical Center, and later turned-over to IATF-CT by PNP-SOCO last July 3, 2013, while the left Nike rubber shoe (Fig. 31 ) was discovered by PNP SOCO in front of the doorway of Unit 501B on top of the debris from the door of said unit, a clear indication that indeed San Juan was at the epicenter/origin of the explosion and not anywhere else in the room.



Fig.31 showed the left shoe of Angelito San Juan at the scene of explosion.

2. As the explosion propagates it left a hole on each chair (Fig. 32 - Height of chair: 16 inches from flooring to foam seat cushion). The said chairs was designed with an air vent opening on the plywood seat support, that during propagation the blast pressure easily passed through it and damaged the foam material/leatherette cover, leaving behind the holes as can be seen in Fig 40. This is a pointer as to the location of the fuel - at the lower level, consistent with LPG a heavier than air gas.



Fig.32 Show the holes where the blast pressure punch through the air vents of the four dining chairs.

3. From the source of ignition - as the blast pressure propagates it pushed upwards the seat cushion of the sala set and the thermal heat effect singed the leatherette casing causing it to melt and as it hit the ceiling it stuck together with the throw pillows (Fig 33). (Theoretical Maximum Flame Temperature for Butane: 3583 °F, Propane: 3573 °F - Ref: Explosion Investigation and Analysis, Patrick M Kennedy, John Kennedy, righted 1990, p. 419 )



Fig.33 Show SOCO,PNP, processing Unit 501B - the sala set cushion (encircled right) and throw pillows (encircled left) stuck at the ceiling after the blast.

4. The **BPF** that moved in this direction towards Unit 502B and toppled part of the wall and rested on the wall of 502B at an angle of 46.5 degrees. Further as the southside wall toppled it severed the metal door jam of Unit 501B, while the main wooden door was shattered into several pieces and landed on the hallway fronting it. The **BPF** also blasted the other portion of the southside wall particularly at the kitchen area blasting it and hitting the outer side of the kitchen wall of 502B kitchen (Fig. 34). The **BPF** also pushed the Gas range, the flexilble hose, range hood, Kitchen Sink and housing and Refrigerator out of the kitchen area and all fell to the ground near Unit 101B.



Fig.34 showed the wall with window of the kitchen area of Unit 502B.

5. As the **BPF** moves in the direction of Unit 502B which is in line with the path of venting, blasted and also shattered its main door (Fig.35) and heaved and damaged the upper level of the "Spraycrete" wall along Mckinley Parkway Drive (Fig.36) the **BPF** continue as it detached the balcony door made of glass with aluminum frame of said unit hurling it outwards and landed on the ground about 31.2 feet - measured from the lower edge of Southside wall of the Section B Tower A.

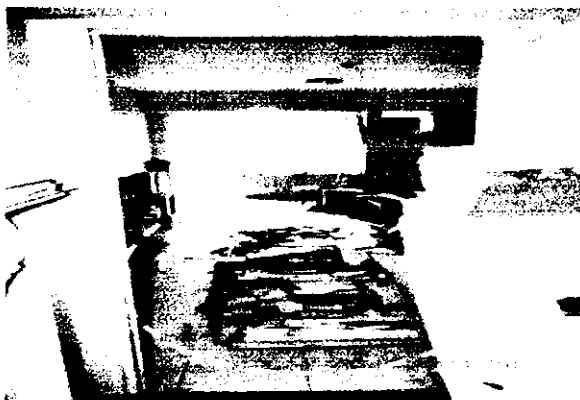


Fig.35 showed the wooden door (encircled) hit by the BPF that shattered into pieces and later pieced together by IATF Composite Team

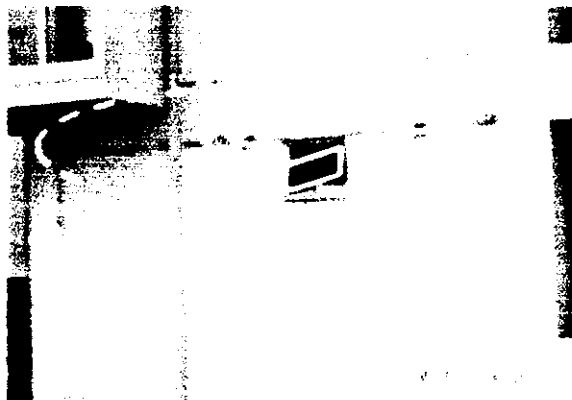
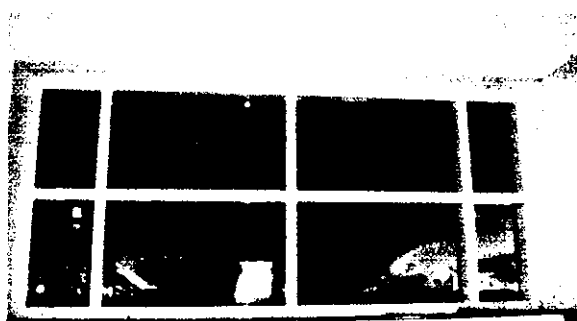


Fig.36 showed the upper portion of the East side "spraycrete" wall of 502B that heaved when the blast pressure moved towards the South direction

6. The BPF continued and damaged the exterior ceiling (Fig.37) portion of the Function Room No. 2. The BPF also reached the drop-off lobby of Section Belize and Gallery where it was recorded by the CCTV installed thereat. Later, during the **Negative Phase** the pressure hit the Fire Cabinet (made of metal) pushed it 2 inches more inward from its original depth of 7 inches in the direction towards the epicenter of the explosion (Fig. 73).



09.06.2013 18:08

Fig.37 showed the exterior ceiling of Function Room No.2 Section B&C, utilized as Crisis Management Center and later IATF Command Post.

#### WEST DIRECTION -

7. From the source of ignition/origin - the BPF moved in the WEST side direction but the wall was not toppled because it is a shear wall (Fig. 38 & 39) - Thickness: 420 mm or 16.53 inches) this shear wall reflected off its surface the BPF in the East direction propelling the "Spraycrete" wall that hit the northbound Abenson van moving along McKinley Parkway Drive killing the driver and his passengers.



Fig.38 showed the "shear wall" on the West side of Unit 501B.

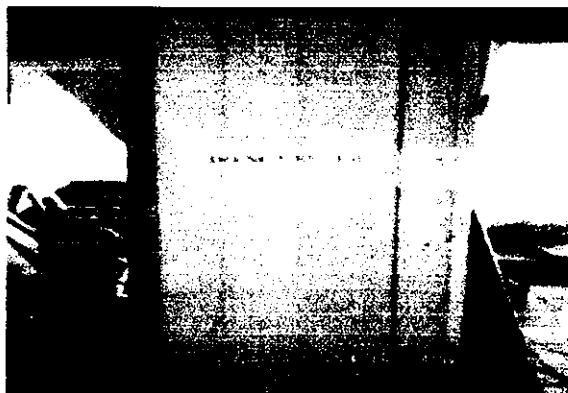


Fig.39 Showed another angle of the shear wall towards the North direction.

8. From the source of ignition - the **BPF** moved along the hallway of the 5th floor (Fig.40) towards the WESTSIDE in the direction of the 506B/505B and as the Blast Pressure Front moved in this direction it destroyed the drop ceiling made of gypsum and broke the "glass bulb plug" of sprinkler head located at ceiling level 290 c.m. from the LPG Chase 505/503B, the water from the said head and the broken water pipe beside the said meter chase probably cooled the thermal heat from igniting the escaping LPGas and as the BPF continue it branches out in the following:

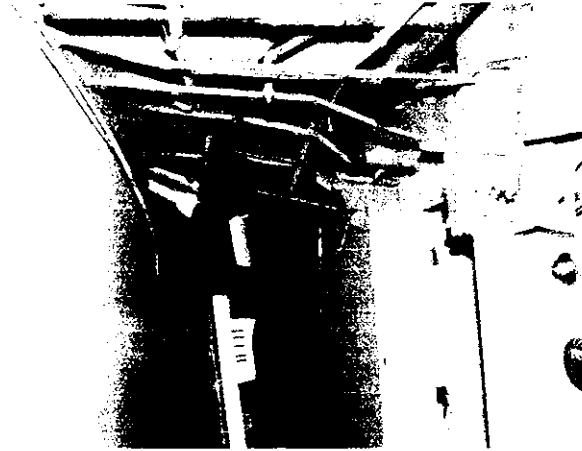


Fig.40 Showed the damaged drop ceiling along the hallway going to 506B. Photographer was located near the Exit area and Auxiliary room near 501B.

a. Detached the Exit Metal Door (Fig.41) hurling it on the Exit landing between the 3rd and 5th (Note: 4th floor utilized as 5th floor) the Blast Pressure Wave continue in this direction and entered Section A Tower I through the Ventilation opening of hallway (Fig. 42) and damaged the elevator doors from the GF, 2nd, 3rd and 7th Floors.



Fig.41 Showed the exit door landing between 3rd and 4th floor.



Fig.42 SRSUPT FVJAUDIAN tracing the BPF effect at the area at Tower AI that damaged the elevator doors from the GF 2nd 3rd and 7th Floors of Tower AI

b. Detached the Door of Unit 503B (Fig.43) the BPF exited the said Unit pushing/breaking the glass window towards Section A Tower I.

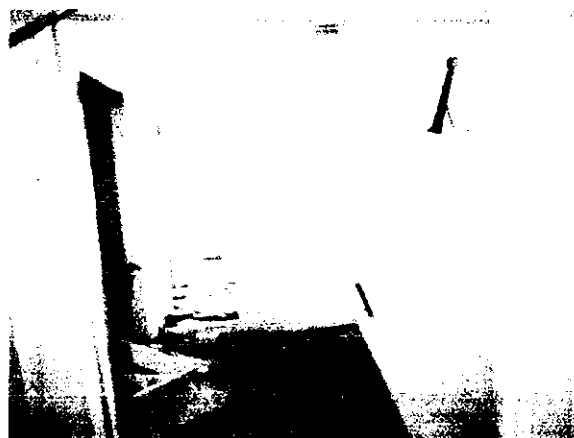


Fig.43 showed the detached door at Unit 503B.



c. As the BPF passed the LPG chase it pushes inward the cabinet doors and weakened the LPG meters from its connection. Further, during the *Negative phase* it pushed outside the LPG meter No 503B detaching it from its piping connection, while the LPG Meter for 505B was dislodged and stuck inside the chase during the Positive/Negative Phase of the explosion and later recovered by IATF-CT inside its meter chase. Note: Since the said LPG Chase opening passes through the floors vertically from the ground floor up to the ceiling, the blast pressure wave can easily move up or down the chase as it did, damaging the other cabinet doors located in the upper and lower floors of Section B Tower A.

d. The BPF reached and detached the Door of Unit 505B (Fig.44) and also destroyed its glass window and exited in the direction of Section A Tower I;

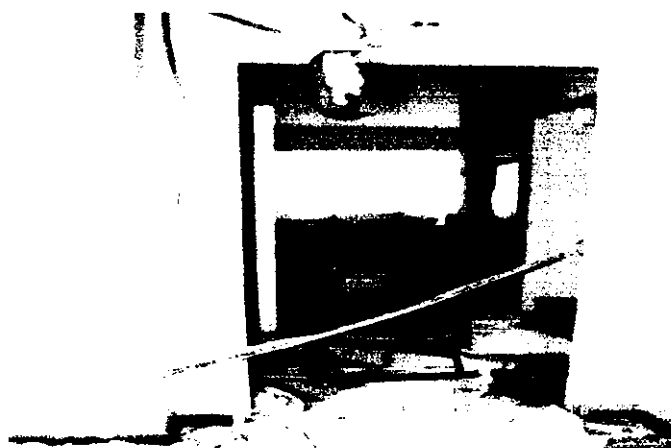


Fig.44 showed the main door of Unit 505B.

e. The BPF detached the Door of Unit 506B (Fig.45) and also detached the "balcony" door as it vented out towards the SOUTHSIDE Direction.



Fig.45 Show the Main door (right of photo) of Unit 506B which was detached by the BPF and the burnt LPG chase (left-lower of photo) the remains detached meter was recovered) inside 306B.

f. As the BPF moved towards the wall of Unit 508B it destroyed the drop ceiling (made of gypsum) along its path of travel the hallway upper level bulged about 1 cm and when it hit the said wall it continued in three (3) directions:

f. 1. Left direction and vented (to the South direction - exited the building towards the South (Fig. 46). At this juncture, eyewitness RAMIL ARSOLA heard the explosion and saw the fire at 5th floor of Section B Tower A, alarmed he immediately run towards the drop-off lobby of Belize and Callery, at McKinley Parkway Drive, and got hold of a fire extinguisher and responded to the subject building, but upon

reaching the area fronting the subject building (Fig. 47) he stopped and instead guide his Security Guards in the rescue and evacuation efforts.



Fig.46 Showed the hallway (encircled) where the BPF exited.



Fig.47 Showed eyewitness Arsola in the presence of IATF-CT pointing towards the direction of Section B tower A where he saw the fire at the 5th floor level of said tower

f. 2. Right direction - **BPF** moved in the NORTH direction blasted the Glass/aluminum window (Fig.48) and vented in the direction of Section A Tower I.



Fig.48 Showed the glass/aluminum window blasted by the BPF that vented in the direction of AI.

Further, part of the **BPF** moved to the left and damaged also the doors of Elevator No. 1 (Fig 49) and Elevator No 2 (Fig. 50) entering the elevator shaft moved downward and upward damaging the elevator doors in this area, while part of the blast pressure passed along the hallway Section B Tower B towards the WEST direction detaching the door of 508B (Fig. 51) and as the BPF continue in this direction it vented out of Section B Tower B.

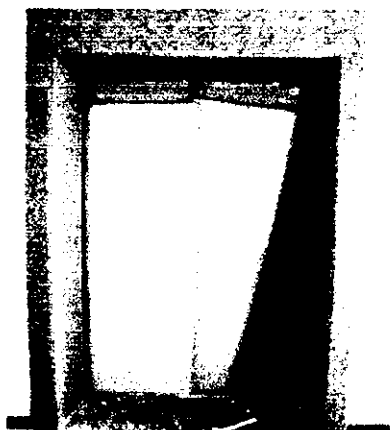


Fig.49 Showed Elevator 1 where the BPF dislodged the door and entered the shaft



Fig.50 Showed Elevator 2 where BPF also entered the shaft.



Fig.51 Showed the door of 508B detached by BPF.



Fig. 52 The wall of Unit 508B at the end of the hallway near Units 506 and 505B.



Fig. 53 The hallway along the wall of 508B looking in the direction towards the South.

f. 3. Upward Direction - destroying the Seismic Gap Cover Assembly. The damage patterns in this area showed POSITIVE PHASE (Fig. 54) and The destruction pattern found in the hallway involving the seismic cover assembly (Fig. 54) is consistent with NEGATIVE PHASE of the explosion.

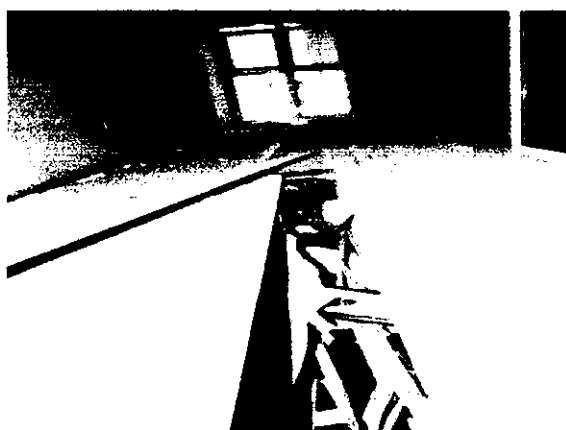


Fig. 54 showed the damaged seismic gap cover assembly was dislodged probably caused by the Positive Pressure Phase of the explosion.



Fig. 55 showed the damaged seismic cover assembly probably caused by the Negative Pressure Phase of the explosion.

#### NORTH DIRECTION -

From the source of ignition/origin - the BPF moved in the direction to the NORTH side propelled the wall of the master's and children's bedroom including its contents (i.e. The beds, flat TV sets, window type air-cons (Fig. 56). Parts of the air-con landed at Unit 383 A (Fig. 57) Section A Tower I. The Blast Pressure Front also damaged the ceiling portion of Section A Tower H (Fig. 58) distance (110.5 ft)



Fig. 56 the contents of children's bedroom scattered at the ground.



Fig. 57 Parts of aircon that landed inside Unit 383 of AI.

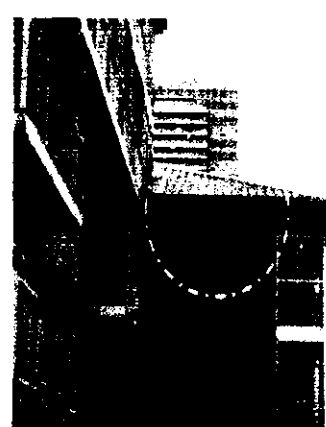


Fig. 58 Ceiling portion (encircled) of Tower AH.

## EAST DIRECTION -

From the source of ignition/origin - the **BPF** moved in the EAST direction blasted the "Spraycrete" type wall detaching it and propelled it about 21 meters (68.9 ft.) away towards a northbound "Abenson" van hitting it (Fig 58) and killing three (3) persons on the spot (Ref: Medico Legal Report No. A13- 268-SPD; A13-267-SPD and A-13-266-SPD signed by VOLTAIRE P NULUD, Chief Medico Legal officer, AC, SPDCLO dtd Jun 7, 2013.),namely:

- a. SALLYMAR NATIVIDAD, 33 years old, dead on the spot;
- b. JEFFREY UMALI, 32 years old, dead on the spot; and
- c. MARLON BANDIOLA, 28 years old, dead on the spot



Fig.59 Showed the Abenson Van hit by the concrete wall of unit 501B and instantly killing the three persons aboard.

(Note: Specimen from the "Spraycrete" wall was taken measured, size: 50 cm X 50 cm X 13.5 cm Thickness, Weight: 68 kg, at the Bureau of Research and Standards, DPWH, Edsa Quezon City in the presence of IATF Team and Engr. Carlos P Ebor, OIC, Div Chief, DPWH. Based on this and other gathered data we came up with our computation on the approximate amount of energy and pressure needed to propel said wall).

Further ,the **BPF** damaged ( the farthest damaged noted) the Jollibee fast food outlet at Market, Market, located at 179 meters away from 501B measured from the edge of Section B Tower A.

## UPPER DIRECTION -



Fig.60 Cracks (encircled) at the ceiling of Unit 501B caused by the blast. Right photo is the close-up view of said cracks.

Blast Pressure Front from Unit 501B moved in the upward direction and cracked its ceiling (Fig 60) and part of the blast pressure wave passed through the LPG chase (vertical opening from GF to ceiling) and also along the right side of subject tower (Note: For purpose of this report we marked it 5R to 8R) hallway/edge, as the BPF moved upwards it left behind the following physical damage effects (Fig 61- 5R, Fig 62 - 6R Fig 63 - 7R Fig 64 - 8R) as it reached and entered the ceiling at the 8th floor level failed to dislodge the G.I Sheet roofing. The BPF moved to the NORTHSIDE and EASTSIDE and vented downwards blasted the ceiling eaves (Fig.64 to 65), while to the SOUTH SIDE only minimal damaged was noted at the right side portion of the ceiling eaves (Fig.74) and during the negative pressure phase it dislodged the LPG meter at 503B.

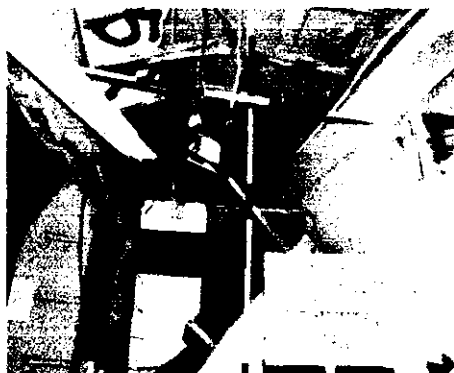


Fig. 61 showed the damage ceiling near the metal grilled area of the 5th floor.



Fig. 62 showed the damage ceiling near the metal grilled area of the 6th floor



Fig 63 showed the damage ceiling near the metal grilled area of the 7th floor



Fig. 64 showed the damage ceiling near the metal grilled area of the 8th floor.



Fig. 65 showed the ceiling eaves of Tower BA damaged by the BPF that vented downward in this area.



Fig.66 SOUTH SIDE only minimal damaged was noted at the right side portion of the ceiling eaves and during the negative pressure phase it dislodged the LPG meter of 503B.

The Blast Pressure cracked the flooring (Fig. 67 Length of crack: 7.21 ft) of 501B, and can be seen also in Unit 301B located directly beneath 501B (4th floor but designated as 5th floor). The BPF moved downward along the area (We marked 3R,2R,1R) (Fig.69 to 71) and when it reached the Ground Floor level part of the BPW moved in the direction of the lobby reached and dislodged the glass/aluminum framed "double swing" door (Fig.68) before exiting in the main door towards the SOUTH direction.

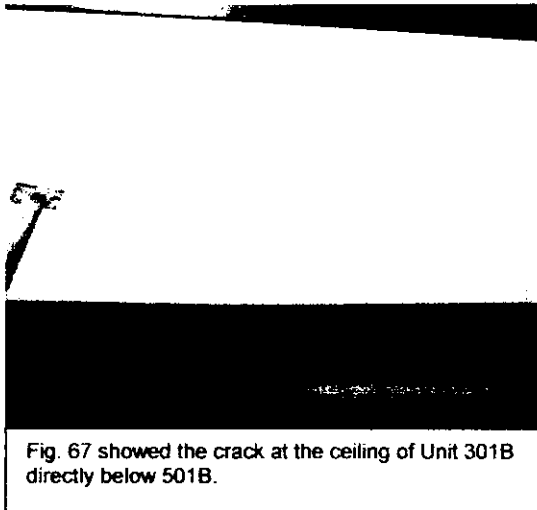


Fig. 67 showed the crack at the ceiling of Unit 301B directly below 501B.

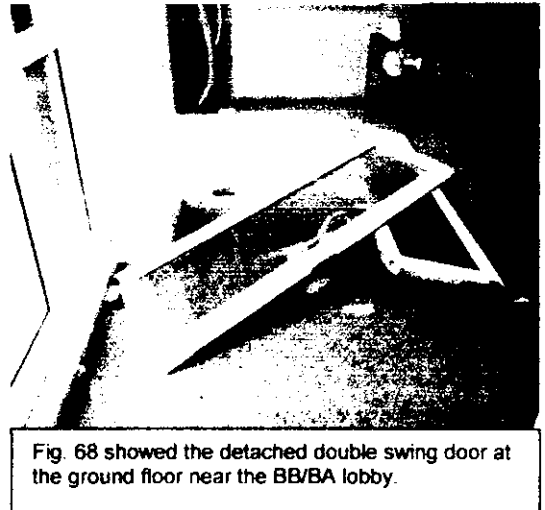


Fig. 68 showed the detached double swing door at the ground floor near the BB/BA lobby.

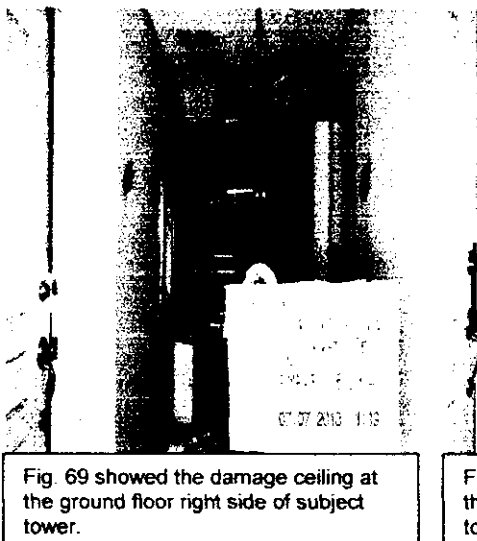


Fig. 69 showed the damage ceiling at the ground floor right side of subject tower.

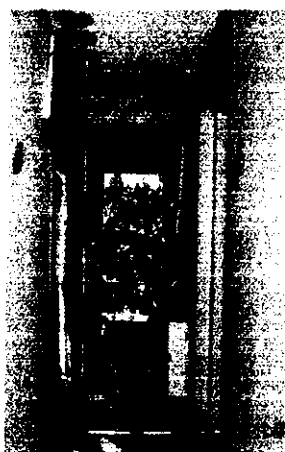


Fig. 70 showed the damage ceiling at the second floor right side of subject tower.

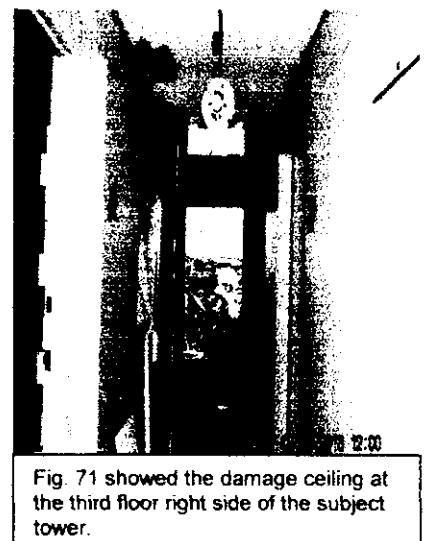


Fig. 71 showed the damage ceiling at the third floor right side of the subject tower.

## NEGATIVE PRESSURE PHASE

"As the extremely rapid expansion of the positive pressure phase of the explosion moves outward from the origin of the explosion it displaces, compresses and heats up the ambient surrounding air. A lower pressure condition (relative to ambient) is created at the epicenter or origin. When the positive pressure dissipates, air rushes back to the area of origin to equilibrate the low air pressure condition, creating the negative pressure. The negative pressure phase can cause secondary damage and move items of physical evidence toward the point of origin. Movement of debris during the negative pressure phase may conceal the point of origin. The negative pressure phase is usually of considerably of less power than the positive pressure phase but may be of sufficient strength to cause collapse of structural features already weakened by the positive pressure phase." NFPA 921 p. 134)

## SOUTH

During the Negative Phase the following were noted:

1. Part of wall (upper level) cracked and hanged on its rebar when hit by the Negative Pressure Phase of the explosion (Fig.72) in the direction of the epicenter.



Fig. 72 showed the part of the wall of Unit 501B hit by the Negative Pressure.

2. The Fire Hose Cabinet made of metal bulged two (2) inches from its original shape of Seven (7) inches (Fig.73) in the direction towards the epicenter of the explosion.

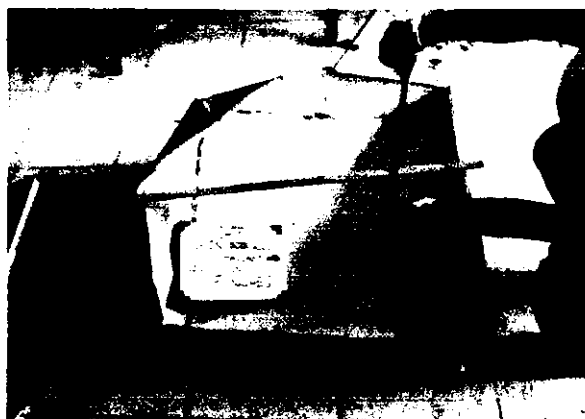


Fig. 73 showed the fire hose cabinet bulged towards the direction of the epicenter of explosion.

3. The wooden cabinet (Fig.74) at the lower portion of the wall near the doorway was detached and recovered inside Inner Quadrant I in the direction of the epicenter.



Fig. 74. SRINSP OFELIA VALLEJO, SOCO, PNP processing the scene near the wooden cabinet (circled) Inner Quadrant I detached by the NPP and the sofa/sala table (arrow) in the direction of the epicenter of the explosion.

#### WEST -

The damage on the seismic assembly located at the far end of hallway near 506B and 505 B was caused by Negative Pressure Phase (**NPP**). The LPG Meter of

503B was blown out of its meter chase cabinet was the result of the **NPP**.

#### **NORTH –**

The center table of the sala set was blown towards the main doorway also effect of the **NPP** (Fig. 74).

#### **EAST –**

During the Negative Phase the wall of the Comfort Room (CR) where the Electrical Control Panel was located toppled towards the leftside in the direction of the epicenter. The Sprinkler Pipeline (Fig 75) at the upper level near the CR moved/bent 3.75 degrees in the direction towards the epicenter of the explosion.



Fig. 75 showed SFO3 SERITO, SFO3 RESPICIO AND and SFO1 DALMACIO measuring the angle that the sprinkler moved.

Further, we also noted the following:

1. The fire at LPG meter chase 506 B, 306 B and at the kitchen area of 501B occurred shortly after the explosion as the fire alarm sounded after the explosion and the circumstances surrounding its discovery and extinguishment. Thus, we find that there was first an explosion before the fire and not vice-versa. (Note: the Automatic Fire Detection and Alarm Sytem (FDAS) sounded at 8:07PM shortly after the explosion as per certification signed by JEFFREY DAGDAG July 15, 2013)



Fig.76 Showed the LPG meter chase of Unit 506B with sign of burning and soot. No sign of burning at the door chase, indicating that it was propelled first during explosion then the fire ensued.



Fig.77 Showed SSUPT JAUDIAN LPG examining the fire pattern at the LPG meter chase of 306B, the fire was confined in the said chase.

2. Fire at the kitchen area - Burnt Carton (Fig.78) probably ignited by the thermal effect of explosion. We also noted the following:





Fig.78 Showed the burnt carton.

a. The cabinet door - third door from the refrigerator (Fig.79) was blasted from its housing and probably landed near the said carton, and the fire left soot deposit on its surface. The soot deposit on the said cabinet indicated that it was created after the explosion as the adjacent cabinet doors has no signs of soot deposit.

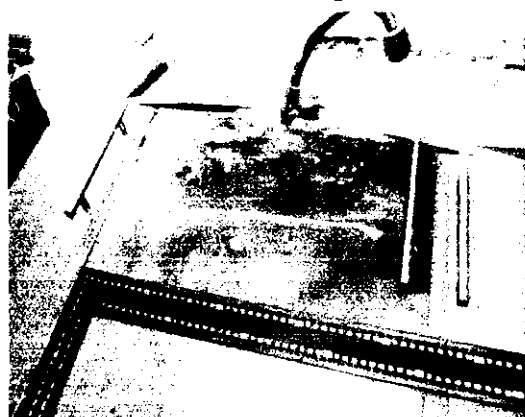


Fig.79 showed soot deposit at the cabinet door.

b. The laminated wood cladding (Fig.80) was dislodged from its location during the blast and probably landed very close to the burning carton causing it to partially burn. When we examined the involved area closely we find that the wooden member where the said wall was screwed has no signs of burning, an indication that the fire pattern on the said wood cladding was created after the explosion;



Fig.80 showed the laminated wood cladding with partial burning.

c. Heat from the burning carton reached and pyrolyze the "laminated paper" of the blasted remains of ceiling gypsum material (Fig.81); and

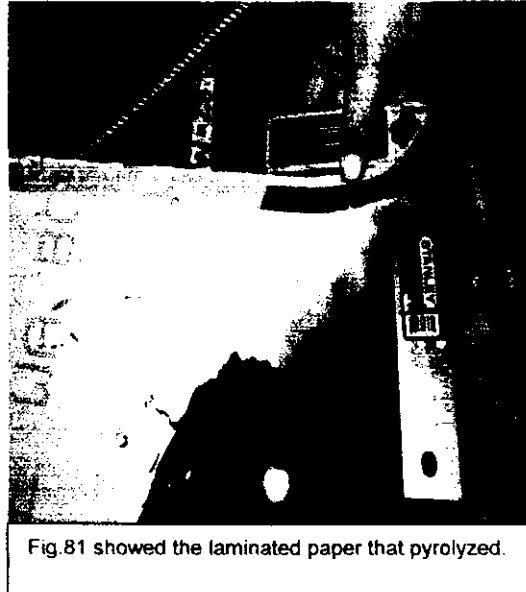


Fig.81 showed the laminated paper that pyrolyzed.

d. Further, the fire did not grow bigger when the water coming from the broken sprinkler pipe inside Unit 501B extinguished it.



Fig.82 showed the soot pattern at the upper portion of the cabinet door at the kitchen counter top consistent with the location of the burnt carton, recovered by SOCO, PNP.

3. The damaged we noted at subject Unit and surrounding structures showed signs consistent with a Deflagration Explosion and High-Order Damage (should not be confused for High Order Explosives). "Deflagrations are combustion reactions in which the velocity of the reaction is less than the speed of sound in the unreacted fuel medium." (Ref: NFPA 921 2001 edition - 18.2.4. Combustion Explosions p. 132) Further, the "maximum theoretical pressure developable by a deflagration can, under some circumstances be as high as 7 to 9 atmospheres (In the range of 120psi (827 kPa))." (Ref: NFPA 921 2001 edition - Rate of Pressure Rise versus Maximum Pressure p. 134)

4. Further, a High-Order Damage - is characterized by shattering of the structure, producing small, pulverized debris. Walls, roofs, and structural members are splintered or shattered, with the building completely demolish. Debris is thrown great distances, possibly hundreds of feet, High-order damage is the result of rapid rates of pressure rise." (Ref: NFPA 921 2001 edition - 18.3.2.High-Order Damage, p. 133)

5. Further, the "x x x maximum theoretical pressure developable by a deflagration can, under some circumstances, be as high as 7 to 9 atmospheres [in the

range of 120 psi (827 kPa)]. In commonly encountered situations, such as fugitive gas explosions in residential or commercial building, the maximum pressure will be limited to a level slightly higher than the pressure that major elements of the building enclosure (e.g., walls, roof, and large windows) can sustain without rupture. In a well-built residence, this pressure will seldom exceed 3 psi (21 kPa)." (Ref: NFPA 921 2001 edition - 18. 4.1.4. Rate of Pressure Rise versus Maximum Pressure, p. 137). That based on the computation below of the pressure exerted on the wall that hit Abenson Service Van is 0.715 psi.<sup>90</sup>

6. Further, the walls, beams, columns and other obstructions present at the affected building contributed to the severity of the explosion. The presence of " x x x many obstacles in the path of the combustion wave has been shown to increase turbulence and greatly increased the severity of the explosion x x x x" (Ref: NFPA 921 2001 edition - 18. 8.2.3. Turbulence, p. 137)

7. That the said explosion is consistent with Non-seated (NO CRATER) explosion which is subsonic.

8. The explosion is consistent with combustion explosion as can be seen by the thermal effects on San Juan and items inside the unit (i.e. as seat cushion, throw pillows, paint blisters on the West wall where the mirror was located, etc...)

**e. CCTV Coverage Recording the Blast Pressure Wave (BPW)- taken on the 31st May 2013 (Annex "CCCCC")**

Four (4) DVD RW (SONY) Disc were submitted last June 21, 2013 1750H by COL. VALENTIN I HIZON (M Ret.) Asset Protection Head, Ayala Land Inc. The submitted Close Circuit TV coverage covering the following areas are significant in the following aspects:

1. The coverage of the CCTV CAM installed at the Lobby Ground Floor Section B Tower A and Section B Tower B - Channel 11 particularly the time portion 19:59:31 documented the BPW reached the said area coming from the upper level consistent with the location of the LPGas/air mixture explosion coming from 501B(4th floor);

2. The coverage of the CCTV CAM installed at the Drop-off Lobby (Single storey structure) for Sections B and C - Channel 14 particularly the time portion 19:59:31 documented the BPW reached the said lobby consistent with the location of the LPGas/air mixture explosion coming from 501B;

3. The coverage of the CCTV CAM installed at the Elevator No. 1 Channel 2 located at Section B Tower B (Connected to Section B Tower A) particularly the time portion 19:59:31 documented the BPW entered the said elevator consistent with the location of the LPGas/air mixture explosion coming from 501B; and

4. The coverage of the CCTV CAM installed at the Elevator No. 2 Channel 1 located at Section B Tower B (Connected to Section B Tower A) particularly the time portion 19:59:31 documented the BPW entered the said elevator consistent with the location of the LPG gas/air mixture explosion coming from 501B; and

5. The real time of venting in the drop-off, Lobby area BB/BA and elevator captured by the CCTV is not the exact time of explosion. Investigation disclosed, that there's no CCTV CAM installed inside the subject Unit and along the Hallway of subject floor which could document the exact time of explosion.

<sup>90</sup> Per computation of Pressure in the Technical Report of DR. IDABEL B. PAGULAYAN, IATF Forensic Consultant, attached as Annex "ZZ".

**f. Estimated amount of energy released by the LPG explosion<sup>91</sup>**

Combustion properties of propane & butane (Table 21.8 of NFPA 921)

Propane = 93.7 MJ/cu.m. Butane = 122.9 MJ/cu.m. MJ = Mega Joules

Energy (E) that can be generated:

$E = E \text{ propane} + E \text{ butane}$

$E = (93.7 \text{ MJ/cu.m.})(24.5 \text{ cu.m.}) + (122.9 \text{ MJ/cu.m.})(10.5 \text{ cu.m.})$   
 $= 1,290.5 \text{ MJ}$

**g. Estimated Force to propel the wall that hit Abenson Service Van which should not be lesser than the weight of wall and force to keep it at equilibrium:<sup>92</sup>**

$F = \text{Weight of Wall} + \text{Force to keep the wall at equilibrium}$  N = Newton

The Weight of wall that hit Abenson = 3,341.1392kg at a distance of 21 meters

$F = (3,341.1392 \text{ kg})(9.81\text{m/s}^2) + (10,000\text{kg}^*)(9.81\text{m/s}^2)$  \*Support of Wall  
 $= 65,553 \text{ N}$

The estimated energy that propelled the wall by 21 meters:

$E = F \times d.$   
 $= 65,553\text{N} \times 21 \text{ m}$   
 $= 1.377 \text{ MJ}$

**Thus, estimated amount of energy released by LPG explosion is sufficient enough to propel the wall that hit the Abenson Service Van.**

**h. Estimated Pressure exerted on the wall by the LPG explosion that hit Abenson Service Van:**

$P = \text{Pressure (psi)} = \text{Force} / \text{Area of wall};$  where: Force = 65,553N  
Area = 2.14m (H) x 6.215m (L)  
= 13.30 sq.m.  
1psi = 6,894.8 Pa (Pascal)

$$= \frac{(65,553 \text{ N})(1 \text{ psi})}{(13.3 \text{ sq.m})(6,894.8 \text{ Pa})}$$

**= 0.715 psi**

**i. LPG's ODORIZER**

On 05 June 2013, **SFO1 PEDRITO POLO** accompanied by **SINSP FELIX ABAD**, BFP personnel from Fire District IV, conducted "sniff test" at the Brazilian Restaurant together with Mr. Dennis Palomar, Boni Gas Representative. SFO1 POLO disclosed that he was able to smell the mercaptan at a distance of more or less one to two inches from the burner<sup>93</sup>.

On 13 June 2013, IATF-CT personnel assisted the DOH technical personnel in the conduct of LPG sampling at Bonifacio Gas tank farm at 31st St. Utilities Area, and in Brazil Restaurant, Serendra Retail, both in Bonifacio Global City, to determine the

<sup>91</sup> Based on the Technical Report of DR. IDABEL B. PAGULAYAN, Forensic Consultant, IATF-DILG, dated 02 August 2013, attached as Annex "ZZ";

<sup>92</sup> *Idem*;

<sup>93</sup> Per affidavit executed by SFO1 Pedrito Polo and FSINSP FELIX L ABAD, attached as Annex "LLLL" and "KKKK" respectively.

presence of ethyl Mercaptan, and on June 28, 2013 at Isla Gas Company Facility at Tabangao, Batangas, however, LPG sampling was not possible since the system is closed system.

Further, in the **Final Technical Report: Investigation on the Serendra Incident**<sup>94</sup> from the DOH signed by ASST. SECRETARY ROLAND CORTEZ, and Assistant Secretary of Health Enrique A. Tayag dtd 02 August 2013 relative to determination of Ethyl Mercaptan revealed the following:

"xxx.

1.1 LPG sampling was done on June 13, 2013 at the Bonifacio Gas Farm at 31st St. Utilities Area, Bonifacio Global City, Taguig City (Rapid assessment screening and laboratory tests). No sampling was done at Serendra Towers A, B & I and the main meter because the LPG supply to Serendra Tower A & B was temporarily shut off and the maintenance personnel conducted pneumatic testing on June 12, 2013 at 12NN until the following day without coordination with the Command Post. Interview with the local restaurant manager (Brazil Restaurant) in the area showed that he lacked the awareness on the role of ethyl Mercaptan as an LPG odorant with his statement that "*yung gas po naming e walang amoy*".

xxx

1.2.2 An on-line Gas Chromatograph (GC) equipment checks the quality of the LPG product. Sample GC tracing was requested including a certificate of analysis of the product.

1.2.3 Chevron Philips was the supplier of the ethyl Mercaptan

1.2.4 Ethyl Mercaptan added was at 0.02-0.05 liter/metric ton of LPG. This was based on the Philippine National Standards (PNS)

xxx

#### A. Analysis of ethyl mercaptan

xxx

In a study determined by a validated method which included a butanol standard for comparison, Nagata (2004), reported an odor threshold of 0.0000087 ppm for ethyl mercaptan. This value was considered most appropriate for calculation of the Level of Distinct Odor Awareness (LOA). The USEPA has set the level of distinct odor awareness (LOA) for ethyl mercaptan at 0.00014 ppm. The LOA represents the concentration above which it is predicted that more than half of the exposed population will experience at least a distinct odor intensity, about 10 % of the population will experience a strong odor intensity (USEPA, 2007). **Thus, comparing the result of the rapid assessment where the calculated PID reading for ethyl mercaptan of  $1.1 \times 10^{-8}$  ppm was below the odor threshold of 0.0000087 ppm and the LOA of 0.00014.** The non-recognition of the presence of the odorant by the restaurant manager can be attributed to several factors which will be discussed in this report.

The range of acceptable odor threshold is quite broad and caution should be used when relying on odor alone as a warning of potentially hazardous substances. Personal conditions (e.g. anosmia, olfactory difficulties, sinus congestion, allergies, smoking, etc) may also affect the ability of an individual to detect odor at any particular

<sup>94</sup> DOH Report on Mercaptan dated 02 August 2013, attached as Annex "RR";

time. Certain environmental conditions may also exist which can diminish odor detection such as masking by other odors (musk or dampness).

xxx."

**The following witnesses who where at Unit 501B prior to the explosion, revealed the following:**

**Witness Alicia Mendez** when asked if she smelled LPG or heard an alarm in the morning of May 31, 2013 when she gave an instruction to open the LPG supply of Unit 501B, she answered, "Wala, dapat naamoy namin lahat yun kung meron." (Sagot 26) Likewise, when **Witness Herminia Ochoa** was asked if she smelled unusual thing when she entered unit 501B on May 31, 2013 in the morning and when she knocked the door at around 7:53 in the evening of said unit prior to explosion, she said that, "Mayroon po akong naamoy na parang bagong pintura." (Sagot 17) The statement of Herminia Ochoa was also corroborated by **Witness Nebster Falcasantos**, "Mayroon po akong naamoy noong magbukas ng pintuan si Mr. San Juan at ang naamoy ko ay parang fresh paint na galing sa loob ng Unit 501B." (Sagot 07) Likewise, scrutiny of the testimony of Herminia Ochoa, there's no indication that San Juan mentioned to the former of an LPG odor inside Unit 501B. Further, be it noted that Unit 501 B was newly painted. Based on the testimonies also of Alicia Mendez, Herminia Ochoa and Nebster Falcasantos disclosed that what they smelled was the paint odor.

**Employees of Bonifacio Gas Corporation revealed the following:**

**Engr. Ephraim Silang**, Technical Manager of Bonifacio Gas in his sworn statement when asked if there was a process in the tank farm of Bonifacio Gas that an odorizer could be added on the LPG delivered by Shell, he answered, "**Wala po.**"<sup>95</sup> (Sagot 30). He was also asked if they had equipment or testing device in the tank farm to determine if the LPG delivered by Pilipinas Shell had odorizer, he replied, "**Wala po.**"<sup>96</sup> (Sagot 32) **James Martin Ramirez**<sup>97</sup>, Technical Engineer of Bonifacio Gas also answered in the negative when asked if there were other chemicals added in their tank farm.

Be it noted that the LPG supplied by Shell to BONIGAS tank farm underwent a vaporizing process prior to distribution to their customers. From the storage tank, the liquid state will be pushed by a pressure of 60 to 80 psi going to a vaporizer at a temperature of 60 to 70°C which will passed through the first stage regulator to keep the pressure at the looped distribution system of approximately 8 kilometers at 15 to 20 psi which will then be supplied to their customers throughout the Bonifacio Global City.<sup>98</sup> That every quarter each year they opened the oil separator valve to discharge the oil waste coming from the vaporized LPG product. The BONIGAS Farm Operations Manager - Engr. Ephraim Silang described the oil waste as dark color with an unpleasant odor.

Further, as per certification dtd 24 June 2013 from BENITO C AGANDA JR, General Manager of Isla Gas Terminals Inc., disclosed that " In compliance with Philippines National Standard, this certifies that ALL of the liquefied petroleum gas ("LPG") products loaded into trucks delivering the same LPG to Bonifacio Gas Corporation have been injected with the stenching or odourizing agent, ethyl mercaptan 0.02 liter per Metric Ton of LPG." (Annex "JJ")

<sup>95</sup> Extarcted from SS of Ephraim Silang in Tanong 30, attached as Annex "JJJ".

<sup>96</sup> Idem.

<sup>97</sup> SS of James Martin Ramirez in Tanong 20, attached as Annex "KKK".

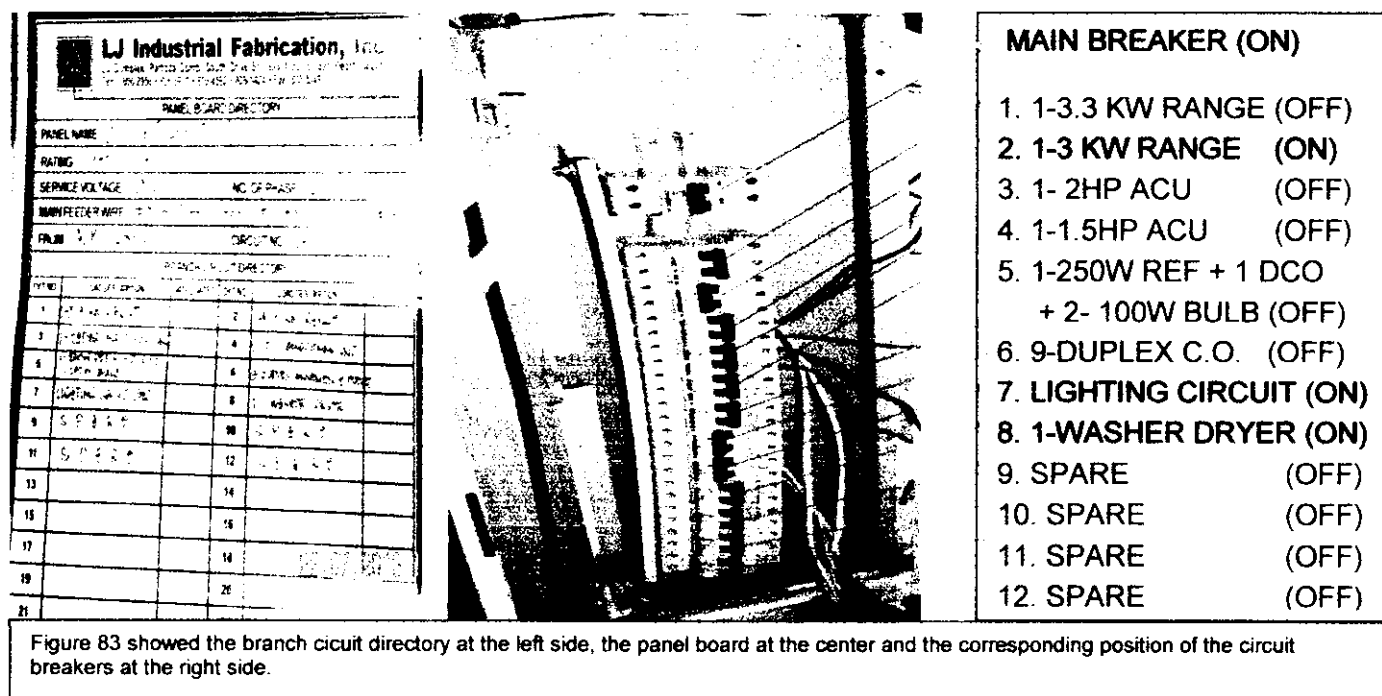
<sup>98</sup> Per SS of Ephraim Silang, attached as Annex "JJJ";

Based from the foregoing circumstances, we're incline to believe that prior to the explosion the LPGas supplied by Bonifacio Gas to Two Serendra, where Unit 501B belonged is not quite distinctive. DOH findings on Mercaptan revealed, "xxx... **Thus, comparing the result of the rapid assessment where the calculated PID reading for ethyl mercaptan of  $1.1 \times 10^{-8}$  ppm was below the odor threshold of 0.0000087 ppm and the LOA of 0.00014.** Further, we cannot discount the fact that unit 501B was newly painted, which may also affect the effectiveness of LPG odorizer to produce distinctive smell. Further, other factors may also affect smelling the warning agent (i.e. anosmia, olfactory difficulties, sinus congestion, allergies, smoking, etc...)

## j. THE GAS DETECTOR

After the explosion, the SOCO-PNP recovered the gas detector for Unit 501B and turned-over to the IATF-CT on June 13, 2013 by SPO3 FLORENTINO DC TASARRA<sup>99</sup>. The said detector was subsequently submitted to the NBI, Electrical Division to determine the functionality of the said device. According to ENGR. DAVE AOANAN in his Electrical Report "Upon testing, the unit was not working when plugged into a 220 volts commercial power, however it could not be determined if this condition had existed before or after the explosion."

The electrical panel recovered at Unit 501B which was also submitted to NBI Electrical Division marked as Evidence # 33. The electrical panel has the following branch circuit directory number and corresponding designated load and circuit breaker position (whether on or off) as shown in Figure 83.



The position of the circuit breakers are consistent also to the findings of ENGR. DAVID AONAN, Chief Electrical Section, NBI in his Electrical Report # 13-06-002 dated 18 June 2013 that, "Main circuit breaker is in the **"ON"** position. There were no wires connected to the said breaker. Circuit breakers # 1, 3, 4, 5, 6, 9, 10, 11 & 12 are in the **"OFF"** position. No traces of short circuit in any of the wires connected to the said breakers. Circuit breakers # 2, 7, & 8 are in the **"ON"** position. There were no wires connected to the said breaker."

During the renovation of Unit 501B when Joselito Zamora cut the counter top table, he revealed that he removed the gas leak detector at the siding and returned it

<sup>99</sup> Turn-over Receipt, attached as Annex "DDDDD".

thereafter. We believed that when Zamora returned the gas leak detector he did not plugged it in at the convenience outlet, which Zamora even mistakenly thought that it was a buzzer. According to Witness Alicia Mendez when the LPG valve was turned-on in the morning of 31 May 2013 she did not hear any sound of an alarm. Likewise, ocular examination of the plug of the gas detector of Unit 501B did not show any sign of bending or deformation after the explosion, which we believe that it was not plugged-in at the convenience outlet prior to the explosion as shown in Figure 83. (Be it noted that the gas detector was thrown when the explosion occurred, if it was plugged-in, the plug would have bent or deformed when it was thrown by the explosion) Likewise, the branch circuit for convenience outlets as shown in the figure above is in "OFF" position rendering the gas detector inoperable even if it is plugged-in at the convenience outlet. Further, during renovation the panel board was transferred to the wall at the CR near the flat TV, facing the living area. Hence, we were inclined to believe that when the panel board was transferred the branch circuit breaker for the outlet of the gas detector was turned-off. However, it was not turned-on again prior to the blast. When the gas was flowing in the flexible hose the gas detector did not work. Be it noted also that since December 2012 Unit 501B until the last reading of LPG meter on May 28, 2013 does not have any LPG consumption. Thus, the gas detector may have not turned-on or activated for a long time.

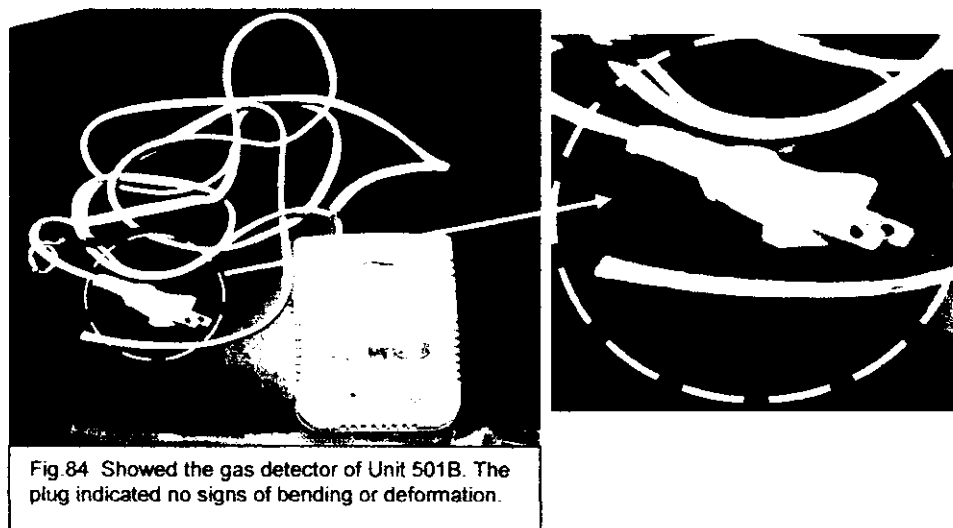


Fig 84. Showed the gas detector of Unit 501B. The plug indicated no signs of bending or deformation.

Hence, we are inclined to believe that prior to explosion the gas leak detector of Unit 501B is unplugged, and with the position of circuit breakers for convenience outlet in an "OFF" position the gas detector is rendered unoperational.

## VII. CONCLUSION:

Based on the foregoing circumstances we find that the LPG braided flexible hose (black color) was detached from the gas range connection on 07 May 2013 by **REYNEL INFANTE**, Plumber of RM Ladrado Construction Services, before moving the gas range to the living area (sala) of Unit 501B to give working space for the carpentry job that Joselito Zamora has to undertake, to increase the cabinet size so that washing machine/dryer will fit in it. Because the cabinet size will be increased towards the gas range area, the length of the "kitchen counter top" has to be cut in order to compensate the space needed for the gas range. Clotildo Cuizon disclosed, "Bago ginawa ang cabinet ng washing machine noong May 7, 2013 ay pinatanggal muna ni Manuel Gruta kay Reynel Empante ang LPG hose na nakakabit sa gas range, at pagtanggal ni Reynel ay inamoy nya at sabi nya ay patay naman daw dahil wala naman syang naamoy o kaya ay lumabas na hangin mula sa hose, at pagkatapos ay nilabas ang gas range mula sa kinalalagyan niya at nilipat sa sala ang gas range para makakilos ng maluwag ang karpentero."<sup>100</sup> Likewise, Joselito Zamora narrated, "Yung

<sup>100</sup> Extracted from Supplemental Statement of Clotildo Cuizon Jr, attached as Annex "EEE";

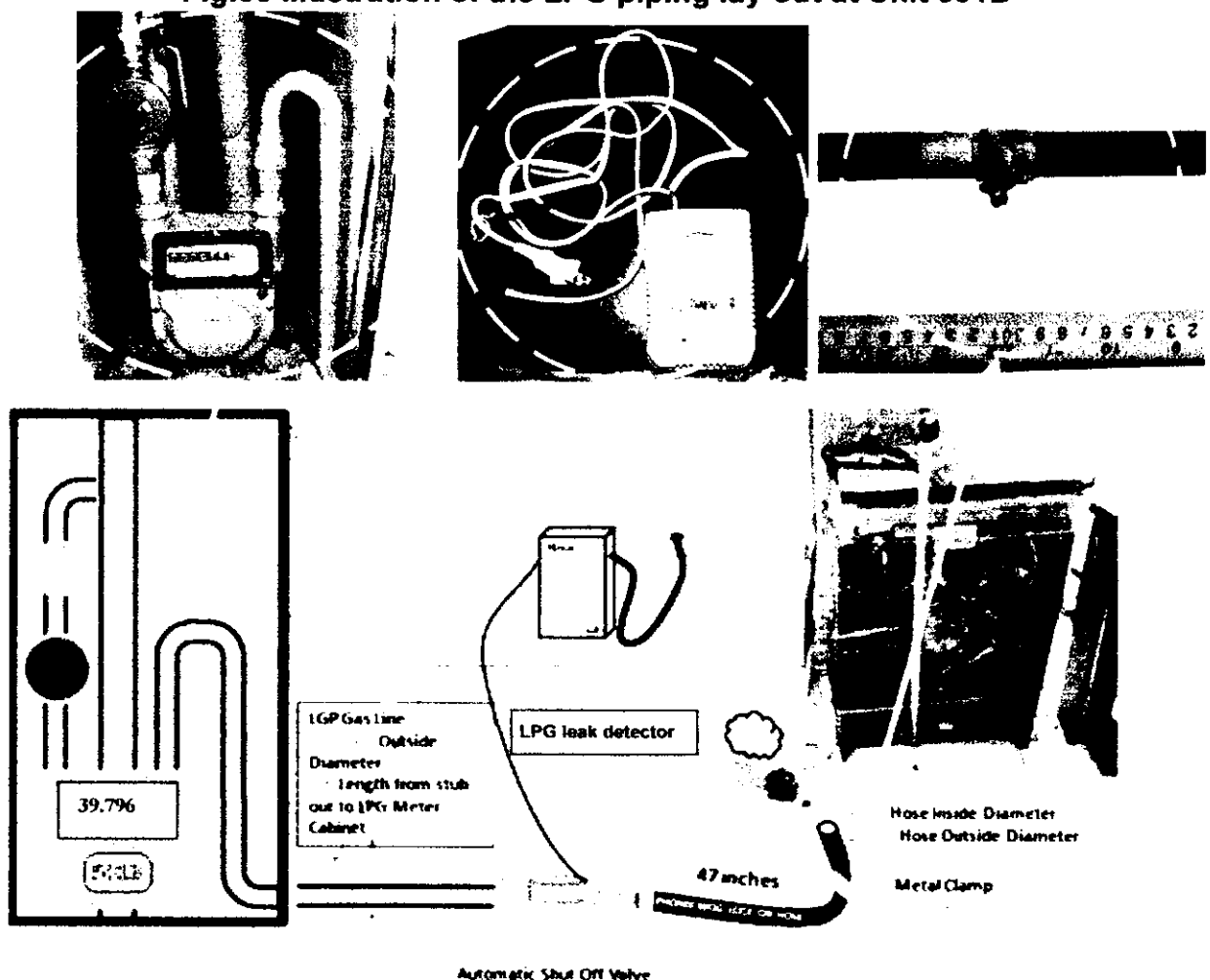


nag tanggal ng flexible hose sa LPG Gas Range ay si Reniel Infante na aming tubero at inurong naming dalawa para makagalaw po ako, pero hindi ko napansin kung sino ang nag buhat papunta sa sala kasi marami kaming helper.”<sup>101</sup>

After the renovation on May 30, 2013 when Clotildo Cuizon Jr returned the key of Unit 501B to Allcia Mendez, the former failed to reconnect the braided flexible hose. This is indicated by the fact that after the explosion the metal clamp with screw is still loosened at the gas range side connection (Marked point "A"). While the other end showed the metal clamp still in place tightly holding the severed outlet nozzle inside the flexible hose. The 9mm diameter hole of the braided flexible hose also jibed with the computation of discharge rate of LPG that could be traced back at the time when LPG valve was turned-on by Ariel Mendez in the morning of 31 May 2013 at around 7:00AM after they fetched San Juan at the airport.

When the LPG supply was turned-on at around 7:00AM by Ariel Mendez, the gas detector did not sound an alarm nor did they (Herminia Ochoa, Alicia Mendez, Ariel Mendez, Arlean Mendez) smelled the LPG discharging from the 9mm diameter braided flexible hose. The LPG accumulated inside unit 501B unnoticed and undetected, even at around 7:55 PM minutes before the explosion when Herminia Ochoa, Secutiy Guard Falcasantos and Security Officer Arsola knocked the door of Unit 501B to fetch San Juan. Thus, we believed that the gas detector was not connected at the convenience outlet during the explosion as it did not show any bending or deformation/damage despite the fact that it was thrown outside the unit. Likewise, the circuit breaker for gas detector was in "off" position rendering it unoperational. While the LPG gas leak detector located at 101B Section B Tower A chase did not activate an indication that the involved fuel was only confined to the subject unit, thus, it did not enter the chase and reach said detector. (See fig. 85)

**Fig.85 Illustration of the LPG piping lay-out at Unit 501B**



<sup>101</sup> Extracted from Supplemental Statement of Joselito Zamora, attached as Annex "NNN";

Note: Photo on the upper left showed the LPG Meter reading that stopped after the explosion, at the upper center showed the Gas Leak Detector with the male plug intact with no signs of damage or bending, a clear indication that it was not connected to the convenient outlet when the explosion occurred, and that the circuit for convenience outlet was in "OFF" position rendering the detector unoperational, and the upper right photo showed the screw of the metal clamp for the gas range inlet was loosened and the metal clamp itself was lowered about 1 ft from its intended location at point B, when recovered by SOCO,PNP after the explosion, consistent with our findings that it was removed and never reconnected to the gas range inlet.

On the otherhand, the LPG odorizer is not so distinctive that it could be smelled at a quite distant location. Alicia, Herminia and Falcasantos are in unison that they did not smell LPG but only the fresh paint.<sup>102</sup> In an sniff test of LPG conducted at Brazilian Restaurant at Serendra Retail near Two Serendra last 05 June 2013, SFO1 Polo in the presence of FSINSP ABAD, DENNIS PALOMAR, General Manager Boni Gas and other Boni Gas personnel, that in the first sniff test in the LPG burner came out negative, and on the second time around he smelled the Mercaptan from a distance of more or less one to two inches from the burner.<sup>103</sup> Further, testing of the presence of Mercaptan conducted by the DOH revealed that, "xxx... the calculated PID reading for ethyl mercaptan of  $1.1 \times 10^{-8}$  ppm was below the odor threshold of 0.0000087 ppm and the LOA of 0.00014."<sup>104</sup> Further, we cannot discount the fact that unit 501B was newly painted, which may also affect the effectiveness of LPG odorizer to emit a distinctive odor. Further, other factors may also affect smelling the warning agent due to anosmia, olfactory difficulties, sinus congestion, allergies, smoking, and certain environmental conditions such as masking by other odors (musk or dampness).<sup>105</sup>

At around 7:59 PM the LPG vapor-air mixture inside Unit 501 is already at its explosive limits and when Mr. Angelito San Juan probably switched off the lighting switch located on the left-side doorway while on his way out for dinner with Herminia, an arc/spark provided the ignition source that triggered the LPG combustion explosion. When the BPF hit the LPG cabinet chase of Unit 506B the cabinet door was blasted and its LPG meter assembly connections create a leak causing the LPG meter assembly of 506B to burn and fell and burn the LPG meter of 306B, shortly thereafter the Fire Detection Alarm System (FDAS) activated. Likewise, the following fire at Unit 501B involving a carton was extinguished by water coming from the ruptured automatic sprinkler piping system installed inside the subject unit. Further, as discussed earlier, the blast pressure effect is also consistent with the heavier than air gas explosion.

Wherefore, premises considered we are inclined to believe that the explosion at Unit 501B was caused by LPG vapor-air mixture explosion that resulted to 4 deaths, 5 injuries, and damage to properties.

## VIII. PARTIES POSSIBLY LIABLE

**1. REYNEL INFANTE, Plumber of RM Ladrado Construction Services** - For failure to observe safety precautionary measure when he intentionally removed the

<sup>102</sup> Per Statement of Herminia Ochoa and Leticia Mendez and Nebster Falcasantos, in Sagot 17, Sagot 26, and Sagot 19 respectively, attached as Annex "HHH";

<sup>103</sup> Sworn Affidavit executed by SFO1 Pedrito Polo and FSINSP FELIX ABAD, attached as Annex "KKKK" & "LLLL" respectively;

<sup>104</sup> Per DOH Result of Testing of the Presence of Mercaptan, attached as Annex, "RR".

<sup>105</sup> *Idem*.

flexible hose on 07 May 2013<sup>106</sup> of the LPG from its connection during the renovation at the kitchen area and left disconnected until the opening of the LPG valve in the morning of 31 May 2013, causing the LPG gas to accumulate inside unit 501B within its explosive limit that caused the explosion and resulted to the death of four persons while injuring others and damage to properties.

LPG is characterized as highly flammable that could readily cause destructive fire or trigger explosion at a right air-vapor proportion when released in the atmosphere. With the given characteristics, the same could be used to injure or kill a person, or could cause damage to property if intentionally employed to perpetrate a crime. When Reynel Infante removed the connection of LPG flexible hose, he failed to observe the necessary precaution demanded by the nature and characteristics of LPG still disconnected. When Infante disconnected the flexible hose, he should have placed a warning sign first at the LPG cabinet where the valve is located to warn any person from accidentally opening it. Likewise, he should have informed also the owner/care taker of Unit 501B to avoid the accidental opening of said valve.

**2. ARIEL MENDEZ** – For failure to observe due diligence by checking the LPG hose connection when he turned on the LPG valve at the LPG meter cabinet on 31 May 2013 if the hose connection is intact, thus causing to accumulate LPG within its explosive limits that led to the explosion, and resulted to the death of four persons and injuring several others. The act of Ariel Mendez of turning-on the LPG valve in the LPG meter cabinet violates the established rule in the Serendra that only the maintenance personnel from JEC are authorized to open the meter cabinet and that any activation or deactivation of gas supply from the gas valve in the LPG meter cabinet requires authorization from the management. This was supported by the statements of JEC Supervisor, Two Serendra Building Engineer, Direct Power Assistant Director that unit owners or occupants are not authorized to open the LPG meter cabinet nor turn-on or off the gas valve. Likewise, commonsense dictates that prior to opening of gas valve, one has to ensure first if the LPG hoseline in the cooking range is connected and if the safety device (gas detector) is in place, considering the fact that the unit is newly renovated.

**3. MANUEL GRUTA, Supervisor and Foreman of RM Ladrido Construction Services** – For failure to exercise due diligence in the supervision of the daily activities of his workers specifically when he allowed Reynel Infante to disconnect the LPG without ensuring first that all precautionary measures has been observed by Infante as Supervisor, that could have averted the tragic incident if he performed his job faithfully. It appears that their working hours is from 8AM to 5PM from Monday to Thursday or nine (9) hours a day. However, Gruta admitted that he visited unit 501B only for at least two to three hours at about three times in a week<sup>107</sup>. This was also confirmed by his workers who stated that “Madalang po, sa isang lingo ay isa lang po yata...xxx.”<sup>108</sup>

Thus, the failure of Manuel Gruta to exercise due diligence and paying proper attention in the supervision of his workers which the former should have ensured that prior the turn-over of the unit they have renovated, all the safety features inside the unit has been activated or inplace which could have foreseen the happening of the incident, that resulted to the death of four persons, while injuring others and damage to properties.

Likewise, another contributory negligence that could be attributed to Gruta's act being the Supervisor and Foreman is his failure to ensure that the renovation prior to

<sup>106</sup> Based on the Supplemental statement of Clotildo Cuizon Jr and corroborated by Joselito Zamora, attached as Annex "EEE" and Annex "NNN" respectively;

<sup>107</sup> SS of Manuel Gruta in Tanong, attached as Annex "FFF";

<sup>108</sup> Extracted from SS of Joselito Zamora, attached as Annex "NNN";

its commencement has an appropriate building permit from Taguig Building Officials and Fire Safety Evaluation Clearance (FSEC) from the Taguig City Fire Station. It appears that the renovation of Unit 501B has no corresponding Building Permit and FSEC as certified by the Taguig City Building Official and Taguig City Fire Station.<sup>109</sup>

**4. Clotildo Cuizon Jr**, painter and time keeper for his failure to re-connect the flexible hose of LPG despite his knowledge of the removal of the hose connection after he finished his painting job. Likewise, he admitted that Manny Gruta instructed him on May 17, 2013 to reconnect the flexible hose of gas range but failed to do so. This could be due to some paint retouching that he has to undertake. Be it noted that based on the work permit issued by APMC on May 20, 21, 27, 28 and 29, 2013 there are still painting jobs and retouch of painting activities where the signatory as "Resident/Project In-charge" on those date except May 20 is Clotildo Cuizon Jr himself. (Work Permit is hereto attached as Annex "S") This is contrary to the claim of Clotildo that the gas range was already returned to its position and the hose was reconnected on May 17, 2013 for the reason that, "xxx... tapos na ang mga gagawin doon sa kusina at pag pintura kaya pinabalik na ang gas range sa pwesto."<sup>110</sup> Thus, Clotildo has the reasons not to reconnect yet the LPG hose because of his painting jobs on those days after May 17, 2013.

Hence, his failure to exercise precautionary measure of ensuring that the LPG hose has been reconnected after his painting activities that lasted until May 29, 2013, constitutes negligence, that resulted to the accidental opening of LPG valve by Ariel Mendez in the morning of May 31, 2013.

**5. MARIANNE CAYTON** – For failure to obtain the corresponding Building Permit and Fire Safety Evaluation Clearance for the renovation of Unit 501 B which she owned. Being the unit owner it is her responsibility that the appropriate permit from concerned government agencies has been undertaken first. Certification issued from Building Official and City Fire Marshal of Taguig City revealed that no permit for said renovation has been issued.<sup>111</sup>

SECTION 301 of the Building Code provides that, "No person, firm or corporation, including any agency or instrumentality of the government shall erect, construct, alter, repair, move, convert or demolish any building or structure or cause the same to be done without first obtaining a building permit therefore from the Building Official assigned in the place where the subject building is located or the building work is to done." (Underscoring supplied)

Likewise, Rule 9, para C of the IRR of RA 9514 otherwise known as the Fire Code of the Philippines of 2008 provides that, "In coordination with the Building Official, the City/Municipal having jurisdiction shall review, evaluate and assess plans, design calculations and specifications, and issue the necessary building Fire Safety Evaluation Clearance (FSEC) upon determination that design and specification is in accordance with the provision of the Fire Code of the Philippines and this IRR." Be it noted that FSEC is prerequisite to the grant of Building Permit, since the Building Official will not issue the required Building Permit without first obtaining an approval from the BFP through the issuance of FSEC after evaluation of the plan that conforms to the Fire Code.

<sup>109</sup> Certification from Taguig Building Official and Taguig City Fire Station, attached as Annex "J", "I" respectively;

<sup>110</sup> Extracted from Supplemental Statement of Clutildo Cuizon Jr, attached as Annex "EEE";

<sup>111</sup> Certification from Taguig Building Official and Taguig City Fire Station, attached as Annex "J", "I" respectively.

Thus, it is recommended that the violation of Marianne Cayton for failure to obtain Building Permit for renovation be referred to Building Official of Taguig City since they are the enforcing authority of the Building Code.

Further, as regards the violation of the Fire Code for failure to obtain FSEC from Taguig City Fire Station - be referred to the City Fire Marshal of Taguig City, in relation to para A.3 of Section 13.0.0.7 of the IRR of RA 9514 which states that, "In all cases mentioned above, regardless of whether the violation is categorized as administrative or punitive, the City or Municipal Fire Marshal shall have the authority to determine whether a criminal charge is going to be instituted and shall initiate the filing thereof." (Underscore supplied)

## IX. RECOMMENDATIONS:

1. It is respectfully recommended that the **Department of Justice** will make the necessary evaluation as far as any legal liability of the persons implicated in the caused of the explosion in accordance with PRESIDENTIAL MEMORANDUM ORDER NO. 371, creation of the IATF particularly SECTION 4: RESPONSIBILITIES OF AGENCIES 4.2 DEPARTMENT OF JUSTICE (DOJ), which states:

" Assign state/special prosecutors to the IATF to conduct preliminary investigation and pre-trial conference with IATF investigators to review the facts of the case, examine physical evidence, review anticipated testimonies by experts and other witnesses and evaluate the potential value of circumstantial evidence."

2. Further, it is most respectfully recommended, that the **HONORABLE SECRETARY, DILG**, who is the **CHAIRMAN OF IATF** to consider addressing the following:

a. In coordination with DOE, Department of Trade and Industry, Bureau of Product Standard, BFP, Non- Governmental Organization, and other concerned agencies/stakeholders, adopt or formulate a Standard for Gas Leak Detector; Maintenance Guidelines for LPG Leak Detector; Standard for Vaporizer Machine and LPG vapor state distribution system in the light of the letter of ANNE DAISY T. OMILA, Officer-In-Charge, Bureau of Product Standard that as of 04 July 2013, "***we have no existing Philippine National Standard***" (Italics for emphasis) on the following:

2.c.a. Standard for Gas Leak Detector;

2.c.b. Other Guidelines relative to installation and maintenance of Gas Leak Detector; and

2.c.c. Standard/"Vaporizer Machine" and LPG "Vapour" state distribution system.

The early adoption or formulation of appropriate standard that will regulate and ensure that the level of effectiveness of LPG odorizer like Ethyl Mercaptan or similar odorants is maintained, checked or monitored regularly throughout the centralized LPG distribution system will surely benefit the concerned industry, consumers and the public.

b. Review existing MOA and/or come up with a MOA between The Department of Energy (DOE), Department of Public Works and Highways (DPWH) and DILG, with regards to the conduct of joint inspections on LPG farm/facility, all Serendra Buildings and other buildings, within the Bonifacio Global City utilizing centralized LPG vapor

state distribution system, and piping layout in the streets to determine their safe condition in order to avoid similar occurrence in the future; and

c. The Building Official and BFP will conduct comprehensive review of existing buildings particularly those with centralized LPG vapor state distribution system and any alteration with respect to its gas pipe installation/connection to avoid similar incident(s) in the future.

Signed this 14<sup>th</sup> day of August 2013, at the office of the Inter Agency Anti-Arson Task Force Composite Team, DILG, Quezon City, Philippines.

  
**VICTOR T AQUINO**  
PO2 PNP  
PNP Representative

  
**GINO S MIRABITE**  
SFO1 BFP  
BFP Representative

  
**J PEPITO V PALMA JR**  
SFO2 BFP  
BFP Representative

  
**CLETO T RESPICIO JR**  
SFO3 BFP  
BFP Representative

  
**MARLO H SERITO**  
SFO3 BFP  
BFP Representative

  
**REDENTOR V ALUMNO**  
INSP BFP  
BFP Representative

  
**OSCAR N ROPERO**  
INSP (LC) BFP  
BFP Representative

  
**ATTY. ELIZALDO BELTRAN**  
NBI Representative

  
**FENNIMORE V JAUDIAN, CFEI, CVFI**  
SSUPT (DSC) BFP  
Chief, IATF-CT, DILG