

# JHMC

JOHN HAY MANAGEMENT CORPORATION

*Jamie Eloise M. Agbayani, M.D.*  
President and Chief Executive Officer

27 July 2015

**HONORABLE CESAR L. VILLANUEVA**  
**Chairman**  
**Governance Commission for GOCCs (GCG)**  
3/F Citibank Centre, Citibank Plaza,  
Paseo de Roxas Cor. Villar St., Makati City

Attention: **Ralph Owen V. de Castro**  
Corporate Governance Officer IV

Subject: **Submission of the CY 2015 2<sup>nd</sup> Quarter Performance Monitoring Report (PES Form 3) of the John Hay Management Corporation (JHMC)**

Dear **Chairman Villanueva**:


May we respectfully submit the following for the above subject relative to the JHMC- GCG Performance Agreement for CY 2015:

- a. CY 2015 2<sup>nd</sup> Quarter Performance Monitoring Report (PES Form 3); and
- b. Department of Environment and Natural Resources- Environment Management Bureau (DENR-EMB) Report on the Ambient Air Quality Sampling and Monitoring conducted for the 1<sup>st</sup> Quarter 2015 within the Baguio City, La Trinidad, Itogon, Sablan, Tuba and Tublay (BLISTT) Airshed.

Thank you and with assurances of my highest esteem, I remain

Very truly yours,

*Jamie Eloise M. Agbayani*  
**JAMIE ELOISE M. AGBAYANI, M.D.**

**John Hay Management Corporation**  
a member of the BCDA Group  
  
OPCEO-OUT-2015-0236

**JOHN HAY MANAGEMENT CORPORATION  
PERFORMANCE EVALUATION SYSTEM**

Performance Monitoring Report

Strategic Measure	Formula	Weight	Rating System	Baseline		2015				2015			
				2013	2014	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
						Target	Actual	Target	Actual	Target	Actual	Target	Actual
<b>SO 1: Develop Camp John Hay as a Premier Tourist and Investment Destination</b>													
SM 1: Number of jobs generated in the JHSEZ	Absolute Number	12.5%	Actual Increase / Target Increase x Weight	3,473	4,050	1,025	-	1,025	4,554 (as of 30 June 2015)	1,025		1,025	
SM 2: Gross sales of business enterprises within the JHSEZ	Absolute Number	12.5%	Actual / Target x Weight	No Baseline Data Available	150M	50M	-	50M	₱450.4 M	50M		50M	
<b>SO 2: Ensure Sustainable</b>													
SM 3: Issuance of ISO 14001 Environmental Management System	Absolute Number	10.0%	All or Nothing	No Baseline Data Available	No Baseline Data Available	Research and thorough study on ISO 14001 Compliance Processes, procedures and standards (in-house).	Preparation of the Terms of Reference for the formulation of the "Sustainable Forest Management Plan"	Research and thorough study on ISO 14001 Compliance Processes, procedures and standards (in-house).	The Terms of Reference (TOR) for a Forest Management Program funding for the JHMC has been approved by the JHMC-BOD. To date, letters were sent to KOICA, JICA, ADB, USAID, AUSAID and Israel Embassy, for possible funding.  Further, the JHMC-Benguet State University (BSU)- Commission on Higher Education (CHED) on long term partnership for the "Sustainable Forest Management Plan for Camp John Hay has been approved by the JHMC-BOD.	Procurement of consultancy service for ISO 14001		Implementation of Consultancy towards ISO 14001 Certification.	

SOCIAL IMPACT / STAKEHOLDERS

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**JOHN HAY MANAGEMENT CORPORATION**  
**PERFORMANCE EVALUATION SYSTEM**  
 Performance Monitoring Report

Strategic Measure	Formula	Weight	Rating System	Baseline		2015								
				2013	2014	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		
						Target	Actual	Target	Actual	Target	Actual	Target	Actual	
SOCIAL IMPACT/ STAKEHOLDERS	SM 4: Compliance of JHMC to National Ambient Air Quality Standards on Particulate Matter 10 (PM10) within the JHSEZ.	Non-exceedance in the JHMC set for Particulate Matter 10 (PM10): less than 80 µg/ m <sup>3</sup>	10.0%	Actual / Target x Weight	11 µg/ m <sup>3</sup> (PM 10)	22.95 µg/ Ncm	No scheduled DENR-EMB reading for the quarter	1st Quarter Ambient Air Quality Readings were conducted on the following dates and place with corresponding results: a. Date: 03-04 Feb. 2015 Mile Hi Center- 22 µg/ Ncm; and b. Feb. 4-5, 2015 Baguio Ayala Techno Hub- 38 µg/ Ncm.	less than 80 µg/ Ncm	2nd Quarter Readings were conducted on the following dates and place with which the reading were not yet released by the City Environment Parks and Management Office (CEPMO): a. 01-07 June 2015- Mile Hi Center, and b. 08-14 June 2015- Baguio Ayala Technohub.	less than 80 µg/ Ncm		No scheduled DENR-EMB reading for the quarter	
	SO 3: Enforce Efficient and Effective Regulation in the Special Economic Zone													
	SM 5: Stakeholders' Satisfaction Survey	95% or better rating	10.0%	Actual / Target x Weight	No Baseline Data Available	87%	95%	Overall Rating is "Excellent" based on adjectival rating. The percentage guide will be finalized with the Development of the JHMC- Quality Management System (QMS).	95%	Overall Rating is "Excellent" based on adjectival rating. The percentage guide will be finalized with the on-going Development of the JHMC-Quality Management System (QMS).	95%		95%	
SO 4: Increase JHMC Revenues to Attain Financial Viability														
FINANCIAL	SM 6: Remittance of Collection from Lease rentals of BCDA Assets	Absolute Number	10.0%	Actual / Target x Weight	25.8 M	16.4 M	6.83 M	9.29 M	6.83 M	7.56 M	6.83 M	-	6.83 M	0.00%
SO 5: Strengthen Compliance Monitoring of All Business Enterprises to the Rules and Regulations of the JHSEZ														
INTERNAL PROCESS	SM 7: Frequency of Spot inspections per Business Enterprise	Average of 20 inspections per week	7.5%	Actual / Target x Weight	No Baseline Data Available	No Baseline Data Available	at least 1,105 per quarter	280 (average of 23.33 inspections per week)	at least 1,105 per quarter	242 (average of 20.17 inspections per week)	at least 1,105 per quarter		at least 1,105 per quarter	
	SM 8: Frequency of Certificate of Environmental Compliance (CEC) Monitoring	Average of 85 inspections every two (2) months	7.5%	Actual / Target x Weight	No Baseline Data Available	No Baseline Data Available	130	32 inspections/ environment audits	130	31 inspections/ environment audits	124		126	
SO 6: Improve Efficiency and Effectiveness of Processes as Stated in the Citizens' Charter and Operations Manual														

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Republic of the Philippines  
Department of Environment and Natural Resources  
ENVIRONMENTAL MANAGEMENT BUREAU  
Cordillera Administrative Region  
DENR Compound, Gibraltar, Baguio City  
Tel. No. (074) 446-6440, (074) 442-3896

May 19, 2015

**JAMIE ELOISE M. AGBAYANI, MD**  
President / CEO  
John Hay Management Corporation (JHMC)  
Camp John Hay, Baguio City


EMEO - 539-15  
Office of the Regional Director  
EMB-CAR  
**RELEASED**  
By OPB Date 5 20 15

Dear **Dr. Agbayani**:

Forwarding a copy of the report prepared by this Office on the Ambient Air Quality Sampling and Monitoring conducted for the First (1<sup>st</sup>) Quarter 2015 within the Baguio, La Trinidad, Itogon, Sablan, Tuba and Tublay (BLISTT) Airshed.

For your information and perusal.

Very truly yours,

  
**ENGR. ALEX C. LUIS**  
OIC, Office of the Regional  
Director



**John Hay Management Corporation**  
a member of the BCDA Group  
OPCEO-IN-2016-0422



Republic of the Philippines  
**Department of Environment and Natural Resources**  
**ENVIRONMENTAL MANAGEMENT BUREAU**  
Cordillera Administrative Region  
DENR Compound, Gibraltar, Baguio City  
Tel. No. (074) 446-6440, (074) 442-3896

May 18, 2015

**MEMORANDUM**

FOR : **The OIC, Office of the Regional Director**

THRU : **ALEX C. LUIS**  
OIC-Chief, Environmental Monitoring and Enforcement Division

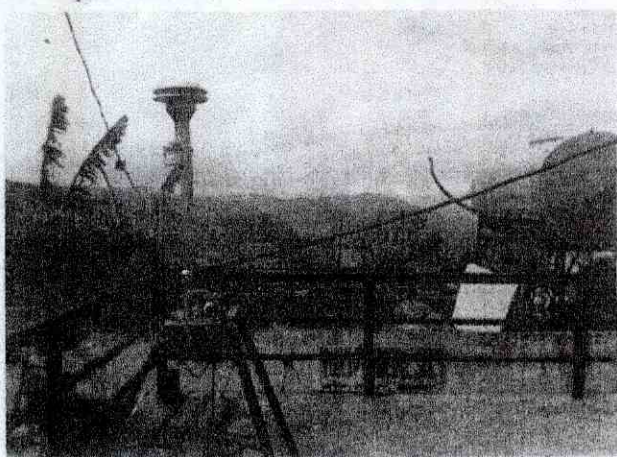
FROM : Ambient Monitoring and Technical Services Section

SUBJECT : **FIRST QUARTER (2015) AMBIENT AIR QUALITY SAMPLING AND MONITORING CONDUCTED WITHIN THE (BAGUIO, LA TRINIDAD, ITOGON, SABLAN, TUBA AND TUBLAY) BLISTT AREAS.**

5-18-15

MR-528-15  
Office of the  
REGIONAL DIRECTOR  
FROM DENR-CAR  
**RECEIVED**  
Date: 5-18-15  
By: [Signature]

As part of the mandate of this Office on the implementation of Republic Act (R.A.) 8749 known as the "Philippine Clean Air Act of 1999" and its Implementing Rules and Regulations, the Ambient Monitoring and Technical Services Section of the Environmental Monitoring and Enforcement Division conducted twenty-four (24) hours exposure ambient air quality sampling and monitoring at established sampling stations within the BLISTT area. The sampling stations were the following: Municipal Hall Grounds, Acop, Caponga, Tublay; Municipal Hall Grounds, Poblacion, Sablan; EMB Compound, Gibraltar, Baguio City; Municipal Hall Park, Km. 5, La Trinidad, Benguet; Provincial Capitol, Km. 6, La Trinidad, Benguet; Mile Hi Center, Camp John Hay, Baguio City; Municipal Hall Grounds, Poblacion, Itogon; Baguio Ayalaland Technohub, Camp John Hay, Baguio City; Municipal Hall Grounds, Poblacion, Tuba, Benguet; and Plaza Garden, Central Business District, Baguio City. The said sampling stations were collected for particulate matter (PM<sup>10</sup>) using the "BGI PQ100" High Volume Sampler.



The following are the results of sampling & monitoring:

**A) Municipal Hall Grounds, Acop, Caponga, Tublay**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Feb. 12, 2015; 10:55 a.m. - Feb. 13, 2015; 10:55 a.m.	15-10	0.8206	21.25	18.3	Cloudy	39	Good

**B) Municipal Hall Grounds, Poblacion, Sablan**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Jan. 20, 2015; 10:40 a.m. - Jan. 21, 2015; 11:12 a.m.	15-4	0.1983	8.32	29.7	Cloudy	26	Good

**C) Municipal Hall Park, Km. 5, La Trinidad, Benguet**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Feb. 17, 2015; 12:33 p.m. - Feb. 18, 2015; 12:33 p.m.	15-12	1.6702	21.28	21.9	Fair	79	Fair

**D) Provincial Capitol, Km. 6, La Trinidad, Benguet**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Feb. 16, 2015; 10:43 a.m. - Feb. 17, 2015; 10:43 a.m.	15-11	2.5333	21.17	24.9	Fair	121	Fair

**E) Mile Hi Center, Camp John Hay, Baguio**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Feb. 3, 2015; 9:37 a.m. - Feb. 4, 2015; 9:37 a.m.	15-7	0.4720	21.08	17.5	Sunny	22	Good

**F) Municipal Hall Grounds, Poblacion, Itogon**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Feb. 5, 2015; 12:13 p.m. - Feb. 6, 2015; 12:13 p.m.	15-9	0.8719	22.50	24.3	Partly Cloudy	39	Good

**G) Baguio Ayalaland Technohub, Camp John Hay, Baguio City**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Feb. 4, 2015; 10:40 a.m. - Feb. 5, 2015; 10:40 a.m.	15-8	0.8023	20.61	17.2	Sunny	38	Good

**H) Municipal Hall Grounds, Poblacion, Tuba, Benguet**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Jan. 21, 2015; 11:52 a.m. - Jan. 22, 2015; 11:52 a.m.	15-5	0.4630	21.46	18.5	Cloudy	22	Good

**I) EMB Compound, Gibraltar, Baguio City**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Jan. 22, 2015; 1:08 p.m. - Jan. 23, 2015; 1:08 p.m.	15-6	0.6248	21.02	18.0	Cloudy	30	Good
Mar. 11, 2015; 11:00 a.m. - Mar. 12, 2015; 11:00 a.m.	15-13	0.9719	21.11	19.1	Fair	46	Good
Mar. 12, 2015; 1:20 p.m. - Mar. 13, 2015; 1:20 p.m.	15-14	1.6539	21.00	19.8	Cloudy	79	Fair

**J) Plaza Garden, Central Business District, Baguio City**

Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Jan. 13, 2015; 10:32 a.m. - Jan. 14, 2015; 10:32 a.m.	15-1	2.1402	21.04	19.7	Partly Cloudy	102	Fair
Jan. 14, 2015; 10:36 a.m. - Jan. 15, 2015; 10:36 a.m.	15-2	2.3574	21.07	19.7	Partly Cloudy	122	Fair
Jan. 15, 2015; 11:41 a.m. - Jan. 16, 2015; 11:41 a.m.	15-3	2.3284	20.95	20.8	Partly Cloudy	111	Fair
Mar. 17, 2015; 10:10 a.m. - Mar. 18, 2015; 10:10 a.m.	15-15	3.6412	20.93	20.9	Partly Cloudy	174	Un-healthy for Sensitive Groups (USG)
Mar. 18, 2015; 11:34 a.m. - Mar. 19, 2015; 11:34 a.m.	15-16	3.4911	20.90	21.0	Partly Cloudy	167	Un-healthy for Sensitive Groups (USG)



Date and time of sampling	Filter Paper Number	Net weight of Particles (mg)	Standard Volume (m <sup>3</sup> )	Meteorological conditions (sunny, fair and cloudy, etc)		PM <sup>10</sup> (µg/m <sup>3</sup> )	Air Quality Index
				Temperature (°C)	Ambient Conditions		
Mar. 19, 2015; 2:55 p.m. - Mar. 20, 2015; 2:55 p.m.	15-17	5.6810	20.78	23.1	Partly Cloudy	274	Un-healthy for Sensitive Groups (USG)
Mar. 25, 2015; 10:19 a.m. - Mar. 26, 2015; 10:19 a.m.	15-18	2.6516	20.90	21.6	Partly Cloudy	127	Fair
Mar. 26, 2015; 11:06 a.m. - Mar. 27, 2015; 11:06 a.m.	15-19	2.2796	21.10	20.0	Rainy	108	Fair

**K) Lakeside, Burnham Park, Baguio City**

DATE January 2015	Particulate Matter (PM <sup>10</sup> ) µg/m <sup>3</sup>	Particulate Matter (PM <sup>2.5</sup> ) µg/m <sup>3</sup>	Wind Direction Azimuth degrees	Wind Speed m/s	DATE January 2015	Particulate Matter (PM <sup>10</sup> ) µg/m <sup>3</sup>	Particulate Matter (PM <sup>2.5</sup> ) µg/m <sup>3</sup>	Wind Direction Azimuth degrees	Wind Speed m/s
1	*	*	*	*	17		9	144	1.2
2	*	*	*	*	18		23	162	0.5
3		11	151	1.1	19		17	175	0.6
4		23	170	0.6	20		20	194	0.6
5		21	203	0.6	21		22	274	0.6
6		23	223	0.6	22		20	230	0.9
7		25	238	0.5	23		16	159	1.1
8		14	163	0.8	24		11	132	1.4
9		9	138	0.9	25		28	190	0.6
10		11	169	1.1	26		24	168	0.7
11		11	159	1.1	27		27	169	0.7
12		8	136	1.8	28		23	166	0.8
13		19	183	0.9	29		27	174	0.9
14		25	204	0.6	30		22	168	0.7
15		27	162	0.6	31	*	*	*	*
16		21	194	0.6					
National Ambient Air Quality Guideline Value (NAAQGV)	150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>				150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>		

\* Null data

0 - 54 µg/m <sup>3</sup>	Good	155 - 254 µg/m <sup>3</sup>	Unhealthy for Sensitive Groups	355 - 424 µg/m <sup>3</sup>	Acutely Unhealthy
55 - 154 µg/m <sup>3</sup>	Fair	255 - 354 µg/m <sup>3</sup>	Very Unhealthy	425 - 504 µg/m <sup>3</sup>	Emergency

DATE February 2015	Particulate Matter (PM <sup>10</sup> ) µg/m <sup>3</sup>	Particulate Matter (PM <sup>2.5</sup> ) µg/m <sup>3</sup>	Wind Direction Azimuth degrees	Wind Speed m/s	DATE February 2015	Particulate Matter (PM <sup>10</sup> ) µg/m <sup>3</sup>	Particulate Matter (PM <sup>2.5</sup> ) µg/m <sup>3</sup>	Wind Direction Azimuth degrees	Wind Speed m/s
1		20	136	1.3	15		7	135	1.5
2		12	153	1.0	16		17	201	0.6
3		22	170	0.7	17		26	232	0.6
4		17	173	1.0	18		21	192	0.6
5		19	181	0.6	19		18	183	0.6
6		19	189	0.6	20		12	175	1.0
7		26	185	0.6	21		17	230	0.9
8		32	172	0.5	22		31	176	0.6
9		13	154	1.1	23	56	39	180	0.6
10		18	163	1.1	24	59	40	164	0.7
11		22	189	0.7	25	*	*	*	*
12		26	202	0.7	26		34	178	0.8
13		14	148	0.8	27	59	37	170	0.7
14		7	135	2.2	28	88	45	185	0.7
National Ambient Air Quality Guideline Value (NAAQGV)	150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>				150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>		

\* Null data

DATE March 2015	Particulate Matter (PM <sup>10</sup> ) µg/m <sup>3</sup>	Particulate Matter (PM <sup>2.5</sup> ) µg/m <sup>3</sup>	Wind Direction Azimuth degrees	Wind Speed m/s	DATE March 2015	Particulate Matter (PM <sup>10</sup> ) µg/m <sup>3</sup>	Particulate Matter (PM <sup>2.5</sup> ) µg/m <sup>3</sup>	Wind Direction Azimuth degrees	Wind Speed m/s
1		35	208	0.7	17	60	37	173	0.6
2	75	52	172	0.8	18	64	41	196	0.7
3	71	47	178	0.6	19	83	57	158	0.7
4	66	42	170	0.7	20	104	68	182	0.6
5	61	41	166	0.7	21	93	62	185	0.7
6	81	50	179	0.6	22		24	174	0.7
7	99	67	181	0.6	23		9	155	1.2
8	112	59	189	0.6	24		13	153	1.0
9	55	35	226	1.0	25		14	165	0.9
10	58	40	190	0.8	26		19	146	1.0
11		28	183	0.8	27	*	*	*	*
12		28	233	0.7	28		28	168	0.8
13		27	190	0.5	29		22	185	0.7
14		33	164	0.5	30		29	174	0.8
15		33	176	0.6	31		36	181	0.7
16	60	40	189	0.6					
National Ambient Air Quality Guideline Value (NAAQGV)	150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>				150 µg/m <sup>3</sup>	75 µg/m <sup>3</sup>		

\* Null data

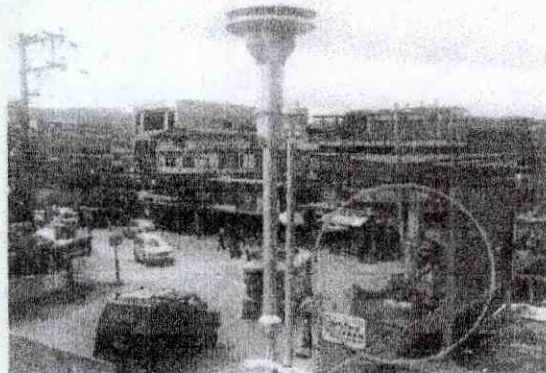
0 - 54 µg/m <sup>3</sup>	Good	155 - 254 µg/m <sup>3</sup>	Unhealthy for Sensitive Groups	355 - 424 µg/m <sup>3</sup>	Acutely Unhealthy
55 - 154 µg/m <sup>3</sup>	Fair	255 - 354 µg/m <sup>3</sup>	Very Unhealthy	425 - 504 µg/m <sup>3</sup>	Emergency

## Remarks

There were ten (10) PM<sup>10</sup> monitoring stations using manual method for sampling at established stations within the Baguio, La Trinidad, Itogon, Sablan, Tuba and Tublay (BLISTT) Airshed. Except for the Plaza Garden station located at the Central Business District of Baguio City, most results obtained from BLISTT sampling stations did not exceed the National Ambient Air Quality Guideline Value (NAAQGV) at 150 µg/m<sup>3</sup> for PM<sup>10</sup>. In general, results from seven (7) sampling stations were within the "Good" air quality index range which is from 0 - 54 µg/m<sup>3</sup>. Results from two (2) sampling stations particularly both within La Trinidad, Benguet were within the "Fair" air quality index range which is from 55-154 µg/m<sup>3</sup>. Results for Plaza Garden Station on the other hand ranged within "Fair" and "Unhealthy for Sensitive Groups (USG)". Weather conditions during sampling were generally fair and mostly cloudy with rains throughout the day. Two (2) sampling stations showed decrease of PM<sup>10</sup> levels as compared with results obtained from the 4<sup>th</sup> quarter 2014 as shown on the following table.

Sampling Station	PM <sup>10</sup> Results (µg/m <sup>3</sup> )		Percent Decrease
	4 <sup>th</sup> Quarter 2014	1 <sup>st</sup> Quarter 2015	
Municipal Hall Grounds, Sablan, Benguet	35	26	26%
Mile Hi Center, Camp John Hay, Baguio City	24	22	8%

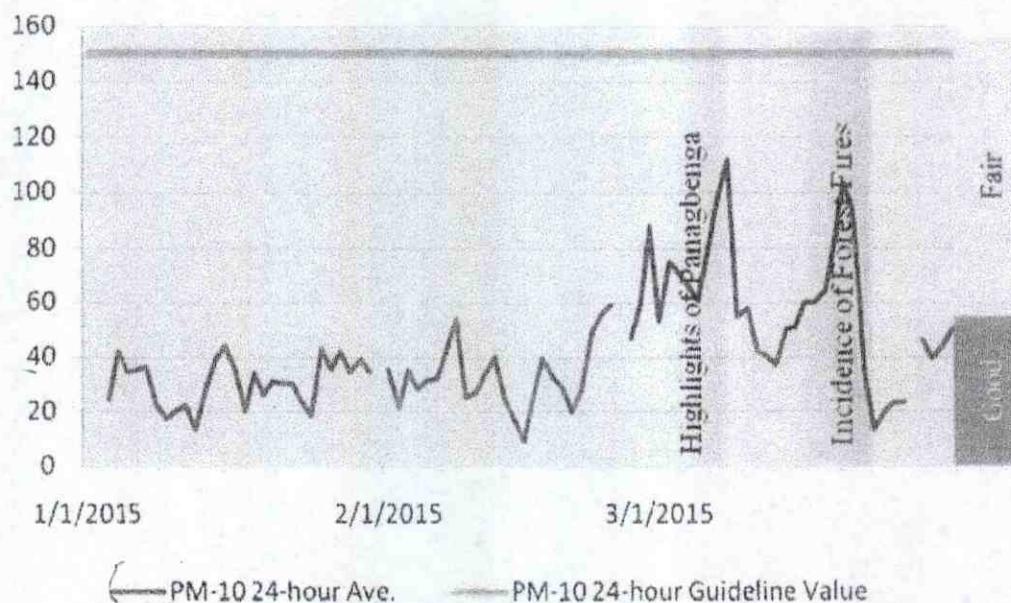
Six (6) stations showed increase in PM<sup>10</sup> levels as compared with obtained results in the 4<sup>th</sup> quarter 2014 as shown on the table below. Though at one hundred seventy five percent (175%) increase was noted for sample result obtained at Tuba, Benguet, still this is way below the NAAQGV. PM-10 levels obtained at the station located at the Provincial Capitol, Km. 6, La Trinidad, Benguet maintains at "Fair" levels, whereby twenty seven percent (27%) increase was noted as compared from results of 4<sup>th</sup> quarter 2014. It was noted that during sampling, construction activities were ongoing adjacent to the Provincial Capitol station.



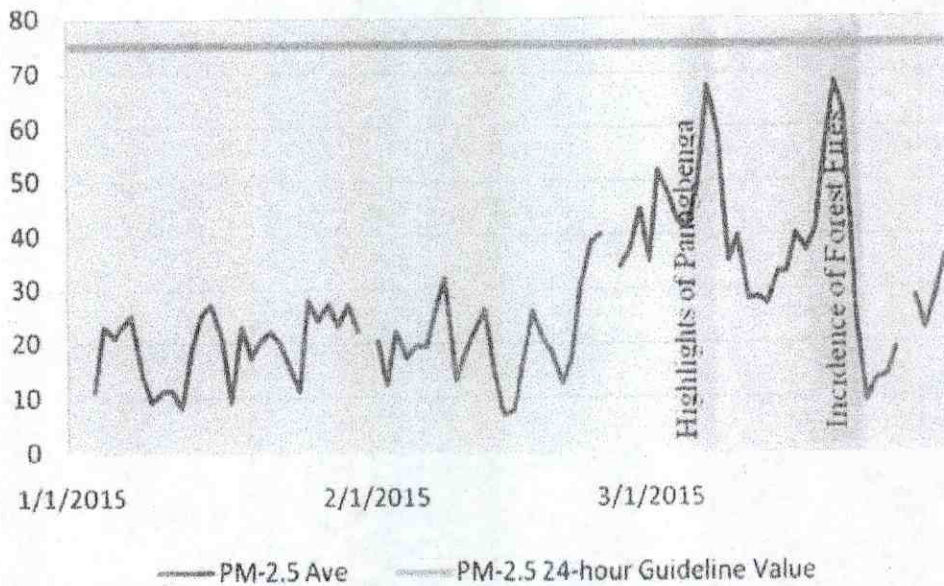
On-going construction of a footbridge / overpass approximately ten (10) meters from the sampling station

Sampling Station	PM <sup>10</sup> Results (µg/m <sup>3</sup> )		Percent Increase
	4 <sup>th</sup> Quarter 2014	1 <sup>st</sup> Quarter 2015	
Provincial Capitol, Km. 6, La Trinidad, Benguet	95	121	27%
Municipal Hall Grounds, Itogon, Benguet	26	39	50%
Baguio Ayala Land TechnoHub, Camp John Hay, Baguio City	36	38	6%
Municipal Hall Park, Km. 5, La Trinidad, Benguet	64	79	19%
Municipal Hall Grounds, Tuba, Benguet	8	22	175%
Municipal Hall Grounds, Tublay, Benguet	26	39	50%

There were eighty five (85) validated  $PM^{10}$  24-hour averages for the first (1<sup>st</sup>) quarter of 2015 covering the months of January, February and March. Generally, the  $PM^{10}$  levels are within the NAAQGV at  $150 \mu g/m^3$ . Results as shown on the following graph indicates an increase during the highlights of the Panagbenga Festival which relates to increased vehicle utilization especially by arriving tourists. Closure of major roads like Session Road during the Session Road in Bloom event and Lake Drive for the Baguio Blooms Event thus traffic congestions were observed. Other than the Panagbenga event, increased incidence of forest fires from nearby municipalities of Tuba and Bokod, Benguet contributed to levels of  $PM^{10}$ . Sudden decrease of  $PM^{10}$  levels followed by series of heavy rains reveals that particulates produced from forest / grass fires even from long distant areas add up to suspended  $PM^{10}$  in the air within the coverage area of the Burnham Park station.



Also, there were 85 validated  $PM^{2.5}$  24-hour averages that are within the NAAQGV at  $75 \mu g/m^3$ . Levels of  $PM^{2.5}$  revealed its relation to the similar concentration trend of  $PM^{10}$ . Occurrence of extraordinary activities such as the Panagbenga festival and forest fires contributed to the sharp increase of  $PM^{2.5}$  levels. It should be also noted that there were two (2)  $PM^{2.5}$  concentrations that are only about nine percent (9%) below from the guideline value where each concentration value occurred on said extraordinary periods. Hence, engaged utilization of vehicles especially during special occasions or activities and likewise transboundary pollutants coming from widespread forest / grass fires are large sources of suspended particulates.



**Observed PM<sup>10</sup> Levels relative to Wind Direction**



Southwest Wind from Kisd Road area generally passes through Children Park occurs from 10:00 AM – 5:00 PM

Southeast Wind from Athletic Bowl area generally passes through Melvin Jones occurs from 10:00 AM – 5:00 PM

## Recommendations

On-going construction activities within vicinities of sampling stations were noted factors that may contribute to the increase in  $PM^{10}$ . Fair weather conditions especially with intermittent rains though helped in washing down suspended of particulates in the air, albeit the large sources of particulates from aforementioned activities. Effective control measures to suppress dust suspension should be always implemented by the contract firms in all construction activities. Management to reduce occurrence of forest / grass fires should be also implemented. Particulate matter produced from wild forest / grass fires are also known to be transported by winds as long-range transboundary pollutants and may persist to be suspended in air for a long period especially fine particulates like  $PM^{2.5}$ .

The installation of the Particulate Monitoring System (PMS) for  $PM^{10}$  and  $PM^{2.5}$  confirms that particulates generally affect areas where there are no immediate point sources. Increased utilization of motor vehicles especially during the Panagbenga Festival escalated levels of particulates within the Burnham PMS Station. Highest number of observed  $PM^{10}$  levels in relation to wind direction comes from the southeast direction where the old library site parking area is located. Likewise, recorded wind speeds are generally rated as light wind based on Beaufort Wind Force Scale indicates poor dispersion of air pollutants especially particulates. Thus, it is essential that the Local Government of Baguio should consider other measures besides from number coding to minimize the number of plying vehicles notably private vehicles which was observed to occupy most of the major roads during said event. Designation of parking areas outside the Central Business District may be considered as means to dissuade people to utilize their vehicles and opt to use public transportation, walking or bicycling.


Continued use of the  $PM^{10}$  sampler in established sampling stations within the BLISTT Airshed is fundamental to the Air Quality Monitoring Program of the Office. The results provided to the concerned Local Government Units are being used in their development of environmental programs and policies especially for the improvement of air quality on identified areas. Maintenance activities of the PMS station at Burnham Park, Baguio City should be implemented for its continuous operation. Likewise the immediate rehabilitation of the Continuous Automatic Ambient Air Quality Monitoring System with Telemetry located at Plaza Garden, Central Business District should be implemented especially with the needed replacement of the existing equipment shelter / housing to reinstate the sampling equipment.

Monitoring of other air quality parameters like  $SO_x$ ,  $NO_x$ , and CO would also help determine other sources of pollutants. Hence, acquisition of sampling equipment is necessary for the monitoring of air quality within the region.

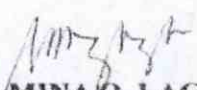
Expanding the coverage of air quality monitoring in emerging urban centers within the Cordillera Region will be useful in the establishment of air quality trends. Thus, sampling and monitoring may be arranged at capital towns in all provinces within the Cordillera Administrative Region.

A copy of this report should be furnished to the concerned LGUs and other agencies for their reference.

For your information.

  
**MARK ANTHONY P. SOLANO**  
Technical Aide

Noted by:

  
**WILHELMINA O. LAGUNILLA**  
Chief, Ambient Monitoring and  
Technical Services Section