VIETNAM INFRASTRUCTURE DEVELOPMENT AND FINANCE INVESTMENT JOINT STOCK COMPANY

REPORT ON ENVIRONMENTAL MONITORING

THE EXPRESSWAY HA NOI – HAI PHONG PROJECT

The 6th monitoring of locations of packages
EX-2. EX-3. EX-4. EX-5. EX-6. EX-8. EX-10

Address: 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street
Me Tri Commune, Tu Lien, Ha Noi

Owner
Vietnam Infrastructure development and finance investment joint stock company

Consultancy
Institute of Environmental Technology

VIỆN KHOA HỌC VÀ CÔNG NGHỆ VIỆT NAM
VIỆN CÔNG NGHỆ MÔI TRƯỜNG

KT. VIỆN TRƯỞNG
PHÓ VIỆN TRƯỞNG

Nguyễn Thị Huệ

Hanoi, September 2012

INTRODUCTION

The Hanoi – Hai Phong Expressway project was issued by Transportation Ministry. The highway is built according to international standards. The route starts at the FIFTH ring road of Hanoi . which runs across Hung Yen. Hai Duong Province and ends at Hai Phong Province.

Starting point: at the FIFTH ring road. surrounding Hanoi City. 1'025m from the Northern abutment of Thanh Tri bridge. in Thuong Hoi hamlet. Thach Ban commune. Gia Lam District. Hanoi Capital.

- Ending point: Dinh Vu dam. Hai An District. Hai Phong city.

Scale of research on the Ha Noi – Hai Phong expressway run across some hamlet. commune. District as below:

Starting at Thuong Hoi hamlet. Thach Ban commune. Long Bien District. the route runs across Dao Xuyen hamlet. Da Ton commune. Kieu Ky commune. Gia Lam District. Ha Noi capital . Starting point: the FIFTH ring road (km 0 to km 6.1).

The communes Cuu Cao. Long Hung. Tan Tien belong to Van Giang District and Yen Phu. Viet Cuong. Minh Chau. Thuong Kiet. Tan Viet commune belong to Yen My District and Van Du commune is in An Thi District. Hung Yen province (km 6.1 to km 25).

Binh Giang District includes Thai Duong. Thai Hoa. Thai Hoc. Co Bi communes while Gia Loc District includes Yet Kieu. Phuong Hung. Gia Khanh. Gia Xuyen communes. Gia Loc town. Ngoc Ky. Dong Ky. Tu Xuyen communes are in Tu Ky District while Thanh Hong. Thanh Cuong. Vinh Lap communes are in Thanh Ha District. Hai Duong province (km 25 – km 82) .

Quang Trung. Quoc Tuan. My Duc. An Thai communes are in An Lao District. while Huu Bang. Hoa Nghia communes are in Kien Thuy District. Trang Cat precinct – Hai An District – Hai Phong City (km 82 to ending point at km 105+500).

Implementing environmental monitoring programmers which were undertook at chapter 6 of the Environmental impact assessment report "The Ha Noi – Hai Phong expressway project" is approved by Transportation Ministry. The owner cooperated

with advisory monitoring groups and environmental quality supervision according to just progress of the project.

Based on the second monitoring outline approved by the owner of project from 3 to July 13. 2012. Institute of Environmental Technology carried out monitoring and analytical sampling of environmental parameters as follow: select determining location. position. time and frequency sampling per day of water. soil and air following windward.

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I. GENERAL INFORMATION

1.1. Contact information

Owner: Vietnam Infrastructure development and finance investment joint stock company

Address: 8th-9th-10th Floor. LILAMA tower. Me Tri commune. Tu Liem. Hanoi

Tel: (84-4) 37711 668-22209 668. Fax: (84-4) 666 22 209

The Groups of construction:

The Hanoi - Hai Phong expressway project has major 10 groups join. In which. there are 8 groups supervised and monitored environmental quality by the Institute of Environmental technology and at present only 03 groups under construction. 02 groups by group of construction observation and monitoring, have in the course of construction. There are 10 tender packages for major construction of the route there were 05 construction packages also 05 packages remaining in the bidding process.

- The packages were monitored and supervised by Institute of Environmental Technology

1. Package EX-2: Namkwang Engineering and Construction Co.. Ltd

- Address: 199 road – Me Thuong Hamlet. Yen Phu Commune. Yen My District. Hung Yen Province.

- Tel: 03213.968.888 Fax: 03213.968.999

2. Package EX-3: General construction company China road

- Address: No. 8 – Luc Dien Road – Minh Chau Commune – Yen My District – Hung Yen Province.

- Tel: 03213.975.837 Fax: 03213.975.836

The group of expressway construction.

3. Package EX-4 : Keangnam Co .. Ltd

- Address : Thai Hoc Commune – Binh Giang District – Hai Duong Province

4. Package EX-5:

- Address : Gia Loc Commune – Gia Loc District – Hai Duong Province

6. Package EX-6:

- Address : Thanh Cuong Commune – Thanh Ha District – Hai Duong Province

3. Package EX-8:

- Address: 1st floor – PLACO building. Km 5 – Pham Van Dong Road –

Duong Kinh Ward – Hai Phong City

- Tel: + 84.31.3581 562 * Fax: +84.31.3581 565

4. Package EX-10: Namkwang Engineering and Construction Co.. Ltd

- Address: 3rd floor – Sao Do building - Km 1+400 – Pham Van Dong road – Anh Dung ward – Duong Kinh District – Hai Phong City.

- Tel: 0313.632.486 Fax: 0313.632.528

Supervisory Consultancy: Institute of Environmental Technology

- Address: A30 building. No. 18 Hoang Quoc Viet. Cau Giay. Ha Noi

- Tel: 043 7569 136; 043 7911 654; 043 7916 512; Fax: 043 7911 203

1.2. Location of implementing the package

Location of the implementation of package EX-2 section from km 6+200 to km 19+000 of the Ha Noi – Hai Phong expressway project.

Location of the implementation of package EX-3 section from km 19+000 to km 33+000 of the Ha Noi – Hai Phong expressway project.

Location of the implementation of package EX-4 section from km 33+000 to km 48+000 of the Ha Noi – Hai Phong expressway project.

Location of the implementation of package EX-5 section from km 48+000 to km 63+300 of the Ha Noi – Hai Phong expressway project.

Location of the implementation of package EX-6 section from km 63+300 to km 72+000 of the Ha Noi – Hai Phong expressway project.

Location of the implementation of package EX-8 section from km 91+300 to km 91+300 of the Ha Noi – Hai Phong expressway project.

Location of the implementation of package EX-10 section from km 96+300 to km 105+500 of the Ha Noi – Hai Phong expressway project.

II. SOURCES OF ENVIRONMENT IMPACT

2.1. Sources of pollutants arising from the activities of Companies

At the time of the fifth monitoring (APRIL 2012)(from 3 to July 13. 2012). the packages of EX-2. EX-3. EX-10. (EX 4. EX 5. EX 6 the FIFTH monitoring). (EX-8 the fourth monitoring) were implementing embankment construction thus sources of pollution affecting the ambient environment include:

- Sources of air pollution include:

+ Dust. NO_2. SO_2. CO: arising from the embankment construction etc.

+ Dust. NO_2. SO_2. CO: arising from the operation of vehicles transporting raw materials (mainly sand).

- Waste water:

+ The embankment construction stage has not production sewage. only rain water runoffs.

+ Household's wastewater is almost negligible due to the little presence of workers on site. Moreover. workers do not eat or sleep in site huts.

- Sources of solid wastes and hazardous wastes almost zero.

- Sources of noise and vibration:

+ Noise. vibration etc arising from the embankment construction. transportation. etc.

+ Noise generated by the operation of the transportation of materials.

To assess the negative impacts on the environment of air. land and water. The owner has cooperated with Institute of Environmental Technology due to implementing of environmental monitoring annually during the construction.

III. RESULTS OF MONITORING. PERIODICALLY SAMPLING ANALYSIS OF ENVIRONMENTAL PARAMETERS

A. RESULTS OF MONITORING IS SUPERVISED BY INSTITUTE OF ENVIRONMENTAL TECHNOLOGY

1. The basis of sampling and environmental analysis

- General regulations

Law on Environmental Protection of Socialist Republic of Vietnam 9/11/2005.

Decision 1940/QD-BTNMT dated 30/11/2007 on the approval of environmental assessment impact report on the Ha Noi-Hai Phong Expressway Project.

Based on the contents of the report on environmental impact assessment of Ha Noi-Hai Phong Expressway Project.

Detailed planning drawing of Ha Noi-Hai Phong Expressway Project.

Based on the demands and abilities of the two parties.

- For air environment

+ QCVN 05:2009/BTNMT – National technical regulations on ambient air quality (substituted for TCVN 5937-2005 "Quality of air and ambient air").

+ QCVN 06:2009/BTNMT – National technical regulations on some poison in ambient air

- For noise and vibration

+ QCVN 26:2010/BTNMT – National technical regulations on noise (substituted for TCVN 5949-1998: "The maximum permitted noise for public and residential areas").

+ QCVN 27:2010/BTNMT – National technical regulations on vibration (substituted for TCVN 6962-2001: "Vibration and shock – Vibration emitted by construction activities and industrial production – The maximum allowed on the environment of public places and residential areas").

- For water environment

+ QCVN 08:2008/BTNMT - National technical regulations on quality of surface water source (substituted for TCVN 5942-1995: Quality regulation of surface water)

+ QCVN 09:2008/BTNMT - National technical regulations on quality of underground water.

- Monitoring locations

Table 1.1. Positions and air sampling time

No.	Content	Sign	Package No.	Monitoring locations	Sampling date
1	Air	K 2	2	Intersection with the 179 road. Cuu Cao commune. Van Giang District. Hung Yen Province.	July 3rd-4th. 2012
2		K 3	3	Intersection with the 39 road. (Luc Dien Ward. Minh Chau commune. Yen My District. Hung Yen Province)	July 4th-5th. 2012
		K 4	4	Intersection with the 38 road. (Tan Phuc commune. Yen My District. Hung Yen Province)	July 5th-6th. 2012

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		K 5	**5**	Intersection with the 20 road. (Nhan Quyen commune. Yen My District. Hung Yen Province)	July 6^{th}-7^{th}. 2012
		K 6	**5**	Gia Loc High School (Gia Loc town commune. Gia Loc District. Hung Yen Province)	July 9^{th}-10^{th}. 2012
		K 7	**6**	Intersection with the 190 road. (Thanh Cuong commune. Yen My District. Hung Yen Province)	July 10^{th}-11^{th}. 2012
3		**K 10**	**8**	Three - way crossroads Quan Re. My Duc Commune. An Lao District. Hai Phong City	July 11^{th}-12^{th}. 2012
4		**K 12**	**10**	Residential area in Tan Vu. Trang Cat. Hai An. Hai Phong	July 12^{th}-13^{th}. 2012

Table 1.2. Position and surface water sampling time

No.	Sign	Package No.	Monitoring locations	Sampling date
1	**NM 1**	**2**	Bac Hung Hai river – Van Giang District (Cau Chua – Chu Xa. Kieu Ky. Gia Lam. Ha Noi)	July 3^{rd}-4^{th}. 2012
2	**NM 2**	**4**	O Xuyen river, Gia Loc District, Hai Duong Province	July 6^{th}-7^{th}. 2012
3	**NM 4**	**8**	Da Do river- My Duc Commune. An Lao District. Hai Phong City	July 11^{th}-12^{th}. 2012
4	**NM 5**	**10**	Lach Tray river. Hai Phong	July 12^{th}-13^{th}. 2012

Table 1.3. Positions and ground water sampling time

No.	Content	Sign	Package No.	Sampling location	Sampling date

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No.	Content	Sign	Package No.	Sampling location	Sampling date
1	Ground water	NN 2	2	Well water of residential area in Intersection with the 179 road. Cuu Cao Commune. Van Giang District. Hung Yen Province.	July 3rd. 2012
2		NN 3	3	Well water of residential area in Intersection with the 39 road. Ly Thuong Kiet commune. Yen My District. Hung Yen.	July 4th. 2012
3		NN 4	4	Well water of residential area in Intersection with the 38 road. Tan Phuc commune. An Thi District Hung Yen Province.	July 5th. 2012
4		NN 5	4	Well water of residential area in Intersection with the 20 road. Nhan Quyen commune. Binh Giang District. Hai Duong Province	July 6th. 2012
5		NN 6	5	Well water of residential area. Gia Loc District. Hai Duong Province	July 9th. 2012
6		NN 8	8	Well water of residential area Minh Khai Village. My Duc Commune. An Lao District. Hai Phong City	July 12th. 2012

Table 1.4. Positions and soil sampling time

No.	Content	Sign	Package No.	Sampling location	Sampling date
1	Soil	D 2	2	Farmland taken in Intersection with the 179 road. Van Giang area.	July 3rd. 2012
2		D 3	3	Farmland taken in Intersection with the 39 road. Luc Dien Ward. Yen My District. Hung Yen.	July 4th. 2012

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3		**D 4**	**4**	Farmland taken in Intersection with the 38B road. Gia Loc District, Hai Duong Province area.	July 5th. 2012
4		**D 5**	**4**	Farmland taken in Intersection with the 20 road. Hai Duong area.	July 6th. 2012
5		**D 6**	**5**	Farmland taken in Intersection with the 38B road. Gia Loc District, Hai Duong Province area.	July 9th. 2012
6		**D 7**	**6**	Farmland taken in Intersection with the 190 road.	July 10th. 2012
7		**D 10**	**10**	Soil sample taken near shrimp hatchery area. Hai Phong City.	July 12th. 2012

- Monitoring equipments

Table 1.5. List of Monitoring equipments

No.	List of equipments	Origin
1	Sampling equipment (CO. SO_2. NO_2. H_2S)	Multiwarn II SEP 8314060. Drager. Germany
2	Dust equipment	Sibata SL20/30. Japan
3	Gas Absorbent	Kimoto HS-7. Japan
4	Noise	ORION NL-21. Japan
5	Vibration	VM-1220E - Japan
6	Water sampling	EW-05488-10 Horizontal Alpha Water Sampler - USA
7	Quick measurement (Temperature. pH. Dissolved oxygen)	YSI - Japan

- The parameters. method and analysis equipment in laboratory

Table 1.6. The parameters and analysis method for air environment

No.	Parameters	Analysis method	Analysis equipment

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Address: No.18 Hoang Quoc Viet – Cau Giay – Ha Noi
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1	Vibration frequency	TCVN 5409:1991	VM-1220E- Japan
2	Vibration acceleration	TCVN 5409:1991	VM-1220E- Japan
3	Noise	TCVN 5949-1998	ORION NL-21. Japan
4	VOC_s	JISK. Japan	GC-MS QP 2010. Shimadzu. Japan GC-MS GC 2010. Shimadzu. Japan
5	Dust	TCVN-5067:1995	Sibata CL20/30. Japan
7	SO_2	TCVN 5971–1995	UV-VIS 2450- Shimadzu- Japan
8	NO_2	TCVN 6137–2009	UV-VIS 2450- Shimadzu- Japan
9	CO	TCVN 5972–1995	UV-VIS 2450- Shimadzu- Japan

Table 1.7. The parameters and analysis method for surface water environment

No.	Parameter	Analysis method	Analysis equipment
1	pH	TCVN 6492 – 1999	pH – YSI 63 -USA
2	DO	TCVN 7325 – 2004	YSI 55- USA
3	COD	$KMnO_4$ method	
4	BOD_5	TCVN 6001 – 2008	YSI-52- USA – BOD_5 Oven. Lovibond- France
5	TSS	SMEWW 2540 D – 2005	DR/2010. Hach -USA
6	Total phosphorus	TCVN 6202 – 2008	UV-VIS 2450 – Shimadzu - Japan
7	Total nitrogen	TCVN 5987-1995	TOC-V_{CPH} TNM1- Shimadzu - Japan
8	Total pesticide	TCVN 7876 : 2008	GCMS QP 2010. Shimadzu. Japan
9	Oil & Grease	SMEWW 5520 B – 2005	OCMA-350 – HORIBA - Japan
10	Coliform	TCVN 6187-1:1996	Filter 0.45mm; Oven Binder. Germany

Table 1.8. The parameters and analysis method for ground water

No.	Parameter	Analysis method	Analysis equipment
1	Temperature	TCVN 4457-1988	YSI 63-USA
2	pH	TCVN 6492 – 1999	YSI 63-USA
3	COD	$KMnO_4$ method	
4	BOD_5	TCVN 6001 – 2008	YSI-52 – USA - Oven BOD_5. Lovibond - France

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No.	Parameter	Analysis method	Analysis equipment
5	TSS	SMEWW 2540D – 2005	TSS - DR/2010. Hach - USA
6	Total phosphorus	TCVN 6202 – 2008	UV-VIS 2450 – Shimadzu - Japan
7	Total nitrogen	TCVN 5987-1995	TOC-V_{CPH} TNM1 – Shimadzu - Japan
8	Fecal Coli	TCVN 6187 – 1 – 1996	Filter 0.45mm. Oven Binder. Germany
9	Coliform	TCVN 6187 – 1 – 1996	Filter 0.45mm. Oven Binder. Germany

Table 1.9. The parameters and analysis method for soil sample

No.	Parameter	Analysis method	Analysis equipment
1	Dry pH	TCVN 5979-2007	pH – YSI 63-USA
2	Wet pH	TCVN 5979-2007	pH - YSI 63-USA
3	Electrical Conductivity	TCVN 6650-2000	Horiba. Japan
4	Total nitrogen	TCVN 6498-1999	TOC-V_{CPH} TNM1 – Shimadzu - Japan
5	Total phosphorus	EPA 3051 – 1996 & TCVN 6202 -2008	UV-VIS 2450 - Shimadzu-Japan
6	Fe	EPA 3051 – 1996 & SMEWW 3125 – 2005	ICP MS ELAN 9000 PerKin Elmer. USA
7	Al^{3+}		ICP MS ELAN 9000 PerKin Elmer. USA

- Results of analysis

a) Results of monitoring of construction packages EX-2

The monitoring areas of air environment. noise and ground vibration are located at the intersection between the Phu Thuy – Xuan Quan route where is operating with the Ha Noi – Hai Phong expressway (5B). Measurement points located in the residential area is the closest location with the 5B expressway.

The height of between the measurement points with the Phu Thuy – Xuan Quan road pavement as well as the Ha Noi – Hai Phong expressway (currently embankment)

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is negligible. However. between the measurement points and expressway. it's surface cleaved by Bac Hung Hai river.

Geological background at the measurement position of the Phu Thuy – Xuan Quan route are ancient clay which is durability and stable while the expressway pavement is soft ground and has been constructing for treatment

. During the testing process. the vehicle occurred mainly on the Phu Thuy – Xuan Quan route. At the time of measurement. appear container trucks common at the time from 9:00 PM – 3:00 AM with the speed 40 to 60 km/h. However. main traffic density on the times: 7:00 AM – 9:00 AM and 2:00 PM – 6:00 PM. On the expressway. the vehicles over 15 tons appeared a few time.

+ ***Results of air environment monitoring:***

Sampling according to supervision consultancy contracts - No. 74/VIDIFI-VNCMT/2010.

Sampling locations: Intersection with the 179 road. Cuu Cao commune. Van Giang District. Hung Yen province on the EX-2 package; Coordinates: N 20° 57'730 - E 105° 57' 265;

Testing time: 9:00 AM on July 3rd. 2012 – 7:00 AM on July 4th. 2012.

Air sampling method: take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 1.

The result table showed that the parameters are within the allowable limit of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value to be 122 $\mu g/m^3$ at 21:00 PM on July 3rd. 2012 and maximum value is 195 $\mu g/m^3$ at 9:00 AM on July 3rd. 2012.

The total dust is 83; 112; 92 and 78 $\mu g/m^3$ which are at 9:00 am. 3:00 pm. 9:00 pm (in July 3rd 2012) and 3:00 am (in July 4th 2012). respectively. That is under 300$\mu g/m^3$ lower than National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

The results of SO_2 are 86; 95; 90 and 81 $\mu g/m^3$ which are at 9:00 am. 3:00 pm. 9:00 pm (in July 3rd 2012) and 3:00 am (in July 4th 2012). respectively. That is under 350$\mu g/m^3$ lower than National technical regulation on ambient air quality (QCVN

05:2009/BTNMT).

The results of NO_2 are 63; 27; 27 and 30 $\mu g/m^3$ which are at 9:00 am. 3:00 pm. 9:00 pm (in July 3rd 2012) and 3:00 am (in July 4th 2012). respectively. That is under 200$\mu g/m^3$ lower than National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 1073; 3018; 1460 and 2048 $\mu g/m^3$ corresponding sampling times are 9:00 am. 3:00 pm. 9:00 pm (in July 3rd 2012) and 3:00 am (in July 4th 2012). respectively; these results are lower than 30000 $\mu g/m^3$. National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ ***Results of noise:***

Sampling location: Intersection with the 179 road. Cuu Cao commune. Van Giang District. Hung Yen province on the EX-2 package; Coordinates: N 20° 57'730- E 105° 57' 265;

Testing time: 9:00 AM on July 3rd. 2012 – 7:00 AM on July 4th. 2012.

Noise are measured 12 points within 24 hours. a point per 2 hours. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 9:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 2.

The result table showed that Leq value at 11:00 PM 3rd July 2012 and Leq value at 3:00 AM 4th July 2012 is 58.6 dB and 55.7 dB which is higher than the allowable limit is 55 dB according to National Technical Regulation on Noise (QCVN 26:2010/BTNMT). Other noise values are equal and lower than the allowable limit is 70dB.

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 53.5 to 61.8 dB from 6:00 AM to 9:00 PM and 50.8 to 53.0 dB from 10:00 PM to 4:00 AM for L_{50}. The values of L_{90} are respectively of about 49.5- 57.2 dB from 6:00 AM to 9:00 PM and 45.7 to 49.6 dB from 10:00 PM to 4:00 AM..

L_{max} value is 89.9 dB at 3:00 PM on July 3rd. 2012 and L_{min} value is 42.5 dB at 10:30 AM on April 3rd. 2012.

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TABLE 1. THE SIXTH RESULTS OF AIR SAMPLES OF THE PACKAGE EX2-(July 2012)

Sign	Parameter	Unit	K 2.6.1	K 2.6.2	K 2.6.3	K 2.6.4	QCVN 05:2009/BTNMT
	Time		9:00 am July. 03rd.2012	15:00 pm July. 03rd. 2012	21:00 pm July. 03rd. 2012	3:00 am July. 04th. 2012	
EX 2 - K2.6	VOCs	$\mu g/m^3$	195	160	122	154	-
	Dust		83	112	92	78	300
	SO_2		86	95	90	81	350
	NO_2		63	27	27	30	-
	CO		1073	3018	1460	2048	30000

TABLE 2. THE SIXTH RESULTS OF NOISE OF THE PACKAGE EX2 (July 2012)

Name of sample		Noise	From 9 am July 03rd to 7 am July 04th, 2012											
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 2-K2.6	Leq	(dB)	66.9	62.8	63.4	65.8	65.4	63.7	59.1	57.7	54.7	55.7	60.5	64.8
	Lmax		86.3	82.3	89.5	89.9	86.0	83.0	81.2	76.9	72.1	71.6	85.0	83.1
	Lmin		49.8	49.3	43.9	51.4	51.9	46.7	49.9	44.1	42.5	46.7	43.9	50.5
	L50		61.8	59.5	55.6	60.6	61.9	60.5	53.5	52.1	52.1	53.0	50.8	61.6
	L90		56.1	54.3	49.5	55.5	57.2	54.5	51.1	45.7	46.5	49.6	45.7	55.7
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

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+ Results of vibration

Sampling location: Intersection with the 179 road. Cuu Cao commune. Van Giang District. Hung Yen province on the package EX-2; Coordinates: N 20° 57'730 - E 105° 57'265;

Testing time: 9:00 AM on July 3rd . 2012 – 7:00 AM on July 4th. 2012.

Equipment and test principles:

- Using of VM – 1220E equipment (Japan) measures environmental vibration in the factory. construction and roads of traffic. It allows to measure vibration acceleration. vibration intensity according to vertical plane Z and horizontal plane with two perpendicular way X. Y. The measures is updated with speed 63 ms once time then automatically calculation according to JIS C1510 standard. Results are displayed on the screen is dB value.

- The measurements are carried out including vibration acceleration. vibration intensity according to X. Y. Z direction with about measure time is continuously 30 minutes.

Impact assessment according to vibration acceleration (Lva) or vibration intensity (Lv) follow formula:

$$L = \sqrt{L^2x + L^2y + L^2z}$$

X	Y	Z	TB
Measurement m/s^2	Measurement m/s^2	Measurement m/s^2	Measurement m/s^2
Lx	Ly	Lz	L

In there. L is Lva or corresponding Lv.

L_x. L_y. L_z are acceleration value and vibration intensity according to X. Y. Z direction.

$$L = \log\sqrt{10^{2*Lx} + 10^{2*Ly} + 10^{2*Lz}}$$

X	Y	Z	TB
Measurement dB	Measurement dB	Measurement dB	Measurement dB
Lx	Ly	Lz	L

In there. L is Lva or corresponding Lv.

L_x. L_y. L_z are acceleration value and vibration intensity according to X. Y. Z direction.

Geological background at the measurement position of the Phu Thuy – Xuan Quan route are ancient clay which durability and stable while the expressway pavement is soft ground and has been constructing for treatment.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

During the testing process. the vehicle occurred mainly on the Phu Thuy – Xuan Quan route. At the time of measurement. appear container trucks common at the time from 9:00 PM – 3:00 AM with the speed 40 to 60 km/h. However. main traffic density on the times: 7:00 AM – 9:00 AM and 2:00 PM – 6:00 PM. On the expressway. the vehicles over 15 tons appeared a few time.

To set measurement range for equipment is 30 – 90 dB

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. appearance of measurement values are higher than 60dB in each measurement range. sometimes appearance of measurement range is higher than 75dB.

The values of L_{10}. L_{50}. L_{90} have decreasing rule that the larger values only occurring in short time of each measurement range.

The results in table 3 showed that two values of vibration acceleration exceed the allowable limit (75dB) according to National Technical Regulation on Vibration (QCVN 27:2010/BTNMT): the results of Lva(eq) max is 83.2 dB at the time from 5:00 PM to 5:30 PM on July 4th. 2012 and Lva(min) is 31.3 dB from 1:00 AM to 1:30 AM on July 4th. 2012.

Average Lva value in the range from 31.3 dB to 59.6 dB.

TABLE 3. THE SIXTH RESULTS OF VIBRATION OF THE PACKAGE EX2 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35.9	31.8	33.8	35.9	58.8	51.8	50.9	58.8
L_{max}		47.7	38.4	41.7	47.7	80.5	67.2	69.7	80.5
L_{min}		29.2	24.8	25.3	29.2	47.3	42.5	43.5	47.3
L_{10}		33.3	34.2	36.3	36.3	59.4	54.2	53.1	59.4
L_{50}		34.4	31	33	34.4	53.6	48.5	47.6	53.6
L_{90}		32.1	28.2	29.9	32.1	50	46	45.5	50

Time		From 11:00 am to 11:30 am on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31.2	32.8	36	36	57.5	51.4	48.5	57.5
L_{max}		45.8	52.1	56.5	56.5	73.3	67.1	62.1	73.3
L_{min}		22.3	22.9	23.2	23.2	44	37.7	35.7	44
L_{10}		34.1	35.3	38	38	61	54	51.1	61
L_{50}		29.2	31.7	34.2	34.2	53.2	46.9	44.8	53.2
L_{90}		26.6	28.4	30.7	30.7	48.5	42.9	41	48.5

Time		From 13:00 pm to 13:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31.8	33.2	34.8	34.8	55.8	52.9	49.4	55.8
L_{max}		46	40.4	43.8	46	80.8	75.1	70.7	80.8
L_{min}		22.4	23.8	25.1	25.1	38.2	35.4	32.5	38.2
L_{10}		34.1	35.9	37.5	37.5	58.3	55.8	52.5	58.3
L_{50}		28.8	32.4	34	34	48.3	45.6	44.1	48.3
L_{90}		26.3	28.9	30.6	30.6	42.5	39.6	37.9	42.5

Time		From 15:00 pm to 15:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	37.9	32.4	34.5	37.9	58.2	55.5	49.6	58.2
L_{max}		46.7	41.1	45.2	46.7	78.1	71	65.5	78.1
L_{min}		30.2	23.1	26.5	30.2	44	40.6	37.8	44
L_{10}		40.3	35	37	40.3	61.3	59.2	52.8	61.3
L_{50}		37	31.5	33.7	37	53.1	51	45.6	53.1
L_{90}		34.5	28.5	30.7	34.5	47.6	45.6	42	47.6

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Time		From 17:00 pm to 17:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.2	30.9	32.7	34.2	59.6	55.2	52	59.6
L_{max}		45.2	37.6	39.7	45.2	83.2	79.9	76.8	83.2
L_{min}		23.9	23.4	23.3	23.9	45.6	40.2	37.5	45.6
L_{10}		37.3	33.4	35.3	37.3	60.2	55.4	51.8	60.2
L_{50}		32.3	30.3	31.9	32.3	53.6	48.8	45.3	53.6
L_{90}		27.3	27.3	28.7	28.7	50	44.6	40.9	50

Time		From 19:00 pm to 19:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.5	30.3	31.8	31.8	56.7	54.5	49.4	56.7
L_{max}		40.4	37.8	40.3	40.4	80	78.5	70.2	80
L_{min}		22.6	21.8	23.1	23.1	38	35.7	32	38
L_{10}		31.3	32.8	34.3	34.3	57.5	54.9	49.4	57.5
L_{50}		28.7	29.7	31	31	48.1	45.7	40.9	48.1
L_{90}		26.7	26.1	27.8	27.8	42.8	40.3	35.9	42.8

Time		From 21:00 pm to 21:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35.3	30.5	32	35.3	56.7	46.3	45.1	56.9
L_{max}		46.7	40	38.8	46.7	70.3	62.2	61.5	70.3
L_{min}		31.9	21.6	23.4	31.9	53.8	43.2	41.1	53.8
L_{10}		36.8	33.1	34.6	36.8	58.2	47.5	46.6	58.2
L_{50}		33.7	29.7	31.3	33.7	55.4	44.8	43.5	55.4
L_{90}		33	26.5	27.9	33	54.7	43.9	42.3	54.7

Time		From 23:00 pm to 23:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.8	30.1	31.6	31.6	42.6	40.9	41.8	42.6
L_{max}		44.7	37.8	38.2	44.7	57.2	56.8	56.8	57.2
L_{min}		20.2	21.2	22.6	22.6	33.3	29.6	29.7	33.3
L_{10}		28.8	22.7	34.2	34.2	45.2	43	44.4	45.2
L_{50}		25.2	29.4	31	31	36.4	33.5	35.2	36.4
L_{90}		22.9	26.2	27.5	27.5	34.6	31.2	32.6	34.6

Time		From 1:00 am to 1:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.2	30	32.5	32.5	36.1	36.3	33.5	36.3
L_{max}		45.9	37.1	40.7	45.9	53.2	59.4	43.6	59.4
L_{min}		20	22.6	23.9	23.9	31.3	28.8	28.5	31.3
L_{10}		30.9	32.6	35.2	35.2	37.3	35.4	35.7	37.3
L_{50}		25.1	29.3	31.7	31.7	34.5	32.3	32.5	34.5
L_{90}		22.7	25.9	28.1	28.1	33	30.8	30.4	33

Time		From 3:00 am to 3:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.9	30.5	32.2	32.2	43.9	40.7	40.5	43.9
L_{max}		46.1	38.6	38.8	46.1	60.3	55.4	57	60.3
L_{min}		20.2	20.5	23.1	23.1	36.8	32.4	32.3	36.8
L_{10}		30.4	33.1	34.8	34.8	46.5	43.8	43.5	46.5
L_{50}		27.7	29.8	31.4	31.4	38.9	35.5	35.7	38.9
L_{90}		23.8	26.4	27.9	27.9	37.5	33.7	33.8	37.5

Time		From 5:00 am to 5:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.8	30.2	31.8	31.8	46.7	44.9	47.3	47.3
L_{max}		44.6	37.2	38.9	44.6	67.2	66.5	66.8	67.2
L_{min}		20.9	21.2	21.7	21.7	33.5	31	33.4	33.5
L_{10}		31.5	32.9	34.4	34.4	48.7	46.6	50.1	50.1
L_{50}		20.2	29.4	31	31	41.5	39.6	42.1	42.1
L_{90}		23.8	25.9	27.7	27.7	36.5	34.1	37.7	37.7

Time		From 7:00 am to 7:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31.7	30.3	32.1	32.1	52.8	51	45.8	52.8
L_{max}		46.8	37.5	40.3	46.8	69.8	63.5	60.2	69.8
L_{min}		22.8	20.5	22.7	22.8	39.1	37	33.4	39.1
L_{10}		34.5	32.8	34.9	34.9	55.9	54.2	48.2	55.9
L_{50}		29.1	29.5	31.3	31.3	49.9	48.6	42.6	49.9
L_{90}		26.1	26.5	27.8	27.8	44.3	42.1	38	44.3

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QCVN 27:2010/BTNMT: National Technical Regulation on Vibration			
No.	Location	Testing time per day	Vibration acceleration level. dB Average level. Leq
1	Special location	6:00 AM – 6:00 PM	75
		6:00 PM – 6:00 AM	Background level
2	Normal location	6:00 AM – 9:00 PM	75
		9:00 PM – 6:00 AM	Background level

+/ Results of surface water sample:

Surface water sample (coded NM 1.6) was monitored and sampled at Bac Hung Hai river – Van Giang District near intersection with the 179 road. Cuu Cao commune. coordinates of sampling location: N 20° 57.730 - E 105° 57. 265.

Sampling time: From July 3rd. 2012 to July 4th. 2012.

Sample was taken 3 times at the times. a sample per 8 hours in 24 hours with 01 blank sample. pH and DO parameters are tested on location. The samples were refrigerated and fixed after sampling and transported to the laboratory in the shortest time. Results of sample analysis are shown in table 4 as below.

The result table showed that oil & grease parameters are 0.11 mg/L higher than the column B1 (0.1 mg/L). lower than the limit value is 0.3 mg/L in column B2 according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT).

COD; TSS and BOD_5 concentration of 03 samples are lower than both B1 and B2 column at the different times according to QCVN 08:2008/BTNMT. In B1 column compared with TSS (Total suspended solids) of QCVN 08:2008/BTNMT. The value of DO (Dissolved Oxygen) in MN 1.6.2 and MN 1.6.3 are 3.90 and 2.70 mg/L. respectively lower than QCVN 08:2008/BTNMT at B1 (≥ 4mg/L).

As for pesticides of organic chlorine group have quantitative limit of analysis method is 0.05 µg/L (the most of environmental laboratories only determine this quantitative limit). However. according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT). comparative value about 0.004 – 0.01 µg/L (Aldrin - Dieldrin); 0.014 – 0.01 µg/L (Endrin) etc.

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On the other hand. comparison of National technical regulation on surface water quality (QCVN 08:2008) and Surface water quality standard (TCVN 5942:1995). DDT is 0.01 mg/L corresponding to 10 µg/L in standard. Vietnam standard (TCVN) by Ministry of science and technology promulgate while Vietnam regulation by Ministry of natural resources and environment promulgate that regulation for parameters of surface water but different to 2500 times.

In this case. TCVN 5942:1995 more consistent with the international standard. Thus. results of minimum quantitative limit also exceed the QCVN 08: 2008/BTNMT.

+ Results of groundwater sample

Groundwater sample (coded NN2.6) is well water of private house of Van Giang area. intersection with the 179 road. householder is Mr. Nguyen Van Than. Nguyen village. Cuu Cao commune. Van Giang District - the well was drilled in 1996 with the depth of 45m. coordinates of sampling location: N 20° 57.730 - E 105° 57. 265;

Sampling time: 10:30 AM on July 3rd. 2012.

Results of sample analysis are shown in table 5 as below.

From the table 5 showed that the all of parameters are lower than QCVN 09:2008/BTNMT (National technical regulation on underground water quality) except coliform parameter.

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TABLE 4. THE SIXTH RESULTS OF SURFACE WATER NM1 OF THE PACKAGE EX2 (APRIL 2012)

No	Parameter	Unit	Result				QCVN 08:2008/BTNMT	
			NM 1.6.1	NM 1.6.2	NM 1.6.3	MT	Column B1	Column B2
1	pH	-	7.63	7.71	7.33	7.1	5.5 -9	5.5 -9
2	DO	mg/L	4.65	3.90	2.70	7.0	≥4	≥2
3	COD	mgO_2/L	12.8	8.8	15.2	< 1.0	30	50
4	BOD_5	mg/L	6.3	4.9	7.1	< 1.0	15	25
5	TSS	mg/L	9	8	8	< 3.0	50	100
6	Total P	mg/L	0.67	0.73	0.74	< 0.01	-	-
7	Total N	mg/L	11.8	12.0	12.7	< 0.10	-	-
8	*Pesticides	mg/L	<0.5	<0.5	<0.5	<0.5	-	-
9	Aldrin+Dieldrin	µg/L	<0.05	<0.05	<0.05	<0.05	0.008	0.01
10	Endrin		<0.05	<0.05	<0.05	<0.05	0.014	0.01
11	BHC		<0.05	<0.05	<0.05	<0.05	0.13	0.015
12	DDT		<0.05	<0.05	<0.05	<0.05	0.004	0.005
13	DDD		<0.05	<0.05	<0.05	<0.05	-	-
14	Endosunfan (Thiodan)		<0.05	<0.05	<0.05	<0.05	0.01	0.02
15	Lindan		<0.05	<0.05	<0.05	<0.05	0.38	0.4
16	Chlordane		<0.05	<0.05	<0.05	<0.05	0.02	0.03
17	Heptachlor		<0.05	<0.05	<0.05	<0.05	0.02	0.05
18	Oil	mg/L	0.10	0.10	0.11	<0.05	0.1	0.3
19	*Coliform	MPN/100 mL	2300	2100	2800	ND	7500	10000

Note: - QCVN 08:2008/BTNMT: National technical regulation on surface water quality

B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level

B2 – For the usage of water navigation and other purpose with less water quality

NM 1.6.1: Sampling at 3:0 PM. On July 3rd 2012; NM 1.6.2: Sampling at 11:00 PM on July 3rd 2012; NM 1.6.3: Sampling at 7:00 AM on July 4th 2012; MT: Blank sample. KPHĐ: Undetectable

TABLE 5. THE SIXTH RESULTS OF GROUND WATER SAMPLE NN2.6 OF THE PACKAGE EX2 (JULY 2012)

No.	Parameter	Unit	Result		QCVN 09:2008/BTNMT
			NN 2.6	MT	
1.	Temperature	°C	27.8	27.0	24.4
2.	pH		7.71	7.10	7.23
3.	COD	mgO_2/L	2.2	< 1.0	2.88
4.	BOD_5	mg/L	<1.0	< 1.0	1.4
5.	TSS	mg/L	5	< 3.0	4
6.	Total P	mg/L	0.07	< 0.01	0.10
7.	Total N	mg/L	4.5	< 0.10	2.00
8.	*Coliform	MPN/ 100mL	5	KPHT	15
9.	*E. Coli		KPHT	KPHT	ND

Note:

- QCVN 09:2008/BTNMT: National technical regulation on underground water quality

- ND: None detected

b) Results of monitoring of construction packages EX-3

The monitoring areas of air environment. noise environment and ground vibration are located in Tu Duong hamlet - Ly Thuong Kiet commune - Yen My. Hung Yen. intersection with the 39 road and the expressway.

- General description of the status quo of terrain and geology

The monitoring area of ground vibration is a place where is constructing the expressway.

Measurement point in the courtyard area of a house are far from the expressway about 5m and the 39 road - Hung Yen - Pho Noi about 150m.

The height of between the measurement point with the 39 road pavement of Hung Yen - Pho Noi as well as the pavement of Hanoi - Hai Phong expressway (being covered with sand) is approximately 1.5m. The measurement point and the 39 road pavement are divided by local irrigation canal.

- Impacts of vibratory sources to the measurement result.

During the testing process. the vehicle transported mainly on the 39 route. Pho Noi. Hung Yen; appear container trucks with the speed from 40 to 60 km/h and higher. While construction machines and container trucks transporting at 8:00 - 11:00 AM and 2:00 - 8:00 PM on the expressway.

+ Results of air monitoring:

Sampling according to supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. Coordinates of sampling location: N 20° 51.603 - E 106° 01. 488. At the each location take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 7. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value is 105 $\mu g/m^3$ at 3:00 pm on July 4th. 2012 and maximum value is 165 $\mu g/m^3$ at 9:00 am on July 4th. 2012.

For total dust. the measurement results are: 276; 324; 218 and 182 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 4th. 2012 and 3:00 AM on July 5th. 2012; these results are lower than 300 $\mu g/m^3$ according to National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 103; 120; 109 and 97 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 4th. 2012 and 3:00 AM on July 5th. 2012; these results are under 350 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

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For NO_2. the measurement results are: 29; 27; 35 and 27 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 4th. 2012 and 3:00 AM on July 5th. 2012; these results are lower than 200 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 2683; 4812; 2465 and 1163 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 4th. 2012 and 3:00 AM on July 5th. 2012; these results are under 30000 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ ***Results of noise:***

Noise level is measured 12 samples within 24 hours (a point per 2 hours) from 9:00 am July 4th. 2012 to 7:00 am July 5th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 7.

The table results showed that 12 Leq values for 24 hours are lower than the allowable limit 55 dB and 70 dB according to National Technical Regulation on Noise (QCVN 26:2010/BTNMT). The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 43.4 to 56.1 dB from 7:00 AM to 21:00 PM and 45.3 to 57.3 dB from 23:00 PM to 5:00 AM for L_{50}. The values of L_{90} are respectively of about 42.9 to 56.9 dB from 6:30 AM to 8:30 PM and 41.2 to 50.1 dB from 10:30 PM to 4:30 AM.

L_{max} value is 90.1 dB at 13:00 PM on July 4th. 2012 and L_{min} value is 36.9 dB at 1:00 PM on July 4th, 2012.

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TABLE 6 : THE SIXTH RESULTS OF AIR SAMPLE OF EX3 (JULY 2012)

Name of sample	Parameter	Unit	K 3.6.1	K 3.6.2	K 3.6.3	K 3.6.4	QCVN 05:2009/BTNMT
EX 3 – K 3.6	Time	µg/m³	9:00 am July. 4th. 2012	15:00 pm July. 4th. 2012	21:00 pm July. 4th. 2012	3:00 am July. 5th. 2012	
	VOCs		165	154	110	105	-
	Dust		267	324	218	182	300
	SO_2		103	120	109	97	350
	NO_2		30	28	23	22	-
	CO		2683	4812	2465	1163	30000

Note: QCVN 05:2009/ BTNMT: National technical regulation on ambient air quality

TABLE 7 : THE SIXTH RESULTS OF NOISE SAMPLES OF THE PACKAGE EX3 (JULY 2012)

Name of sample		Noise	From 9:00 am July 04th to 7:00 am July 05th, 2012										
			9am	**11am**	**13pm**	**15pm**	**17pm**	**19pm**	**21pm**	**23pm**	**01am**	**03am**	**05am**	**07am**
EX 3-K3.6	Leq	(dB)	67.2	64.4	61.7	64.3	62.5	51.7	55.0	57.1	48.0	53.4	55.5	61.8
	Lmax		88.0	85.5	90.1	85.6	80.1	72.6	65.5	73.4	58.7	78.4	81.5	85.1
	Lmin		42.5	41.7	36.9	44.4	47.4	41.4	51.8	48.7	45.5	46.7	39.3	42.3
	L50		51.1	50.4	48.9	51.2	55.9	46.3	54.3	57.1	47.7	51.4	45.3	50.2
	L90		46.1	45.7	43.4	47.1	51.6	43.5	53.5	56.1	47.0	49.1	42.2	45.7
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT: – National Technical Regulation on Noise

+ Results of vibration

- Starting time: 9:00 AM on July 4th. 2012; Ending time: 7:00 AM on July 5th. 2012.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. some measurement values are higher than 60dB and lower than 75dB..

The values of L_{10}, L_{50}, L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

The results in table 8 showed that value of vibration acceleration level (Lva) exceed the allowable limit (75dB) of National Technical Regulation on Vibration (QCVN 27:2010/BTNMT).

Average Lv value in the range from 36.3 to 59.1 dB.

The value of Lva_{max} is 85.7 dB which is highest at the time from 9:00 PM to 21:30 PM on July 4th, 2012.

The value of Lva_{min} is 25.6 dB which is lowest at the time from 8:30 to 9:00 PM on July 4th, 2012.

TABLE 8. THE SIXTH RESULTS OF VIBRATION OF THE PACKAGE EX 3 (JULY 2012)

Time		From 8:00 am to 9:30am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.1	33	33.7	33.7	57.9	50.7	50.4	57.9
L_{max}		43.9	40.3	41.7	43.9	72.7	67.9	67.7	72.7
L_{min}		24.5	27.5	24.9	27.5	36.5	31.7	33.2	36.5
L_{10}		35.6	35.1	36.5	36.5	62.6	56.1	55.9	62.6
L_{50}		29.9	32.5	32.8	32.8	45.7	43.7	42.7	45.7
L_{90}		27.4	30.3	29.7	30.3	39.2	35.6	36.3	39.2

Time		From 11:00 am to 11:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	44.1	44.5	51.6	51.6	54.6	51.1	46.2	54.6
L_{max}		63.4	70.2	77.4	77.4	76.1	73.3	68.8	76.1
L_{min}		23	26.7	26.8	26.8	33.8	32.5	31.2	33.8
L_{10}		48.1	40	39.6	48.1	53.4	51.4	47.4	53.4
L_{50}		32.2	34.1	35.3	35.3	39.9	38.1	37.3	39.9
L_{90}		28.2	31	31.8	31.8	36.3	34.8	33.9	36.3

Time		From 13:00 am to 13:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	47.2	46.8	56.8	56.8	50.5	45.9	48.6	50.5
L_{max}		65.6	72	81.4	81.4	69.8	63.9	69.7	69.8
L_{min}		24.1	27.2	28.1	28.1	32.7	31	31.5	32.7
L_{10}		45.5	38.7	41.1	45.5	52.2	47.2	48.6	52.2
L_{50}		33.2	34.7	37.2	37.2	38.5	36.5	38.7	38.7
L_{90}		28.3	31.5	33.5	33.5	35.3	33.6	35.1	35.3

Time		From 15:00 pm to 15:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	47.3	36	36.7	47.3	52.3	48.6	44	52.3
L_{max}		66.7	48	45.8	66.7	68.9	59.5	56.1	68.9
L_{min}		26.3	26.8	28.1	28.1	44.5	42.6	38.1	44.5
L_{10}		43.7	38.2	39.2	43.7	55.6	51.5	46.8	55.6
L_{50}		34.2	34.5	36	36	48.1	46.2	42.2	48.1
L_{90}		29.7	31.3	32.8	32.8	45.8	44.4	39.7	45.8

Time		From 17:00 pm to 17:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	52.3	38.4	37.7	52.3	57.7	54.6	56.5	57.7
L_{max}		72.1	57.2	49.3	72.1	79.7	75.3	76.2	79.7
L_{min}		25.6	26.5	26.8	26.8	37.1	35.8	36.6	37.1
L_{10}		49.9	40.6	40	49.9	60.5	57.3	59.2	60.5
L_{50}		34.9	34.1	35.9	35.9	48.7	46.3	48.1	48.7
L_{90}		29.3	30.5	32.4	32.4	41.6	40.2	41.6	41.6

Consultancy: Institute of Environmental Technology
Address: No.18 Hoang Quoc Viet – Cau Giay – Ha Noi
Tel: 043 7569 136; 043 7911 654 * Fax: 043 7911 203

Time		From 19:00 pm to 19:30 pm on July 04th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.5	31.8	33.7	33.7	57.1	50.5	45.5	57.1
L_{max}		44.2	38.2	41.3	44.2	76.8	67.5	64.6	76.8
L_{min}		22.2	23.9	24.7	24.7	35.1	32.3	29.6	35.1
L_{10}		31.2	34.1	36.3	36.3	60.3	54.2	48.3	60.3
L_{50}		27.8	31.3	32.9	32.9	45.4	40.3	37.1	45.4
L_{90}		25.6	28.8	29.5	29.5	37.7	34.6	33.5	37.7

Time		From 21:00 pm to 21:30 pm on July 04th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.2	32.2	34.7	34.7	59.1	57.2	57.6	59.1
L_{max}		49.7	51.5	52.3	52.3	85.7	82.9	83.8	85.7
L_{min}		20.1	23.5	24.9	24.9	34.5	32.7	31.8	34.5
L_{10}		29.3	33.9	36.6	36.6	54.9	50.8	48.1	54.9
L_{50}		26.2	31	33.3	33.3	40.3	37.8	36.3	40.3
L_{90}		23.9	28.6	30.1	30.1	37.3	35.4	33.9	37.3

Time		From 23:00 pm to 23:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27	31	34.1	34.1	38.3	35.2	36.6	38.3
L_{max}		37	37	41.6	41.6	57.3	52.7	54	57.3
L_{min}		19.7	22.6	25.6	25.6	34.3	31.5	31.9	34.3
L_{10}		29.3	33.3	36.9	36.9	38.9	36.3	38.3	38.9
L_{50}		25.8	30.4	23.1	30.4	36.7	33.8	35.1	36.7
L_{90}		23.2	27.5	29.5	29.5	35.8	32.6	33.5	35.8

Time		From 1:00 am to 1:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.1	30.8	33.8	33.8	36.3	33.4	35.2	36.3
L_{max}		43.7	37.6	41.7	43.7	45.5	43.1	45.2	45.5
L_{min}		20.4	22.4	24.5	24.5	32.5	30	30.7	32.5
L_{10}		29.8	33.5	36.6	36.6	38.1	35.2	37.5	38.1
L_{50}		25.8	30.1	32.8	32.8	35.6	32.7	34.4	35.6
L_{90}		23.1	26.7	28.9	28.9	34	31.1	32	34

Time		From 3:00 am to 3:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.8	30.7	33.4	33.4	57.6	52.5	49.9	57.6
L_{max}		38.1	39.3	40.7	40.7	82	74.6	71.7	82
L_{min}		19.6	22.6	22.5	22.6	43.7	38.4	37.1	43.7
L_{10}		29.1	33.2	36.1	36.1	50.3	46.9	45.2	50.3
L_{50}		25.6	29.8	32.5	32.5	45.3	39.8	38.8	45.3
L_{90}		23.1	26.7	29.2	29.2	44.4	39	37.8	44.4

Time		From 5:00 am to 5:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	42.2	31.5	32.8	42.2	51.2	48.3	50.5	51.2
L_{max}		64.1	45	42	64.1	70.4	68.9	70.6	70.6
L_{min}		20.5	20.5	23.3	23.3	32.4	32.2	31.5	32.4
L_{10}		34.9	33.9	35.5	35.5	52.9	50	52.2	52.9
L_{50}		26.8	30.2	31.8	31.8	40.5	39.5	39.3	40.5
L_{90}		24	27	28.5	28.5	35.6	34.8	34.9	35.6

Time		From 7:00 am to 7:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	43.9	35.1	34	43.9	57.9	57	54.9	57.9
L_{max}		60.8	50.8	45.3	60.8	80.3	81.8	80.3	81.8
L_{min}		22.1	24.8	23.5	24.8	33.7	30.8	29.4	33.7
L_{10}		45.1	37.8	36.6	45.1	57.3	51.6	49.3	57.3
L_{50}		31.6	32.2	32.4	32.4	41.4	38.1	36.8	41.4
L_{90}		27.1	29	29	29	35.9	33.6	33	35.9

QCVN 27:2010/BTNMT: National Technical Regulation on Vibration		
Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
Special location	6:00 AM – 6:00 PM	75
	6:00 PM – 6:00 AM	Background level
Normal location	6:00 AM – 9:00 PM	75
	9:00 PM – 6:00 AM	Background level

+ Results of groundwater sample NN 3.6

Groundwater sample (coded NN 3.6) is well water of house in intersection with the 39 road. householder is Mrs. Le Van Hoa. Tu Duong hamlet. Ly Thuong Kiet commune. Yen My. Hung Yen. The well was drilled in 2002 with depth of 18 m.

Results of sample analysis are shown in table 9 as below.

Table 9 showed that the all of parameters are lower than QCVN 09:2008/BTNMT (National technical regulation on underground water quality) except coliform sample exceeding allowable limit. The value of Blank sample is very low so it does not effect on test samples.

TABLE 9. THE SIXTH RESULTS OF GROUNDWATER OF THE PACKAGE EX3 (JULY 2012)

No.	Parameter	Unit	Result		QCVN 09:2008/BTNMT
			NN 3.6	MT	
1.	Temperature	°C	27.8	27.0	-
2.	pH	-	7.70	7.10	5.5 – 8.5
3.	COD	mgO_2/L	3.2	< 1.0	4
4.	BOD_5	mg/L	1.5	< 1.0	-
5.	TSS	mg/L	5	< 3.0	-
6.	Total P	mg/L	0.06	< 0.01	-
7.	Total N	mg/L	0.5	< 0.10	-
8.	*Coliform	MPN/100mL	9	ND	3
9.	*E. Coli		ND	ND	ND

c) Results of monitoring of construction packages EX-4

The monitoring areas of air environment. noise environment and ground vibration are located in Tan Phuc commune – An Thi District. Hung Yen province. intersection with the 20 road and the expressway.

- General description of the status quo of terrain and geology

The monitoring area of ground vibration is a place where is constructing the expressway.

Measurement point in the courtyard area of a house are far from the expressway about 10m

The height of between the measurement point with the 20 road pavement of Hung Yen - Pho Noi as well as the pavement of Hanoi - Hai Phong expressway (being covered with sand) is approximately 1.5m. The measurement point and the 20 road pavement are divided by local irrigation canal.

- Impacts of vibratory sources to the measurement result.

During the testing process. the vehicle transported mainly on the 39 route. Pho Noi. Hung Yen; appear container trucks with the speed from 40 to 60 km/h and higher. While construction machines and container trucks transporting at 8:00 - 11:00 AM and 2:00 - 8:00 PM on the expressway.

+ Results of air monitoring:

Sampling according to supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. Coordinates of sampling location: N 20° 51.603 - E 106° 01. 488. At the each location take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 12. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value is 78 $\mu g/m^3$ at 3:00 pm on July 5th. 2012 and maximum value is 142 $\mu g/m^3$ at 9:00 am on July 5th. 2012.

For total dust. the measurement results are: 79; 89; 85 and 73 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 5th. 2012 and 3:00 AM on July 6th. 2012; these results are lower than 300 $\mu g/m^3$ according to National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 79; 89; 85 and 73 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 5th. 2012 and 3:00 AM on July 6th. 2012; these results are under 350 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For NO_2. the measurement results are: 18; 25; 22 and 25 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 5th. 2012 and 3:00 AM on July 6th. 2012; these results are lower than 200 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 1860; 1601; 991 and 1441 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 5th. 2012

and 3:00 AM on July 6th. 2012 these results are under 30000 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ ***Results of noise:***

Noise level is measured 12 samples within 24 hours (a point per 2 hours) from 9:00 am July 5th. 2012 to 7:00 am July 6th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 11.

The table results showed that 12 Leq values for 24 hours are lower than the allowable limit according to National Technical Regulation on Noise (QCVN 26:2010/BTNMT) (55 dB and 70 dB).

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 50.7 to 62.2 dB from 7:00 AM to 9:00 PM and 44.8 to 54.2 dB from 11:00 PM to 5:00 AM for L_{50}. The values of L_{90} are respectively of about 43.0 to 66.8 dB from 7:00 AM to 9:00 PM and 42.1 to 48.6 dB from 11:00 PM to 5:00 AM. all these values are lower than both Leq and L_{50}.

L_{max} value is 87.8 dB at 7:00 AM on July 6th. 2012 and L_{min} value is 40.4 dB at 5:00 AM on July 6th, 2012.

TABLE 10 : THE FOURTH RESULTS OF AIR SAMPLE OF EX4 (JULY 2012)

Name of sample	Parameter	Unit	K 4.3.1	K 4.3.2	K 4.3.3	K 4.3.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 05th, 2012	15:00 pm July 05th, 2012	21:00 pm July 05th, 2012	3:00 am July 06th, 2012	
EX 4 – K 4.4	VOCs	µg/m³	142	136	86	78	-
	Dust		94	158	124	88	300
	SO_2		79	89	85	73	350
	NO_2		18	25	22	25	-
	CO		1860	1601	991	1441	30000

Note: QCVN 05:2009/ BTNMT: National technical regulation on ambient air quality

TABLE 11 : THE FOURTH RESULTS OF NOISE SAMPLES OF THE PACKAGE EX4 (JULY 2012)

Name of sample		Noise	From 9 am July 05th to 7 am July 06th, 2012											
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 4-K4.4	Leq	(dB)	62.2	59.4	55.7	56.1	59.3	54.4	54.8	57.6	48.1	47.8	55.3	68.7
	Lmax		83.0	78.3	71.3	76.0	77.9	79.2	75.1	72.3	67.9	56.8	73.4	87.8
	Lmin		44.7	41.5	43.5	44.5	48.4	42.3	50.2	44.4	44.2	44.5	40.4	50.6
	L50		53.4	55.9	50.9	50.7	58.0	50.9	53.5	54.2	47.1	46.9	44.8	62.2
	L90		48.9	49.2	45.7	47.0	55.1	46.5	52.2	48.6	45.5	45.7	42.1	62.1
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT: – National Technical Regulation on Noise

+ Results of vibration

- Starting time: 9:00 AM on July 5th. 2012; Ending time: 7:00 AM on July 6th. 2012.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. some measurement values are higher than 60dB and lower than 75dB..

The values of L_{10}, L_{50}, L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

The results in table 12 showed that value of vibration acceleration level (Lva) exceed the allowable limit (75dB) of National Technical Regulation on Vibration (QCVN 27:2010/BTNMT).

Average Lv value in the range from 39.3 to 67.7 dB.

The value of Lva_{max} is 90.1 dB which is highest at the time from 1:00 PM to 1:30 PM on July 5th, 2012.

The value of Lva_{min} is 30.8 dB which is lowest at the time from 5:00 to 5:30 AM on July 6th, 2012.

TABLE 12. THE FOURTH RESUxLTS OF VIBRATION OF THE PACKAGE EX 4 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 05th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	44.1	37.2	36.9	44.1	60.9	63.7	64.1	64.1
L_{max}		60.9	50.1	49.8	60.9	88.8	88.9	90	90
L_{min}		22.6	24.5	25.5	25.5	35.9	36.3	36.3	36.3
L_{10}		47.4	40.5	39.9	47.4	53.1	63.7	61.8	63.7
L_{50}		35.5	35.2	35.6	35.6	50.8	62.2	60.4	62.2
L_{90}		28.8	30.6	31.2	31.2	40.6	40	40.2	40.6

Time		From 11:00 am to 11:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	45.2	35.3	35.7	45.2	60.00	57.8	61.1	61.1
L_{max}		63.2	48.8	49.3	63.2	76.4	74.8	77.8	77.8
L_{min}		23.2	21.2	23.5	23.5	33.9	30.7	33.4	33.9
L_{10}		45.5	37.8	38.2	45.5	61.9	60	62.7	62.7
L_{50}		33.8	32.5	33.5	33.8	41.7	39.2	41.5	41.7
L_{90}		27.4	28.2	29.6	29.6	37.9	35.4	37	37.9

Time		From 13:00 am to 13:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31	32.9	31.2	32.9	67.4	67.7	66.4	67.7
L_{max}		44	39.7	41.1	44	90.1	90.1	89.8	90.1
L_{min}		20.7	23.3	25.3	25.3	35.7	35.6	36.1	36.1
L_{10}		34.1	35.6	36.8	36.8	50.6	52.1	53.4	53.4
L_{50}		28.8	32.2	33.4	33.4	41.3	40.1	40.8	41.3
L_{90}		25.2	28.7	29.8	29.8	38.3	37.5	38.3	38.3

Time		From 15:00 pm to 15:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.9	33.1	35.5	35.5	47.9	46	46.5	47.9
L_{max}		53.7	40.3	52.8	53.7	63	61.1	63.2	63.2
L_{min}		25	25.1	26.3	26.3	41.6	40.7	40.4	41.6
L_{10}		37.9	35.5	37.5	37.9	49.8	48	48.4	49.8
L_{50}		31.7	32.4	33.9	33.9	44.8	44.3	44.5	44.8
L_{90}		28.5	29.2	30.7	30.7	43.1	42	41.9	43.1

Time		From 17:00 pm to 17:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	45.5	44.8	44.2	45.5	47.9	52.5	51.4	52.5
L_{max}		62.7	61	61.4	62.7	73.6	79.8	78.1	79.8
L_{min}		36.6	35.7	35.7	36.6	36.9	36.9	38.6	38.6
L_{10}		47.5	45.8	45.4	47.5	45	46.3	47.4	47.4
L_{50}		41.4	43	42.9	43	41.9	42.7	43.1	43.1
L_{90}		39.7	40.8	40.9	40.9	39.1	40.6	40.8	40.8

Time		From 19:00 pm to 19:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.3	34.2	38	39.3	38.7	38.3	39.3	39.3
L_{max}		56.4	50.8	57.3	57.3	54.8	51.1	34.1	54.8
L_{min}		20.8	21.9	24.4	24.4	32.5	30.9	30.3	32.5
L_{10}		42.6	36.2	37.5	42.6	40.5	40.5	41.7	41.7
L_{50}		29.1	31.8	33.2	33.2	37.8	37.5	38.3	38.3
L_{90}		25	28.2	29.8	29.8	35.3	34.2	35.1	35.3

Time		From 21:00 pm to 21:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.5	34.9	37.6	37.6	50.7	51.4	51.4	51.4
L_{max}		72.2	72.7	73.7	73.7	75.8	76	75.6	76
L_{min}		21.2	22.4	23.5	23.5	38	37.6	38.4	38.4
L_{10}		35.2	35.4	36.5	36.5	50.5	52.9	52.4	52.9
L_{50}		28.8	32	32.7	32.7	43.9	44.9	45.4	45.4
L_{90}		25.1	28.5	29.4	29.4	39.9	40.3	40.9	40.9

Time		From 23:00 pm to 23:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	36.1	34.1	36.4	36.4	42	41.4	40.8	42
L_{max}		53.8	50.7	54.7	54.7	55.1	56.3	55.4	56.3
L_{min}		22.8	22.3	24.7	24.7	32.2	31.3	31.4	32.2
L_{10}		39.6	35.3	36.5	39.6	45.8	44.8	44.1	45.8
L_{50}		31.3	31.9	33	33	39.6	38.1	38.3	39.6
L_{90}		26.3	28.6	29.7	29.7	35.3	34.6	34.6	35.3

Time		From 1:00 am to 1:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40	38.2	36.7	40	44	42.8	41.5	44
L_{max}		53.7	54	51.5	54	61.2	60.3	58	61.2
L_{min}		37.2	35.3	33.6	37.2	37.7	35.9	33.9	37.7
L_{10}		40.9	38.7	37.3	40.9	45.3	43.3	41.8	45.3
L_{50}		39.2	37	35.2	39.2	39.6	38	30.5	39.6
L_{90}		38.4	36.3	34.3	38.4	38.4	30.5	34.9	38.4

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Time		From 3:00 am to 3:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	46.4	41.9	39.6	46.4	47.7	48.4	42.4	48.4
L_{max}		68.2	62.7	57	68.2	73.8	71.3	71.1	73.8
L_{min}		32.5	31.4	31.5	32.5	38.4	36.1	34.4	38.4
L_{10}		44.1	42.2	41.3	44.1	48.7	45.5	42.4	48.7
L_{50}		37.9	36.2	36.2	37.9	43	40	38.5	43
L_{90}		35.4	33.6	33.9	35.4	40	37.6	36.2	40

Time		From 5:00 am to 5:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.4	38	38.8	38.8	56.2	53.7	56.7	56.7
L_{max}		45.4	55.1	55.8	55.8	90.1	89.9	89.8	90.1
L_{min}		21.2	22	23.4	23.4	30.8	29.2	28.5	30.8
L_{10}		32.4	34.9	36.4	36.4	45.3	42.8	42.3	45.3
L_{50}		26.3	30.2	31.4	31.4	35.6	33.4	34	35.6
L_{90}		24	26.8	28.1	28.1	33	31	31.1	33

Time		From 7:00 am to 7:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.8	32.6	31.8	32.8	66.7	67.2	66.9	67.2
L_{max}		48.6	41.5	33.2	48.6	75	76.1	74.2	76.1
L_{min}		26.1	24.1	29.8	29.8	41.7	43.2	42.8	43.2
L_{10}		35.2	34.8	37	37	70.2	70.4	70.5	70.5
L_{50}		31	31.4	35.9	35.9	65.8	66.8	65.4	66.8
L_{90}		28.8	28.6	28.9	28.9	59.3	58.7	59	59.3

QCVN 27:2010/BTNMT: National Technical Regulation on Vibration		
Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
Special location	6:00 AM – 6:00 PM	75
	6:00 PM – 6:00 AM	Background level
Normal location	6:00 AM – 9:00 PM	75
	9:00 PM – 6:00 AM	Background level

+ Results of groundwater sample NN 4.4

Groundwater sample (coded NN 4.4) is well water of house in intersection. householder is Mrs. Nam. Tan Phuc commune. An Thi District. Hung Yen Province.

Results of sample analysis are shown in table 13 as below.

Table 13 showed that the all of parameters are lower than QCVN 09:2008/BTNMT (National technical regulation on underground water quality) except coliform sample exceeding allowable limit. The value of Blank sample is very low so it does not effect on test samples.

TABLE 13. THE FOURTH RESULTS OF GROUNDWATER OF THE PACKAGE EX4 (JULY 2012)

No.	Parameter	Unit	Result		QCVN 09:2008/BTNMT
			NN 4.4	MT	
1.	Temperature	°C	29.8	28.0	-
2.	pH	-	6.65	7.10	5.5 – 8.5
3.	COD	mgO_2/L	1.9	< 1.0	4
4.	BOD_5	mg/L	<1.0	< 1.0	-
5.	TSS	mg/L	9	< 3.0	-
6.	Total P	mg/L	0.04	< 0.01	-
7.	Total N	mg/L	5.3	< 0.10	-
8.	*Coliform	MPN/ 100mL	5	ND	3
9.	*E. Coli		ND	ND	ND

Results monitoring of Intersection with the 20 road in Nhan Quyen Commune. Binh Giang District, Hai Duong Province

+ Results of air monitoring:

Sampling according to supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. Coordinates of sampling location: N 20° 51.204" - E 106° 12. 14.9. At the each location take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 14. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value is 120 $\mu g/m^3$ at

3:00 am on April 7th. 2012 and maximum value is 150 $\mu g/m^3$ at 3:00 p m on April 6th. 2012.

For total dust. the measurement results are: 456; 589; 284 and 352 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on April 6th. 2012 and 3:00 AM on April 7th. 2012; these results are higher lower than 300 $\mu g/m^3$ according to National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 93; 119; 117 and 105 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on April 6th. 2012 and 3:00 AM on April 7th. 2012; these results are under 350 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For NO_2. the measurement results are: 33; 20; 20 and 22 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on April 6th. 2012 and 3:00 AM on April 7th. 2012; these results are lower than 200 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 945; 1346; 1020 and 1696 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on April 6th. 2012 and 3:00 AM on April 7th. 2012 these results are under 30000 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ ***Results of noise:***

Noise level is measured 12 samples within 24 hours (a point per 2 hours) from 9:00 am April 6th. 2012 to 7:00 am April 7th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 15.

The table results showed that 12 Leq values for 24 hours. There is one result at 9:00 AM on April 6th 2012 is 71.1 dB are higher 70 dB and all results at night from 11:00 PM on April 6th 2012 to 5:00 AM on April 7th 2012 are 56.3; 55.8; 59.0 and 68.5 dB are higher 55 dB than the allowable limit according to National Technical Regulation on Noise (QCVN 26:2010/BTNMT). Other noise values are lower than the allowable limit is 70dB.

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 59.1 to 67.9 dB from 7:00 AM to 9:00 PM and 48.1 to 57.7 dB from 11:00 PM to 5:00 AM for L_{50}. The values of L_{90} are respectively of about 53.3 to 62.3 dB from 7:00 AM to 9:00 PM and 45.0 to 53.0 dB from 11:00 PM to 5:00 AM.

L_{max} value is 101.4 dB at 11:00 AM on April 6th. 2012 and L_{min} value is 41.1 dB at 1:00 AM on April 7th, 2012.

TABLE 14 : THE FOURTH RESULTS OF AIR SAMPLE OF EX4 (JULY 2012)

Name of sample	Parameter	Unit	K 5.4.1	K 5.4.2	K 5.4.3	K 5.4.4	QCVN 05:2009/BTNMT
	Time		9 am July 6th, 2012	15:00 pm July 6th, 2012	21:00 pm July 6th, 2012	3:00 am July 7th, 2012	
EX 4 – K 5.3	VOCs	µg/m³	130	150	130	120	-
	Dust		456	589	284	352	300
	SO_2		93	119	117	105	350
	NO_2		33	20	20	22	-
	CO		945	1346	1020	1696	30000

Note: QCVN 05:2009/ BTNMT: National technical regulation on ambient air quality

TABLE 15 : THE FOURTH RESULTS OF NOISE SAMPLES OF THE PACKAGE EX4 (JULY 2012)

Name of sample		Noise	From 9 am July 06th to 7 am July 07th, 2012											
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 4-K5.3	Leq	(dB)	72.3	72.7	69.5	68.1	68.2	68.0	66.0	57.9	55.0	66.2	69.2	70.4
	Lmax		90.8	101.4	99.6	87.7	87.1	94.3	91.8	89.6	86.2	84.7	90.1	90.1
	Lmin		54.1	47.9	48.9	50.5	51.3	46.5	48.0	43.3	41.1	47.0	46.9	51.2
	L50		67.9	64.1	60.1	63.1	63.6	61.6	59.1	50.1	48.1	57.0	57.7	65.3
	L90		62.3	56.5	53.4	55.3	57.8	54.2	53.3	47.7	45.0	53.0	51.5	58.0
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT: – National Technical Regulation on Noise

+ Results of vibration

- Starting time: 9:00 AM on July 6th. 2012; Ending time: 7:00 AM on July 7th. 2012.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. some measurement values are higher than 60dB and lower than 75dB.

The values of L_{10}, L_{50}, L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

The results in table 16 showed that value of vibration acceleration level (Lva) exceed the allowable limit (75dB) of National Technical Regulation on Vibration (QCVN 27:2010/BTNMT).

Average Lv value in the range from 53.3 to 69.9 dB.

The value of Lva_{max} is 90.1 dB which is highest at the time from 1:00 AM to 1:30 AM on July 7th, 2012.

The value of Lva_{min} is 31.8 dB which is lowest at the time from 23:00 to 23:30 AM on July 6th, 2012.

TABLE 16. THE FOURTH RESULTS OF VIBRATION OF THE PACKAGE EX 4 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 06th , 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	50.6	37.1	38.1	50.6	66.9	69.9	64.5	69.9
L_{max}		68.3	50.8	57.4	68.3	79.2	78.4	74.2	79.2
L_{min}		32.8	29.8	29.3	32.8	60.5	60.9	55.6	60.9
L_{10}		53.6	39.3	39.8	53.6	67.2	71.5	65.9	71.5
L_{50}		47	35.9	36.9	47	66.4	69.4	64.2	69.4
L_{90}		43.4	33	33.5	43.4	66	67.2	62.1	67.2

Time		From 11:00 am to 11:30 am on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	48.8	35.8	36.8	48.8	61.5	59.2	60.1	61.5
L_{max}		64.3	49.9	45.5	64.3	84.6	81.1	85.6	85.6
L_{min}		27	25.9	26.3	27	44	39.2	39.7	44
L_{10}		52.9	38.5	39.4	52.9	61.5	59.6	58.9	61.5
L_{50}		42.2	34.6	36	42.2	54	51.1	50.6	54
L_{90}		32.9	31.3	32.6	32.9	49	45.6	45.7	49

Time		From 13:00 pm to 13:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	43.7	34.9	36.5	43.7	56.7	56.9	55.1	56.9
L_{max}		59.5	43.4	47.1	59.5	76.3	74.9	76.4	76.4
L_{min}		26.6	26.2	26.1	26.6	38	35.5	34.5	38
L_{10}		47.3	37.7	38.9	47.3	61.1	60.8	58.1	61.1
L_{50}		38.7	33.9	35.7	38.7	49.7	48.3	46.1	49.7
L_{90}		31.7	30.8	32.1	32.1	43	41.2	39.6	43

Time		From 15:00 pm to 15:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	48.1	37.4	38.5	48.1	54.4	55.2	53.2	55.2
L_{max}		59.8	46	46.1	59.8	72.6	71.6	70.4	72.6
L_{min}		29.6	28.5	27.8	29.6	42.6	44.7	42.9	44.7
L_{10}		51.9	40	41.1	51.9	50.6	57.9	55.5	57.9
L_{50}		44.7	36.5	37.7	44.7	48.9	50.7	47.9	50.7
L_{90}		37.4	35.2	34.4	37.4	44.9	47	44.7	47

Time		From 17:00 pm to 17:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	46.1	34.8	35.3	46.1	55.6	52.3	50.6	55.6
L_{max}		60.2	42.6	42.6	60.2	69.2	67.7	65.4	69.2
L_{min}		26.8	26.7	23.9	26.8	40.9	36.6	36.4	40.9
L_{10}		50.2	37	37.8	50.2	59.4	55.5	54.3	59.4
L_{50}		42	34	34.7	42	50	46.4	45.5	50
L_{90}		33.9	31.1	31.6	33.9	44.6	40.8	40.2	44.6

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Time		From 19:00 pm to 19:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40	32.7	33.9	40	54.9	54.3	53.5	54.9
L_{max}		59.8	40	43.9	59.8	68.9	69.1	67.3	69.1
L_{min}		22.6	24.3	24.3	24.3	36.5	35.1	35.2	36.5
L_{10}		38.4	35.5	36.5	38.4	58.8	58.1	57.5	58.8
L_{50}		30.7	31.7	33.1	33.1	49.4	48.7	48.5	49.4
L_{90}		27.1	28.4	29.5	29.5	42.1	40.9	40.4	42.1

Time		From 21:00 pm to 21:30 pm on July 1 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40.8	32.2	33.3	40.8	53.5	53.7	51.7	53.7
L_{max}		60.8	42.2	42.7	60.8	71.7	72.7	70.4	72.7
L_{min}		22.5	22.7	23.7	23.7	45.9	46.9	43.7	46.9
L_{10}		40.7	34.8	35.9	40.7	55	54.3	53	55
L_{50}		29.5	31.2	32.4	32.4	51.6	51	48	51.6
L_{90}		26.1	27.9	28.9	28.9	47	49.1	46.5	49.1

Time		From 23:00 pm to 23:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.7	31.7	34.3	34.3	51.5	53.3	47.3	53.3
L_{max}		57.5	51.2	56.2	57.5	73.5	79	71.6	79
L_{min}		20.8	21.3	24.6	24.6	31.8	29.7	30.1	31.8
L_{10}		29.3	33.8	35.7	35.7	53	50.6	47.2	53
L_{50}		25.6	30.3	32.1	32.1	43.1	40.9	38.2	43.1
L_{90}		23.3	27	28.9	28.9	35.1	33	33.5	35.1

Time		From 1:00 am to 1:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.5	31.2	33.1	39.5	63.6	61.8	61.5	63.6
L_{max}		58.9	42.8	44.7	58.9	90.1	90.1	90	90.1
L_{min}		21.5	21.9	23.4	23.4	35.5	36	34.6	36
L_{10}		38.5	33.8	35.7	38.5	60.4	56.6	54.5	60.4
L_{50}		29.2	30.3	32.1	32.1	46.8	44.6	42.8	46.8
L_{90}		25.3	27	28.9	28.9	38.4	38.3	37.7	38.4

Time		From 3:00 am to 3:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	41	30.5	32.4	41	55.3	51.3	49.3	55.3
L_{max}		59.9	39	43.3	59.9	72.5	68.9	65.2	72.5
L_{min}		20.6	21.3	24.3	24.3	36.2	36.4	37	37
L_{10}		39.6	33.1	35.1	39.6	58.6	54.4	52.7	58.6
L_{50}		27.3	29.6	31.2	31.2	45	42.5	42.6	45
L_{90}		24.1	26.2	27.8	27.8	37.7	37.7	39.1	39.1

Time		From 5:00 am to 5:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	36.5	30.3	31.5	36.5	58.2	54.7	51.6	58.2
L_{max}		58.8	38.4	41.4	58.8	83.7	79.1	73.3	83.7
L_{min}		21.4	22.3	23.3	23.3	34.4	30.5	31.3	34.4
L_{10}		34.1	32.8	34	34.1	58.9	56.8	53.9	58.9
L_{50}		27.8	29.6	30.8	30.8	48.4	45.8	44	48.4
L_{90}		24.6	26.3	27.7	27.7	39.2	37.4	35.9	39.2

Time		From 7:00 am to 7:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	45.1	33.6	34.9	45.1	61.7	59.2	56	61.7
L_{max}		65.3	65.3	66.2	66.2	82.1	83.2	76.5	83.2
L_{min}		24.5	22.6	23.5	24.5	39.9	37	36.2	39.9
L_{10}		48.9	30.6	30.5	48.9	64.3	61	59	64.3
L_{50}		39.7	32	32.5	39.7	52.6	49.9	48.8	52.6
L_{90}		31	28.2	29	31	44.2	41.9	39.9	44.2

CVN 27:2010/BTNMT: National Technical Regulation on Vibration		
Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
Special location	6:00 AM – 6:00 PM	75
	6:00 PM – 6:00 AM	Background level
Normal location	6:00 AM – 9:00 PM	75
	9:00 PM – 6:00 AM	Background level

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+ Results of surface water sample:

Surface water sample (coded NM 2.4) was monitored and sampled at Bac Hung Hai river – Van Giang District near intersection with the 179 road. Cuu Cao commune. coordinates of sampling location: N 20° 57.730 - E 105° 57. 265.

Sampling time: From July 6rd. 2012 to July 7th. 2012.

Sample was taken 3 times at the times. a sample per 8 hours in 24 hours with 01 blank sample. pH and DO parameters are tested on location. The samples were refrigerated and fixed after sampling and transported to the laboratory in the shortest time. Results of sample analysis are shown in table 17 as below.

The result table showed that oil & grease parameters are 0.12; 0.13; 0.15 mg/L higher than the column B1 (0.1 mg/L). lower than the limit value is 0.3 mg/L in column B2 according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT).

COD; TSS and BOD_5 concentration of 03 samples are lower than both B1 and B2 column at the different times according to QCVN 08:2008/BTNMT. In B1 column compared with TSS (Total suspended solids) of QCVN 08:2008/BTNMT. The value of DO (Dissolved Oxygen) in NM 2.4.1; NM 2.4.2 and NM 2.4.3 are 2.60; 2.45 and 2.70 mg/L. respectively lower than QCVN 08:2008/BTNMT at B1 ($\geq$ 4mg/L).

As for pesticides of organic chlorine group have quantitative limit of analysis method is 0.05 µg/L (the most of environmental laboratories only determine this quantitative limit). However. according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT). comparative value about 0.004 – 0.01 µg/L (Aldrin - Dieldrin); 0.014 – 0.01 µg/L (Endrin) etc.

On the other hand. comparison of National technical regulation on surface water quality (QCVN 08:2008) and Surface water quality standard (TCVN 5942:1995). DDT is 0.01 mg/L corresponding to 10 µg/L in standard. Vietnam standard (TCVN) by Ministry of science and technology promulgate while Vietnam regulation by Ministry of natural resources and environment promulgate that regulation for parameters of surface water but different to 2500 times.

In this case. TCVN 5942:1995 more consistent with the international standard. Thus. results of minimum quantitative limit also exceed the QCVN 08: 2008/BTNMT.

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TABLE 17. THE FOURTH RESULTS OF SURFACE WATER NM1 OF THE PACKAGE EX2 (JULY 2012)

No	Parameter	Unit	Result				QCVN 08:2008/BTNMT	
			NM 2.4.1	NM 2.4.2	NM 2.4.3	MT	Column B1	Column B2
1	pH	-	7.11	7.45	7.36	7.20	5.5 -9	5.5 -9
2	DO	mg/L	2.60	2.45	2.37	7.38	≥4	≥2
3	COD	mgO_2/L	9.6	10.4	26.2	<1.0	30	50
4	BOD_5	mg/L	5.2	5.8	13.9	<1.0	15	25
5	TSS	mg/L	5	7	8	<3.0	50	100
6	Total P	mg/L	0.21	0.15	0.25	0.01	-	-
7	Total N	mg/L	6.6	3.8	3.8	<0.10	-	-
8	*Pesticides	mg/L	<0.5	<0.5	<0.5	<0.5	-	-
9	Aldrin+Dieldrin	µg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.008	0.01
10	Endrin		< 0.05	< 0.05	< 0.05	< 0.05	0.014	0.01
11	BHC		< 0.05	< 0.05	< 0.05	< 0.05	0.13	0.015
12	DDT		< 0.05	< 0.05	< 0.05	< 0.05	0.004	0.005
13	DDD		< 0.05	< 0.05	< 0.05	< 0.05	-	-
14	Endosunfan (Thiodan)		< 0.05	< 0.05	< 0.05	< 0.05	0.01	0.02
15	Lindan		< 0.05	< 0.05	< 0.05	< 0.05	0.38	0.4
16	Chlordane		< 0.05	< 0.05	< 0.05	< 0.05	0.02	0.03
17	Heptachlor		< 0.05	< 0.05	< 0.05	< 0.05	0.02	0.05
18	Oil	mg/L	0.12	0.13	0.15	< 0.05	0.1	0.3
19	*Coliform	MPN/100 mL	38	96	200	ND	7500	10000

Note: - QCVN 08:2008/BTNMT: National technical regulation on surface water quality

B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level

B2 – For the usage of water navigation and other purpose with less water quality

NM 2.4.1: Sampling at 14:00pm on July 6th. 2012; NM 2.4.2: Sampling at 22:00 pm on July 6th. 2012; NM 2.4.3: Sampling at 6:00 am on July 7th. 2012; MT: Blank sample; ND: non detect

+ Results of groundwater sample NN 5.4

Groundwater sample (coded NN 5.4) is well water of house in intersection. householder is Mrs. Vu Van Hoi. Nhan Quyen commune. Binh Giang District. Hai Dương Province. Results of sample analysis are shown in table 20 as below.

Table 18 showed that the all of parameters are lower than QCVN 09:2008/BTNMT (National technical regulation on underground water quality) except coliform sample exceeding allowable limit. The value of Blank sample is very low so it does not effect on test samples.

TABLE 18. THE FOURTH RESULTS OF GROUNDWATER OF THE PACKAGE EX4-N 5.4 (JULY 2012)

No.	Parameter	Unit	Result		QCVN 09:2008/BTNMT
			NN 5.4	MT	
1.	Temperature	°C	27.5	28.0	-
2.	pH	-	7.01	7.10	5.5 – 8.5
3.	COD	mgO_2/L	10.6	< 1.0	4
4.	BOD_5	mg/L	3.6	< 1.0	-
5.	TSS	mg/L	31	< 3.0	-
6.	Total P	mg/L	0.15	< 0.01	-
7.	Total N	mg/L	28.8	< 0.10	-
8.	*Coliform	MPN/ 100mL	21	ND	3
9.	*E. Coli		ND	ND	ND

d) Results of monitoring of construction packages EX-5

+ Results of air monitoring:

Sampling according to supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. Coordinates of sampling location: N 20° 51.341 - E 106° 18. 131. At the each location take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 22. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value is 105 $\mu g/m^3$ at 3:00 am on July 10th. 2012 and maximum value is 145 $\mu g/m^3$ at 9:00am on July 9th. 2012.

For total dust. the measurement results are: 128; 112; 96 and 88 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 9th. 2012 and 3:00 AM on July 10th. 2012; these results are lower than 300 $\mu g/m^3$ according to National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 79; 95; 87 and 74 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 9th. 2012 and 3:00 AM on July 10th. 2012; these results are under 350 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For NO_2. the measurement results are: 22; 23; 18 and 18 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 9th. 2012 and 3:00 AM on July 10th. 2012; these results are lower than 200 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 1175; 1866; 1219 and 1385 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:00 PM; 9:00 PM on July 9th. 2012 and 3:00 AM on July 10th. 2012 these results are under 30000 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ Results of noise:

Noise level is measured 12 samples within 24 hours (a point per 2 hours) from 9:00 am July 9th. 2012 to 7:00 am July 10th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal

areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 20.

The table results showed that 12 Leq values for 24 hours are lowered 55 dB and 70 dB than the allowable limit according to National Technical Regulation on Noise (QCVN 26:2010/BTNMT).

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 53.2 to 61.6 dB from 7:00 AM to 9:00 PM and 46.6 to 55.9 dB from 11:00 PM to 5:00 AM for L_{50}. The values of L_{90} are respectively of about 48.0 to 59.3 dB from 7:00 AM to 9:00 PM and 44.4 to 55.4 dB from 11:00 PM to 5:00 AM. all these values are lower than both Leq and L_{50}.

L_{max} value is 89.1 dB at 7:00 AM on July 9th. 2012 and L_{min} value is 44.4 dB at 13:00 PM on July 10th, 2012.

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TABLE 19 : THE FOURTH RESULTS OF AIR SAMPLE OF EX5-K6.4 (JULY 2012)

Name of sample	Parameter	Unit	K 6.4.1	K 6.4.2	K 6.4.3	K 6.4.4	QCVN 05:2009/BTNMT
	Time		9 am July 9th, 2012	15:00 pm July 9th, 2012	21:00 pm July 9th, 2012	3:00 am July 10th, 2012	
EX 5 – K 6.3	VOCs	µg/m³	145	130	110	105	-
	Dust		128	112	96	88	300
	SO_2		79	95	87	74	350
	NO_2		22	23	18	18	-
	CO		1175	1866	1219	1385	30000

Note: QCVN 05:2009/ BTNMT: National technical regulation on ambient air quality

TABLE 20 : THE FOURTH RESULTS OF NOISE SAMPLES OF THE PACKAGE EX5-K6.4 (JULY 2012)

Name of sample		Noise	From 9am July 09th to 7 am July 10th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 5-K6.3	Leq	(dB)	62.0	60.3	59.3	62.7	60.9	59.8	59.5	50.6	57.1	55.8	54.9	66.5
	Lmax		80.6	77.4	76.8	86.1	82.8	74.2	74.5	77.5	74.1	72.1	79.9	89.1
	Lmin		50.8	47.3	44.4	53.7	50.5	47.8	50.8	45.3	52.9	47.2	42.7	56.3
	L50		58.8	56.5	53.2	59.5	58.5	58.4	56.4	47.4	55.9	53.7	46.6	61.6
	L90		55.3	51.4	48.0	57.0	55.1	54.0	53.6	46.4	55.4	51.4	44.4	59.3
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT: – National Technical Regulation on Noise

+ Results of vibration

- Starting time: 9:00 AM on July 9th. 2012; Ending time: 7:00 AM on July 10th. 2012.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time, vibration acceleration is lower than 60dB. However. some measurement values are higher than 60dB and lower than 75dB..

The values of L_{10}, L_{50}, L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

The results in table 21 showed that value of vibration acceleration level (Lva) not exceed the allowable limit (75dB) of National Technical Regulation on Vibration (QCVN 27:2010/BTNMT).

Average Lva value in the range from 37.4 to 56.1 dB.

The value of Lva_{max} is 81.1 dB which is highest at the time from 11:00 AM to 11:30 AM on July 9th, 2012.

The value of Lva_{min} is 31.1 dB which is lowest at the time from 5:00 to 5:30 AM on July 10th, 2012.

TABLE 21. THE FOURTH RESULTS OF VIBRATION OF THE PACKAGE EX 5-K6.4 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 09th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40.3	32.7	34.4	40.3	54.70	50.3	49.7	54.7
L_{max}		53.8	41.2	42.9	53.8	79	73.8	72.6	79
L_{min}		23.2	24.1	25.5	25.5	39.5	35.7	35.6	39.5
L_{10}		45.2	35.2	37	45.2	56.1	52.1	51.7	56.1
L_{50}		34.3	31.9	33.7	34.3	47.2	43	42.7	47.2
L_{90}		28.7	28.8	30.4	30.4	42.1	38.9	38.7	42.1

Time		From 11:00 am to 11:30 am on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.6	32.7	34.9	34.9	56.1	50.2	48.2	56.1
L_{max}		49.8	42	43.8	49.8	81.1	73.8	69.5	81.1
L_{min}		24	23.4	26.6	26.6	38.8	35.3	35.8	38.8
L_{10}		38	35.3	37.3	38	57.4	52.3	50.9	57.4
L_{50}		31.9	31.9	34	34	48.9	43.8	43.3	48.9
L_{90}		28.2	28.8	30.8	30.8	43.3	39.2	39.4	43.3

Time		From 13:00 pm to 13:30 pm on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	33.7	32.6	34.1	34.1	49.2	46.2	43.8	49.2
L_{max}		47.8	39.8	40.6	47.8	63.4	62.7	61.9	63.4
L_{min}		22.9	23.6	25.8	25.8	38.1	36.2	32.9	38.1
L_{10}		37.6	35.1	36.6	37.6	52.5	49.1	46	52.5
L_{50}		29.7	31.9	33.4	33.4	44.7	41.5	39.1	44.7
L_{90}		26.8	28.4	30.2	30.2	40.7	38	35.8	40.7

Time		From 15:00 pm to 15:30 pm on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40.1	33.6	34.7	40.1	51.9	52.6	52.9	52.9
L_{max}		53.2	40.6	41.4	53.2	74.8	77.1	78.3	78.3
L_{min}		28	24.4	25	28	41.3	38.7	38.7	41.3
L_{10}		43.6	36.2	37.3	43.6	51.3	48.9	48.5	51.3
L_{50}		36.4	32.8	34	36.4	46.9	44.1	43.9	46.9
L_{90}		32.7	29.8	30.8	32.7	43.6	40.8	40.9	43.6

Time		From 17:00 pm to 17:30 pm on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	37.5	31.5	33	37.5	46.4	49.4	46.2	49.4
L_{max}		51.6	38.5	40.3	51.6	64.6	75.3	76.1	76.1
L_{min}		23.3	22.7	23.9	23.9	37	34.5	34.2	37
L_{10}		41.5	34	35.7	41.5	49	46.4	45.3	49
L_{50}		31.8	30.9	32.2	32.2	42.6	40.3	39.3	42.6
L_{90}		28.8	27.7	28.9	28.9	40.2	37.5	36.8	40.2

Time		From 19:00 pm to 19:30 pm on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	37.4	31.3	32.8	37.4	49	44.5	40.8	49
L_{max}		51.5	40.1	41.9	51.5	65.7	62.3	53.5	65.7
L_{min}		23	21.9	22.5	23	38.1	36	33.5	38.1
L_{10}		41.6	33.8	35.6	41.6	50.6	45.7	42.6	50.6
L_{50}		31.7	30.5	31.6	31.7	43.5	40.8	38.9	43.5
L_{90}		28.3	23.7	28.4	28.4	40.7	38.4	36.4	40.7

Time		From 21:00 pm to 21:30 pm on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.4	30	32.4	32.4	46.9	43.8	40.5	46.9
L_{max}		48.4	39.4	40.6	48.4	62.4	59.7	58.7	62.4
L_{min}		21.4	21.3	23.2	23.2	39.3	36.4	34.3	39.3
L_{10}		31	33	35.1	35.1	48.1	45.3	42.1	48.1
L_{50}		26.9	29.9	31.5	31.5	44.4	42.8	39.1	44.4
L_{90}		24.8	26.7	28.1	28.1	42.1	39.4	37	42.1

Time		From 23:00 pm to 23:30 pm on July 09th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26	30.8	32.4	32.4	42.8	38.3	40.7	42.8
L_{max}		69.9	58.6	54.6	69.9	62.1	52.2	61.5	62.1
L_{min}		19.4	21.4	22.9	22.9	31.9	28.9	30	31.9
L_{10}		27.7	33	35.1	35.1	46.4	40.5	43.4	46.4
L_{50}		25.3	29.60	31.4	31.4	36.2	33.2	34.2	36.2
L_{90}		23.1	26.1	27.7	27.7	34.2	31.2	32.1	34.2

Time		From 1:00 am to 1:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.3	30.6	31.5	31.5	37.4	33.9	34.1	37.4
L_{max}		35.8	38.4	37.9	38.4	60.9	54.1	53.3	60.9
L_{min}		19.7	22.1	21	22.1	32.4	29.6	29.7	32.4
L_{10}		28.2	33.2	34.3	34.3	37.5	34.6	35.4	37.5
L_{50}		25.9	29.8	30.7	30.7	34.8	32.3	32.8	34.8
L_{90}		23.5	26.4	27.4	27.4	33.5	31	31.1	33.5

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Time		From 3:00 am to 3:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	25.8	30.4	31.3	31.3	45.5	45.1	46.6	46.6
L_{max}		31.9	38.7	39.3	39.3	68.6	71.8	73.8	73.8
L_{min}		19.5	20.8	22.8	22.8	34.6	30.5	32.3	34.6
L_{10}		27.7	33	33.9	33.9	44.6	41.1	41.9	44.6
L_{50}		25.3	29.6	30.7	30.7	37.9	34.6	35.3	37.9
L_{90}		23.3	26.4	27.2	27.2	36.1	32.4	33.6	36.1

Time		From 5:00 am to 5:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	33.2	30.8	31.8	33.2	41.6	35.8	35.7	41.6
L_{max}		50.4	46.9	50.4	50.4	56.6	44.8	46.4	56.6
L_{min}		20.2	21.9	21.4	21.9	31.1	29.9	28.9	31.1
L_{10}		35.1	33.1	34.5	35.1	43.8	38.5	38.3	43.8
L_{50}		26.4	29.6	31	31	36.4	34.3	34.1	36.4
L_{90}		23.4	26.3	27.6	27.6	33.4	31.8	31.4	33.4

Time		From 7:00 am to 7:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40.3	31.2	32.6	40.3	50.8	47.6	44.5	50.8
L_{max}		53.9	42	39.1	53.9	63.5	63.6	57.8	63.6
L_{min}		26.9	22.3	22.3	26.9	37	35	34.4	37
L_{10}		45.1	33.5	35	45.1	37	35	34.4	37
L_{50}		34.3	30.4	32	34.3	54.2	49.9	46.1	54.2
L_{90}		30.8	27.3	28.7	30.8	45	41.8	40.2	45

QCVN 27:2010/BTNMT: National Technical Regulation on Vibration		
Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
Special location	6:00 AM – 6:00 PM	75
	6:00 PM – 6:00 AM	Background level
Normal location	6:00 AM – 9:00 PM	75
	9:00 PM – 6:00 AM	Background level

+ Results of groundwater sample NN 6.4

Groundwater sample (coded NN 6.4) is well water of house in intersection. householder is Mrs. Nam. Tan Phuc commune. An Thi District. Hung Yen Province.

Results of sample analysis are shown in table 22 as below.

Table 22 showed that the all of parameters are lower than QCVN 09:2008/BTNMT (National technical regulation on underground water quality) except coliform sample exceeding allowable limit. The value of Blank sample is very low so it does not effect on test samples.

TABLE 22. THE FOURTH RESULTS OF GROUNDWATER OF THE PACKAGE EX5-NN 6.4 (JULY 2012)

No.	Parameter	Unit	Result		QCVN 09:2008/BTNMT
			NN 6. 4	MT	
1.	Temperature	°C	28.8	28.0	-
2.	pH	-	7.30	7.10	5.5 – 8.5
3.	COD	mgO_2/L	9.8	< 1.0	4
4.	BOD_5	mg/L	5.4	< 1.0	-
5.	TSS	mg/L	10	< 3.0	-
6.	Total P	mg/L	0.55	< 0.01	-
7.	Total N	mg/L	29	< 0.10	-
8.	*Coliform	MPN/ 100mL	7	ND	3
9.	*E. Coli		ND	ND	ND

e) Results of monitoring of construction packages EX-6

+ Results of air monitoring:

Sampling according to supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. Coordinates of sampling location: N 20° 49.181 - E 106° 28. 490. At the each location take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 23. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value is 90 $\mu g/m^3$ at 9:00

pm and 9:00 pm on July 10th. 2012 and maximum value is 130 $\mu g/m^3$ at 3:00 pm on July 10th. 2012.

For total dust. the measurement results are: 105; 95; 86 and 90 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:0 PM; 9:00 PM on July 10th. 2012 and 3:00 AM on July 11th. 2012; these results are lower than 300 $\mu g/m^3$ according to National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 86; 93; 78 and 72 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:0 PM; 9:00 PM on July 10th. 2012 and 3:00 AM on July 11th. 2012; these results are under 350 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For NO_2. the measurement results are: 33; 18; 20 and 18 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:0 PM; 9:00 PM on July 10th. 2012 and 3:00 AM on July 11th. 2012; these results are lower than 200 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO the measurement results are: 1259; 3223; 984 and 969 $\mu g/m^3$ corresponding sampling times are 9:00 AM; 3:0 PM; 9:00 PM on July 10th. 2012 and 3:00 AM on July 11th. 2012 these results are under 30000 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ ***Results of noise:***

Noise level is measured 12 samples within 24 hours (a point per 2 hours) from 9:00 am July 10th. 2012 to 7:00 am July 11th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 24.

The table results showed that 12 Leq values for 24 hours. There are values lower than the allowable limit of QCVN 26:2010/BTNMT.

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 47.7 to 53.3 dB from 7:00 AM to 9:00 PM and 41.8 to 47.4 dB from 11:00 PM to 5:00 AM for L_{50}. The values of L_{90} are respectively of about 44.3 to 49.1 dB from 7:00 AM to 9:00 PM and 41.2 to 45.6 dB from 11:00 PM to 5:00 AM.

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L_{max} value is 86.8 dB at 5:00 PM on July 10th. 2012 and L_{min} value is 38.8 dB at 5:00 AM on July 11th, 2012.

TABLE 23 : THE FOURTH RESULTS OF AIR SAMPLE OF EX6-K7.4 (JULY 2012)

Name of sample	Parameter	Unit	K 7.4.1	K 7.4.2	K 7.4.3	K 7.4.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 10th, 2012	15:00 pm July 10th, 2012	21:00 pm July 10th, 2012	3:00 am July 11th, 2012	
EX 6 – K 7.4	VOCs	µg/m³	120	130	90	105	-
	Dust		105	95	86	90	300
	SO_2		86	93	78	72	350
	NO_2		33	18	20	18	-
	CO		1259	3223	984	969	30000

Note: QCVN 05:2009/ BTNMT: National technical regulation on ambient air quality

TABLE 24 : THE FOURTH RESULTS OF VIBRATION SAMPLES OF THE PACKAGE EX6-K7.4 (JULY 2012)

Name of sample		Noise	From 9am July 10th to 7 am July 11th, 2012											
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 6-K7.4	Leq	(dB)	58.2	59.5	51.8	55.6	60.6	57.8	54.0	48.3	48.6	42.0	55.1	57.8
	Lmax		78.1	84.1	71.6	77.6	86.8	778.3	85.2	68.9	70.9	52.4	70.3	81.5
	Lmin		42.6	42.7	40.8	46.2	41.5	40.0	45.2	44.6	43.1	40.6	38.8	40.2
	L50		53.3	52.7	47.7	52.9	52.0	51.2	49.1	46.9	45.0	41.8	47.4	49.1
	L90		48.0	47.8	44.3	49.1	46.7	45.2	47.5	45.6	44.1	41.2	42.1	43.6
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT: – National Technical Regulation on Noise

+ Results of vibration

- Starting time: 9:00 AM on July 10th. 2012; Ending time: 7:00 AM on July 11th. 2012.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. some measurement values are higher than 60dB and lower than 75dB..

The values of L_{10}, L_{50}, L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

The results in table 25 showed that value of vibration acceleration level (Lva) exceed the allowable limit (75dB) of National Technical Regulation on Vibration (QCVN 27:2010/BTNMT).

Average Lva value in the range from 44.9 to 66.9 dB.

The value of Lva_{max} is 89.4 dB which is highest at the time from 9:00 AM to 9:30 AM on July 10th, 2012.

The value of Lva_{min} is 32.3 dB which is lowest at the time from 19:00 to 19:30 PM on July 10th, 2012.

TABLE 25. THE FOURTH RESULTS OF VIBRATION OF THE PACKAGE EX 6-K7.4 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 10th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.9	35.1	34.8	39.9	66.9	63.9	62.3	66.9
L_{max}		64.2	57.2	42.4	64.2	89.4	87.6	84.3	89.4
L_{min}		25.1	25.6	25.9	25.9	39.6	36.1	35.6	39.6
L_{10}		40.3	36	37.3	40.3	60.3	58	58	60.3
L_{50}		32.40	32.8	34	34	50.2	47.4	47	50.2
L_{90}		29.2	29.8	30.9	30.9	44.3	41.1	40.1	44.3

Time		From 11:00 am to 11:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	38.3	33.6	34.8	38.3	52.4	50.8	52.4	52.4
L_{max}		52.7	41.8	42.3	52.7	71.1	76.5	75.5	76.5
L_{min}		24	24.4	25.5	25.5	37.4	33.3	34.4	37.4
L_{10}		41.3	36.1	37.5	41.3	54.9	30.1	53.8	54.9
L_{50}		34	32.7	34	34	48.9	43.9	47.7	48.9
L_{90}		28.5	29.5	30.7	30.7	42.9	38.2	40.2	42.9

Time		From 13:00 pm to 13:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.9	36.5	37.8	39.9	46.4	42.6	43.9	46.4
L_{max}		54.5	48.5	49.2	54.5	60.3	57.3	55.7	60.3
L_{min}		23.6	24.4	28.8	28.8	34.2	30.3	32	34.2
L_{10}		43.7	39.2	40.6	43.7	49.9	45.8	47.5	49.9
L_{50}		36.5	35.4	36.8	36.8	44.1	40.5	41.9	44.1
L_{90}		28.3	31.5	33.4	33.4	38.5	35.7	36.5	38.5

Time		From 15:00 pm to 15:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.5	34.3	35.9	35.9	56.3	55.8	56	56.3
L_{max}		48.7	42.2	46.6	48.7	80.6	81.2	81.8	81.8
L_{min}		25.2	25.8	26.1	26.1	37.8	34.2	34.4	37.8
L_{10}		37.2	36.9	38.5	38.5	58.2	52.4	49	58.2
L_{50}		31.3	33.5	35	35	55.3	49.9	46.6	55.3
L_{90}		28.4	30.3	31.5	31.5	41.7	38.1	37.3	41.7

Time		From 17:00 pm to 17:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	33.1	33.7	34.8	34.8	46.2	45.6	43.9	46.2
L_{max}		47.5	41.5	42	47.5	61.7	64.1	61.6	64.1
L_{min}		24.2	24.9	25.8	25.8	36	34	32.8	36
L_{10}		34.9	36.3	37.3	37.3	49	47.6	46.3	49
L_{50}		30.8	33	34.1	34.1	43.8	41.8	40.6	43.8
L_{90}		28.2	29.7	30.7	30.7	39.8	37.3	36.6	39.8

Time		From 19:00 pm to 19:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.7	31.9	33.2	33.2	51.6	51.7	48.5	51.7
L_{max}		48	39.8	42.9	48	71.7	69.8	68.1	71.7
L_{min}		22.7	22	22.6	22.7	32.3	29.7	29.2	32.3
L_{10}		31.7	34.5	36	36	54.4	55.2	51.2	55.2
L_{50}		28.3	31.1	32.3	32.3	45	43.4	40.9	45
L_{90}		26	27.8	28.9	28.9	38	35.2	34.5	38

Time		From 21:00 pm to 21:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.7	31.4	32.6	32.7	51	47.5	48.4	51
L_{max}		52.60	39.1	40.4	52.6	72.2	68.6	68.4	72.2
L_{min}		21.7	22.2	24.2	24.2	37.9	33.3	34	37.9
L_{10}		34.2	34	35.1	35.1	49.9	46.5	48	49.9
L_{50}		28.2	30.6	31.8	31.8	40.7	37.2	37.3	40.7
L_{90}		25.2	27.6	28.7	28.7	39.3	35.2	35.3	39.3

Time		From 23:00 pm to 23:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.6	31.2	32.1	32.1	49.5	50.6	43.2	50.6
L_{max}		43.4	39.9	39.7	43.4	76.8	78.8	70	78.8
L_{min}		20.2	21.7	21.5	21.7	34.3	30.8	30.6	34.3
L_{10}		28	33.8	34.7	34.7	45.3	39	39.7	45.3
L_{50}		25.2	30.3	31.3	31.3	37.8	33.8	34	37.8
L_{90}		23	27	28	28	36	32.2	32	36

Time		From 1:00 am to 1:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.8	30.9	32.3	32.3	52.9	46.1	45.5	52.9
L_{max}		39.4	38.9	39.1	39.4	77.1	66.2	68.4	77.1
L_{min}		20.1	22	22.4	22.4	34.3	30.3	30.3	34.3
L_{10}		29.5	33.5	35	35	51.9	46.4	46.2	51.9
L_{50}		25.4	30.1	31.5	31.5	38.9	35.1	35.3	38.9
L_{90}		23	26.8	28	28	35.9	32.1	32	35.9

Time		From 3:00 am to 3:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.4	30.8	32.2	32.2	55.5	50.6	47.9	55.5
L_{max}		48.7	40.3	39.8	48,7	80	75.7	72.9	80
L_{min}		20.9	19.8	22.4	22.4	45.7	38	35.2	45.7
L_{10}		32.5	33.4	34.8	34.8	54.9	50.5	47.7	54.9
L_{50}		29	30	31.5	31.5	47.6	41.7	38.4	47.6
L_{90}		24.9	26.5	28	28	46.9	39.9	36.5	46.9

Time		From 5:00 am to 5:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.3	30.6	32	32.3	60.3	44.9	50.2	60.3
L_{max}		47.5	38.6	38.7	47.5	85.8	67.2	75.2	85.8
L_{min}		22.6	22.8	23.2	23.2	33.7	29.5	29.6	33.7
L_{10}		35.4	33.2	34.8	35.4	49.7	42.2	40.8	49.7
L_{50}		29.6	29.7	31.1	31.1	40.8	35.8	35.9	40.8
L_{90}		25.8	26.6	27.8	27.8	37.2	32.4	32.8	37.2

Time		From 7:00 am to 7:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.6	31.3	32.6	32.6	44.9	36.8	36.1	44.9
L_{max}		44.2	39.9	40.5	44.2	65.8	56.3	52.1	65.8
L_{min}		21.7	21.2	23.9	23.9	34.2	28.3	29	34.2
L_{10}		33.6	33.8	35.2	35.2	48.1	38.7	38.8	48.1
L_{50}		27.4	30.4	31.8	31.8	40.4	34.1	34.4	40.4
L_{90}		24.6	27.1	28.5	28.5	36.6	31.3	31.6	36.6

QCVN 27:2010/BTNMT: National Technical Regulation on Vibration		
Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
Special location	6:00 AM – 6:00 PM	75
	6:00 PM – 6:00 AM	Background level
Normal location	6:00 AM – 9:00 PM	75
	9:00 PM – 6:00 AM	Background level

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Time		From 23:00 pm to 23:30 pm on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27.1	31.4	34.8	34.8	40.5	35.5	36	40.5
L_{max}		40.2	39.5	41.7	41.7	63.6	55.9	53.2	63.6
L_{min}		21.5	21.9	23.80	23.8	30.4	28.2	27.7	30.4
L_{10}		28.6	34.1	37.2	37.2	39.4	35.8	37.7	39.4
L_{50}		26.1	30.7	33.8	33.8	35	32.2	38.9	38.9
L_{90}		24.2	27.3	30.3	30.3	32.9	30	30.9	32.9

Time		From 1:00 am to 1:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27.1	33.5	36.9	36.9	43.4	40.4	42.3	43.4
L_{max}		75.4	72.9	74	75.4	61.6	69.5	63.8	69.5
L_{min}		21.6	21.6	22.8	22.8	34.9	31.2	32.7	32.7
L_{10}		28.4	34.7	26	34.7	44.2	40	44.1	44.2
L_{50}		20.1	30.8	32.2	32.2	40.4	35	37.6	40.4
L_{90}		24.1	27.2	28.7	28.7	37.1	32.9	35	37.1

Time		From 3:00 am to 3:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.2	31.8	33.1	33.1	45.5	43.7	41.6	45.5
L_{max}		33.4	39.9	41.3	41.3	71.4	68.1	63.1	71.4
L_{min}		19.7	22.1	24.2	24.2	36.5	36.5	35.9	36.5
L_{10}		28.8	34.2	35.9	35.9	42.6	42.3	42	42.6
L_{50}		25.6	30.9	32.1	32.1	39.1	38.9	38.8	39.1
L_{90}		23.4	27.6	28.5	28.5	37.8	37.7	37.2	37.8

Time		From 5:00 am to 5:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27	31.4	34.3	34.3	40.9	37.3	38.7	40.9
L_{max}		36.6	38.3	41.9	41.9	58.9	55.5	59.4	59.4
L_{min}		20.7	21.2	22.9	22.9	32.7	30.1	30.6	32.7
L_{10}		29.4	34.1	37	37	42.3	38.5	39.8	42.3
L_{50}		26.1	30.6	33.4	33.4	37.5	34.9	35.6	37.5
L_{90}		23.8	27.3	29.8	29.8	35.1	32.8	33	35.1

1 Test results are valid for test samples
2 Only quoted a part of test report if receiving the agreement by terms of DEQA
3 Test iterms in italic are not recognized by VILAS; test iterms marked by (*) are recognized by subcontractor
4. Name of sample, customers written by customers' request

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Time		From 15:00 pm to 15:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28	33.4	35.2	35.2	43.5	41.5	40.6	43.5
L_{max}		36.7	43.9	44.1	44.1	55.8	52.6	51.3	55.8
L_{min}		22.7	23.4	25.8	25.8	40.2	38.5	36.3	40.2
L_{10}		29.8	36.1	37.9	37.9	44.8	42.6	42.2	44.8
L_{50}		27.4	32.5	34.2	34.2	43	41.3	40.2	43
L_{90}		25.4	28.8	30.5	30.5	41.6	39.8	38.1	41.6

Time		From 17:00 pm to 17:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.5	32.9	35.2	35.2	39	37.7	38.5	39
L_{max}		42.3	42.6	43.7	43.7	52.4	58.9	56.8	58.9
L_{min}		21.9	22.6	23.7	23.7	33.4	31.4	31.9	33.4
L_{10}		29.80	35.5	37.9	37.9	40.5	38.4	40.1	40.5
L_{50}		27.2	32.1	34.6	34.6	37.9	35.2	36.7	37.9
L_{90}		25.2	28.5	30.9	30.9	36.1	33.3	34.3	36.1

Time		From 19:00 pm to 19:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27.9	33	36.1	36.1	45.5	44.5	42.80	45.5
L_{max}		66	66.3	67.5	67.5	63.4	60.8	59.2	63.4
L_{min}		21.7	21.1	24.7	24.7	33.1	30.8	30.4	33.1
L_{10}		29.1	35	37.5	37.5	47.8	46	49.9	49.9
L_{50}		26.6	31.4	33.4	33.4	38.7	37.1	36.6	38.7
L_{90}		24.7	28.2	29.7	29.7	36	34.1	33.5	36

Time		From 21:00 pm to 21:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.3	32.1	34.8	34.8	35.2	33	34.8	35.2
L_{max}		36.1	40	43.2	43.2	48.1	42.1	48.1	48.1
L_{min}		20.2	20.4	25.5	25.5	30.5	27.5	27.9	30.5
L_{10}		28.2	34.8	37.7	37.7	37.1	35.2	37.2	37.2
L_{50}		25.9	31.3	33.8	33.8	34.6	32.1	33.9	34.6
L_{90}		23.8	27.7	30.3	30.3	32.9	30.1	31	32.9

1. Test results are valid for test samples
2. Only quoted a part of test report if receiving the agreement by terms of DEQA
3. Test iterms in italic are not recognized by VILAS; test iterms marked by (*) are recognized by subcontractor
4. Name of sample, customers written by customers' request

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ANALYTICAL RESULT

No: **A1207.EX10**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **12**

Name of sample : **EX 10 – K 12.6**

Testing place : **House of culture in Tan Vu Village, Trang Cat Commune, Hai An District, Hai Phong City (Package EX10).**

Co-ordinate : **N 20° 48'059" - E 106° 44' 839"**

Testing time : **From 9:00 am on July12th to 7:00 am on July 13th, 2012**

Time		From 9:00 am to 9:30 am on July 12th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	33.5	32.5	33.6	33.6	56.3	55.8	48.4	56.3
L_{max}		54.9	41	43.8	54.9	81.7	83.3	72.8	83.3
L_{min}		20.8	21.4	24.7	24.7	36.3	34.8	32.4	36.3
L_{10}		33.2	35.1	36.4	36.4	56.7	54	50.1	56.7
L_{50}		28.1	31.7	32.7	32.7	44.2	42.8	39.9	44.2
L_{90}		25.4	28.3	29.1	29.1	39.5	38.2	35.7	39.5

Time		From 11:00 am to 11:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.1	33.4	34.9	34.9	49.7	48	46	49.7
L_{max}		49.2	41.6	42.6	49.2	75.5	72.9	69.8	75.5
L_{min}		22.4	21.7	24.9	24.9	32.2	30.4	30.2	32.2
L_{10}		30.7	36.1	37.7	37.7	47.7	46.7	45.6	47.7
L_{50}		27.6	32.5	34	34	40.4	38.7	38.6	40.4
L_{90}		25.5	29	30.4	30.4	36	34.5	34.6	36

Time		From 13:00 pm to 13:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.2	34.7	36.8	36.8	39.8	36.6	37.3	39.8
L_{max}		36.3	44.3	45.1	45.1	49.3	44.4	45.6	49.3
L_{min}		21.2	23	27.1	27.1	35.3	31.8	30.5	35.3
L_{10}		30.2	37.4	39.6	39.6	41.9	38.6	39.8	41.9
L_{50}		27.6	33.6	35.9	35.9	38.8	35.9	36.2	38.8
L_{90}		25.5	30.1	32.4	32.4	37	33.9	33.8	37

1. Test results are valid for test samples

2. Only quoted a part of test report if receiving the agreement by terms of DEQA

3. Test iterms in italic are not recognized by VILAS; test iterms marked by (*) are recognized by subcontractor

4. Name of sample, customers written by customers' request

f) Results of monitoring of construction packages EX-8

The monitoring position of air. noise and vibration at house of culture. Three - way crossroads Quan Re, My Duc Commune, An Lao District, Hai Phong City.

Coordinates: N 20° 46.223 - E 106° 36. 572

+ Results of air monitoring

Monitoring according to the supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. The each location takes 04 samples (a sample per 6 hours) during 24 hours with parameters: Volatile organic compounds (VOCs). Total dust. Carbon oxide (CO). Nitrogen dioxide (NO_2). Sulfur dioxide (SO_2). The results are shown in table 26. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs the measurement result showed minimum value is 218 $\mu g/m^3$ at 3:00 PM on July 11th. 2012 and maximum value is 285 $\mu g/m^3$ at 9:00 AM on July 11th, 2012.

Total dust the measurement results are: 706; 522; 328 and 372 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 11th. 2012 and 3:00 AM on July 12th. 2012; these results are higher than 300 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 73; 89; 84 and 70 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 11th. 2012 and 3:00 AM on July 12th. 2012; these results are lower than 350 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For NO_2. the measurement results are: 25; 27; 18 and 17 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 11th. 2012 and 3:00 AM on July 12th. 2012; these results are lower than 200 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 1297; 1462; 1289 and 1709 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 11th. 2012 and 3:00 AM on July 12th. 2012; these results are lower than 30000 $\mu g/m^3$ comparative of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ Results of noise

Noise are measured 12 points within 24 hours. a point per 2 hours from 9:00 AM on July 11th. 2012 to 7:00 AM on July 12th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily.

The table showed that in 12 Leq value for 24 hours. those from 11:00 PM on July 11th. 2012 to 5:00 AM on July 12th. 2012. All value is lower 55 dB than the

allowable limit according to National Technical Regulation on Noise (QCVN 26:2010/BTNMT). At the other time. noise values are lower 70dB than its the allowable limit At this measurement value.

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 50.3 to 62.1 dB from 7:00 AM to 9:00 PM and 45.1 to 53.6 dB from 11:00 PM to 5:00 AM for L_{50}. The values of L_{90} are respectively of about 45.6 to 60.2 dB from 7:00 AM to 9:00 PM and 32.2 - to 43.4 dB from 11:00 PM to 5:00 AM. all these values are lower than both Leq and L_{50}.

L_{max} value is 92.6 dB at 9:00 AM on July 11th. 2012 and L_{min} value is 41.8 dB at 11:00 PM on July 11th, 2012.

TABLE 26. THE FIFTH RESULTS OF AIR SAMPLE OF THE PACKAGE EX 8 (JULY 2012)

Name of sample	Parameter	Unit	K 10.5.1	K 10.5.2	K 10.5.3	K 10.5.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 11th, 2012	15:00 pm July 11th, 2012	21:00 pm July 11th, 2012	3:00 am July 12th, 2012	
EX 8 – K 10.5	VOCs	µg/m³	285	245	218	234	-
	Dust		706	522	328	372	300
	SO_2		73	89	84	70	350
	NO_2		25	27	18	17	-
	CO		1297	1462	1289	1709	30000

Note: QCVN 05:2009/ BTNMT: National technical regulation on ambient air quality

TABLE 27. THE FIFTH RESULTS OF NOISE SAMPLE K10 OF THE PACKAGE EX 8 (JULY 2012)

Name of sample		Noise	From 9 am July 11th to 7 am July 12th, 2012										
			9 am	11 am	13 pm	15 pm	17pm	19 pm	21 pm	23 pm	01 am	03 am	05 am	7 am
EX 8-K10.5	Leq	(dB)	62.6	65.3	53.5	67.0	62.0	62.6	60.6	57.8	57.6	53.7	48.7	62.8
	Lmax		82.2	92.6	72.6	87.5	84.9	88.7	77.2	72.6	63.5	57.2	70.6	85.1
	Lmin		48.9	46.2	41.2	55.1	47.2	49.2	50.4	49.3	50.5	52.5	41.8	51.2
	L50		54.0	57.8	50.3	62.1	56.9	57.5	58.6	57.2	57.5	53.6	45.1	59.9
	L90		51.2	50.9	46.3	59.8	52.4	53.4	52.7	56.2	56.7	53.1	43.0	56.5
QCVN 26:2010/BTNMT (Normal area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT: – National Technical Regulation on Noise

+ ***Results of vibration***

- Starting time: 9:00 AM on July 11th. 2012; Ending time: 7:30 AM on July 12th. 2012.

- Azimuth of the axes x. y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

Impacts of vibratory sources to the measurement result.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. measurement values are higher than 60dB and lower than 75 dB in each measurement range The values of L_{10}, L_{50}, L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

The results in table 28 showed that there is not any value of vibration acceleration level (Lva) exceeding the allowable limit (75dB) of National Technical Regulation on Vibration (QCVN 27:2010/BTNMT).

Average Lva value in the range from 42.3 to 63.7 dB.

The value of Lva_{max} is 90.0 dB which is highest at the time from 11:00 AM to 11:30 AM on July 11th. 2012.

The value of Lva_{min} is 35.2 dB which is lowest at the time from 5:00 to 5:30 AM on July 12th. 2012.

TABLE 28. THE FIFTH RESULTS OF VIBRATION SAMPLE K10 OF THE PACKAGE EX 8 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 11th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	41.2	34.7	35.5	41.2	53.3	50.3	47.7	53.3
L_{max}		53.6	42.2	42.4	53.6	72.6	69.7	69.9	69.9
L_{min}		31.7	26.4	27.5	31.7	41.2	39.3	33.7	41.2
L_{10}		43.6	36.9	38.1	43.6	53.8	51.8	45.8	53.8
L_{50}		39.5	34	34.7	39.5	47.4	45.4	41	47.4
L_{90}		35.8	31.3	31.7	35.8	44.3	42.3	38.4	44.3

Time		From 11:00 am to 11:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	48.8	40.4	38.5	48.8	63.7	63.6	60.4	63.7
L_{max}		58.7	52.8	46.3	58.7	90	89.6	86.5	90
L_{min}		37.3	29	29.9	37.3	42.2	36.9	36.7	42.2
L_{10}		52	42.8	41	52	54.5	48.9	48.6	54.5
L_{50}		47	38.6	37.8	47	48.6	42.7	42.7	48.6
L_{90}		42.5	35.1	34.7	42.5	44.9	39.7	39.4	44.9

Time		From 13:00 pm to 13:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	37.4	33.3	34.1	37.4	50	46.6	44.9	50
L_{max}		49.8	41.5	41.7	49.8	74	71.4	69.3	74
L_{min}		26.6	24.1	24.3	26.6	38	33.8	33.8	38
L_{10}		40.9	35.7	36.8	40.9	48.7	44	43.5	48.7
L_{50}		33.7	32.7	33.3	33.7	44	39.5	39.5	44.0
L_{90}		30	29.9	29.9	30	41.2	36.4	36.7	41.2

Time		From 15:00 pm to 15:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	63.9	69.3	71.4	71.4	54	50.4	48	54
L_{max}		89.9	90	89.7	90	68.9	69.4	66.3	69.4
L_{min}		37.7	30.8	30	37.7	43.2	39.5	39	43.2
L_{10}		54.1	41.7	42.3	54.1	57.4	51.5	50	57.4
L_{50}		48.4	38.4	37.9	48.4	50.5	45.6	44.3	50.5
L_{90}		43	35.6	34.7	43	46.7	42.3	41.3	46.7

Time		From 17:00 pm to 17:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	44.7	36.5	36.1	44.7	54.6	49.1	49.1	54.6
L_{max}		53	43.2	43	53	76.7	68.6	67.6	76.7
L_{min}		33.8	27.7	27.3	33.8	41.2	36.5	35.4	41.2
L_{10}		47.9	39.1	38.5	47.9	57.3	51.1	50	57.3
L_{50}		43.7	35.7	35.5	43.7	48.8	43.5	42.6	48.8
L_{90}		38.3	32.2	32	38.3	43.8	38.6	38.4	43.8

Time		From 19:00 pm to 19:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	38.3	32.9	33.9	38.3	53.1	47.9	46.5	53.1
L_{max}		50.7	48.2	49.7	50.7	73.9	69.3	66.7	73.9
L_{min}		28.9	24.1	25.3	28.9	38.5	34.2	34.4	38.5
L_{10}		41.6	35.2	36.3	41.6	55.2	49.1	48.2	55.2
L_{50}		36.7	32.2	33	36.7	46.3	41.7	40.9	46.3
L_{90}		32.6	29.2	30	32.6	41.6	38.2	37.5	41.6

Time		From 21:00 pm to 21:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35.3	31.8	33.8	35.3	48.3	49.6	48.8	49.6
L_{max}		51.1	48.5	51.8	51.8	67.5	72.1	71.2	72.1
L_{min}		24	23.9	21.6	24	40.6	36	34.9	40.6
L_{10}		38.7	34.4	36.4	38.7	49.7	50.3	49.7	50.3
L_{50}		32.3	31.2	32.8	32.8	44.4	41.8	41.2	44.4
L_{90}		28.5	28.1	29.3	29.3	42.5	38	37.8	42.5

Time		From 23:00 pm to 23:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	36.1	32	33.6	36.1	42.3	38.7	39.2	42.3
L_{max}		50.9	38.5	43.1	50.9	54.7	60	57.5	60
L_{min}		23.3	22.4	23.2	23.3	38.9	33.4	34.4	38.9
L_{10}		39.5	34.7	36.2	39.5	43.3	39.4	40.3	43.3
L_{50}		29.8	31.3	32.7	32.7	41.8	36.3	37.7	41.8
L_{90}		26.2	27.8	29.2	29.2	40.9	35.1	36.4	40.9

Time		From 1:00 am to 1:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.7	32.2	35	35	43.1	42.6	40.9	43.1
L_{max}		59.4	58.6	59.5	59.5	59.7	67.9	64.9	67.9
L_{min}		23.1	21.7	23.5	23.5	38.4	32.4	33.1	38.4
L_{10}		30.2	34.2	36.1	36.1	43.7	38.7	38.6	43.7
L_{50}		26.7	30.8	32.4	32.4	42.3	35.9	35.8	42.3
L_{90}		25	27.5	28.8	28.8	41.1	34.2	34.5	41.1

Time		From 3:00 am to 3:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.6	30.7	32.5	32.5	43.1	39.7	40	43.1
L_{max}		43.7	37.9	40.7	43.7	57.8	63.3	61.5	63.3
L_{min}		22.9	22.1	22.2	22.9	39	36.3	36.8	39
L_{10}		33.3	33.2	35.1	35.1	44.3	38.9	39.9	44.3
L_{50}		28.6	30.1	31.6	31.6	43.1	37.9	38.8	43.1
L_{90}		26.4	26.9	28.1	28.1	40.2	37.1	38.1	40.2

Time		From 5:00 am to 5:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35	33.3	36.3	36.3	45.1	42.7	43.3	45.1
L_{max}		72.6	72.6	73.8	73.8	66.7	68	69.8	69.8
L_{min}		22.1	23.1	24.2	24.2	35.2	31.7	31.2	35.2
L_{10}		38.1	34.5	35.7	38.1	46.2	40.4	40.9	43.1
L_{50}		31.5	31	32.3	32.3	43.1	36	36.1	38.6
L_{90}		26.6	27.7	28.8	28.8	38.60	34.1	33.5	38.6

Time		From 7:00 am to 7:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	41.5	34.3	34.2	41.5	49.4	48.3	47.5	49.4
L_{max}		51.8	41.3	39.7	51.8	68.3	71.1	69.5	71.1
L_{min}		34.2	25.7	27	34.2	40.8	36.5	35.5	40.8
L_{10}		44.1	36.8	36.5	44.1	50.9	47.8	47.5	50.9
L_{50}		40.2	33.5	33.7	40.2	46.7	42.2	41.3	46.7
L_{90}		37.1	30.6	30.9	37.1	43.9	39.1	38.5	43.9

QCVN 27:2010/BTNMT: National Technical Regulation on Vibration		
Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
Special location	6:00 AM – 6:00 PM	75
	6:00 PM – 6:00 AM	Background level
Normal location	6:00 AM – 9:00 PM	75
	9:00 PM – 6:00 AM	Background level

+ ***Results of surface water sample:***

Surface water sample (coded NM 4.5) was monitored and sampled at Nguyet Ang Bridge. Da Do river – An Lao District – Hai Phong

Coordinates of sampling location: N 20° 46.814 - E 105° 36. 858.

Sample was taken 3 times at the times. a sample per 8 hours in 24 hours with 01 blank sample. pH and DO parameters are tested on location. The samples were refrigerated and fixed after sampling and transported to the laboratory in the shortest time. NM 4.5.1 : Sampling at 3 pm on July 11th. 2012; NM 4.5.2: Sampling at 9:30 pm July 11th. 2012; NM 4.5.3: Sampling at 5:30 am July 12th. 2012. Sampling time Results of sample analysis are shown in table 29 as below.

The result table showed that oil & grease parameters are 0.12; 0.12; 0.10 mg/L higher than the column B1 (0.1 mg/L). lower than the limit value is 0.3 mg/L in column B2 according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT).

COD and BOD_5 parameters of all 03 samples are lower than both B1 and B2 column at the different times according to QCVN 08:2008/BTNMT. All parameters of TSS (Total suspended solids). total phosphorus and total nitrogen are lower than QCVN 08:2008/BTNMT.

As for pesticides of organic chlorine group have quantitative limit of analysis method is 0.05 µg/L (the most of environmental laboratories only determine this quantitative limit). However. according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT). comparative value about 0.004 – 0.01 µg/L (Aldrin - Dieldrin); 0.014 – 0.01 µg/L (Endrin) etc.

On the other hand. comparison of National technical regulation on surface water quality (QCVN 08:2008) and Surface water quality standard (TCVN 5942:1995). DDT is 0.01 mg/L corresponding to 10 µg/L in standard. Vietnam standard (TCVN) by Ministry of science and technology promulgate while Vietnam regulation by Ministry of natural resources and environment promulgate that regulation for parameters of surface water but different to 2500 times.

In this case. TCVN 5942:1995 more consistent with the international standard. Thus. results of minimum quantitative limit also exceed the QCVN 08: 2008/BTNMT.

TABLE 29. THE FIFTH RESULTS OF SURFACE WATER SAMPLE NM4.5 OF THE PACKAGE EX8 (JULY 2012)

No	Parameter	Unit	Result				QCVN 08:2008/BTNMT	
			NM 4.5.1	NM 4.5.2	NM 4.5.3	MT	Column B1	Column B2
1.	pH	-	8.25	8.27	8.33	7.20	5.5 -9	5.5 -9
2.	DO	mg/L	6.45	6.50	5.20	7.38	≥4	≥2
3.	COD	mgO_2/L	15.5	16.1	12.1	<1.0	30	50
4.	BOD_5	mg/L	7.7	8.3	6.5	<1.0	15	25
5.	TSS	mg/L	10	15	10	<3.0	50	100
6.	Total P	mg/L	0.59	0.11	0.13	0.01	-	-
7.	Total N	mg/L	5	6	5.5	<0.10	-	-
8.	*Pesticides	mg/L	< 0.5	< 0.5	< 0.5	<0.5	-	-
9.	Aldrine+Dieldrine	µg/L	< 0.05	< 0.05	< 0.05	<0.05	0.008	0.01
10.	Endrine		< 0.05	< 0.05	< 0.05	<0.05	0.014	0.01
11.	BHC		< 0.05	< 0.05	< 0.05	<0.05	0.13	0.015
12.	DDT		< 0.05	< 0.05	< 0.05	<0.05	0.004	0.005
13.	DDD		< 0.05	< 0.05	< 0.05	<0.05	-	-
14.	Endosunfane		< 0.05	< 0.05	< 0.05	<0.05	0.01	0.02
15.	Lindane		< 0.05	< 0.05	< 0.05	<0.05	0.38	0.4
16.	Chlordane		< 0.05	< 0.05	< 0.05	<0.05	0.02	0.03
17.	Heptachlor		< 0.05	< 0.05	< 0.05	<0.05	0.02	0.05
18.	Mineral oil	mg/L	0.12	0.12	0.10	< 0.05	0.1	0.3
19.	*Coliform	MPN/100 mL	380	490	460	ND	7500	10000

Note : QCVN 08:2008/BTNMT: National technical regulation on surface water quality

B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level

B2 – For the usage of water navigation and other purpose with less water quality

+ ***Results of groundwater sample NN 8.5***

Groundwater sample (coded NN 8.5). householder is Mrs. Tran Van Đoai. Minh Khai village. My Đuc commune. An Lao District.. Hung Yen Province. The depth of 18 m.

Sample time is 8:00 AM on July 11th 2012. This is Results of sample analysis are shown in table 30 as below.

Table 30 showed that the COD value is 6.56 mgO_2/L comparing 4mg/L and that of coliform is 15 MPN/100mL comparing with 3 MPN/100mL. which is higher than QCVN 09:2008/BTNMT

TABLE 30. THE FIFTH RESULTS OF GROUNDWATER SAMPLE NN 8.5 OF THE PACKAGE EX8 (JULY 2012)

No	Parameter	Unit	Result		QCVN 09:2008/BTNMT
			NN 8.5	MT	
1.	Temperature	°C	31.0	28.0	-
2.	pH	-	7.78	7.10	5.5 – 8.5
3.	COD	mgO_2/L	10.3	< 1.0	4
4.	BOD_5	mg/L	5.9	< 1.0	-
5.	TSS	mg/L	8	< 3.0	-
6.	Total P	mg/L	0.27	< 0.01	-
7.	Total N	mg/L	8.5	< 0.10	-
8.	*Coliform	MPN/ 100mL	12	ND	3
9.	*E. Coli		ND	ND	ND

g) Results of monitoring of construction bid packages EX-10

The monitoring position of air. noise and vibration at house of culture. Tan Vu hamlet. Trang Cat ward. Hai An District. Hai Phong City.

Coordinates: N 20° 48.059 - E 106° 44. 839

- General description of the status quo of terrain and geology

Monitoring area is residential area a place where is nearest with the expressway about 500m. Monitoring position located in tarmac at house of culture. Tan Vu hamlet. Trang Cat ward. Hai An District. Hai Phong City.

The height of between the measurement points with the Ha Noi – Hai Phong expressway pavement is negligible.

Geological background at the measurement position and the expressway are soft ground.

- Starting time: 10:30 AM on July 12th. 2012; Ending time: 8:30 PM on July 13th. 2012
- Impacts of vibratory sources to the measurement result.

During the testing process. the vehicle transported mainly on inter-village roads. only types of motorcycles and travelling cars with the speed from 30 to 40km/h and higher. While construction machines and container trucks transporting at 7:00 - 11:00 AM and 2:00 - 6:00 PM on the expressway.

+ ***Results of air monitoring***

Monitoring according to the supervision consultancy contracts - No. 74/VIDIFI-VCNMT/2010. At the each location take 04 samples. a sample per 6 hours during 24 hours with parameters: Volatile organic compounds (VOCs), Total dust, Carbon oxide (CO), Nitrogen dioxide (NO_2),, Sulfur dioxide (SO_2). The results are shown in table 36. From the results table showed that the measured parameters are within the allowable limits of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For VOCs. the measurement result showed minimum value is 78 $\mu g/m^3$ at 3:00 AM on July 13th. 2012 and maximum value is 115 $\mu g/m^3$ at 9:00 AM on July 12th. 2012.

For total dust. the measurement results are: 48; 52; 46 and 42 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 12th. 2012 and 3:00 AM on July 13th. 2012; these results are lower than 350 $\mu g/m^3$ of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For SO_2. the measurement results are: 65; 73; 68 and 60 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 12th. 2012 and 3:00 AM on July 13th. 2012; these results are lower than 350 $\mu g/m^3$ of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For NO_2. the measurement results are: 23; 23; 25 and 23 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 12th. 2012 and 3:00 AM on July 13th. 2012; these results are lower than 200 $\mu g/m^3$ of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

For CO. the measurement results are: 811; 835; 718 and 523 $\mu g/m^3$ corresponding sampling times are 9:00 AM. 3:00 PM. 9:00 PM on July 12th. 2012 and 3:00 AM on July 13th. 2012; these results are lower than 30000 $\mu g/m^3$ of National technical regulation on ambient air quality (QCVN 05:2009/BTNMT).

+ ***Results of noise***

Noise are measured 12 points within 24 hours. a point per 2 hours from 9:00 AM on July 12th. 2012 to 7:00 AM on July 13th. 2012. Using the noise meter equipment NL-21 ORION of Japan. we measured continuously for 15 minutes each sampling. record of Leq values (average value); L_{50} (average value of test 50 times); L_{90} (average

value of test 90 times); L_{max} (maximum value) and L_{min} (minimum value). According to *National Technical Regulation on Noise* (QCVN 26:2010/BTNMT) for normal areas. According to equivalent acoustic level (Leq) is 70dB of about 6:00 AM to 8:00 PM and 55dB from 9:00 PM to 6:00 AM daily. Results are shown in table 31.

From the table 31 showed that 12 Leq value for 24 hours. the values from 9:00 AM on July 12th. 2012 to 7:00 AM on July 13th. 2012 respectively. all these values are lower than the allowable limit is 55 dB and 70 dB of National Technical Regulation on Noise (QCVN 26:2010/BTNMT).

The values of L_{50}. L_{90} haven't comparative regulation. respectively of about 44.0 to 49.7 dB from 7:00 AM to 9:00 PM and 43.3 to 56.2 dB from 9:00 AM to 7:00 AM for L_{50}. The values of L_{90} are respectively of about 39.7 to 46.9 dB from 6:30 AM to 8:30 PM and 33.5 dB to 40.1 dB from 10:30 PM to 4:30 AM.

L_{max} value is 87.4 dB at 9:00 AM on July 12th. 2012 and L_{min} value is 37.2 dB at 9:00 PM on July 13th. 2012.

TABLE 31. THE FIFTH RESULTS OF AIR SAMPLE K12.6 OF THE PACKAGE EX10 (JULY 2012)

Name of sample	Parameter	Unit	**K 12.6.1**	**K 12.6.2**	**K 12.6.3**	**K 12.6.4**	QCVN 05:2009/BTNMT
	Time		**9:00 am July 12th, 2012**	**15:00 pm July 12th, 2012**	**21:00 pm July 12th, 2012**	**3:00 am July 13th, 2012**	
EX 10 – K 12.6	VOCs	µg/m³	115	105	82	78	-
	Dust		48	52	46	42	300
	SO_2		65	73	68	60	350
	NO_2		23	23	25	23	-
	CO		811	835	718	523	30000

***Note**: QCVN 05:2009/ BTNMT:* National technical regulation on ambient air quality

TABLE 32. THE FIFTH RESULTS OF NOISE SAMPLE K12.6 OF THE PACKAGE EX10 (JULY 2012)

Name of sample		Noise	From 9 am July 12th to7:00 am July 13th, 2012											
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 10-K12.6	Leq	(dB)	56.1	52.0	51.2	56.3	56.6	56.7	47.3	49.8	47.4	46.5	52.6	56.3
	Lmax		87.4	72.1	68.9	79.0	77.6	72.4	70.7	78.9	67.9	69.7	71.8	79.2
	Lmin		38.7	38.5	37.6	45.5	41.4	43.4	37.2	39.9	39.9	40.5	45.0	39.2
	L50		51.0	47.5	50.9	55.3	51.1	56.2	43.3	46.5	41.5	45.8	52.4	51.4
	L90		46.0	42.2	43.0	47.6	46.2	50.2	40.5	41.7	40.8	44.1	48.2	47.3
QCVN 26:2010/BTNMT (Normal area - Leq)			70						55				70	

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

+ Results of vibration

Measurement position EX 10-K12.6: House of culture in Tan Vu hamlet. Trang Cat ward. Hai An District. Hai Phong City (Package EX-10).

Coordinates: N 20° 48.059 - E 106° 44.839

- General description of the status quo of terrain and geology

Monitoring area is residential area a place where is nearest with the expressway about 500m. Monitoring position located in tarmac at house of culture. Tan Vu hamlet. Trang Cat ward. Hai An District. Hai Phong City.

The height of between the measurement points with the Ha Noi – Hai Phong expressway pavement is negligible.

Geological background at the measurement position and the expressway are soft ground.

- Starting time: 10:30 AM on April 12th. 2012; Ending time: 8:30 PM on April 13th. 2012.

- Azimuth of the axes X. Y

X-axis set follow the North – South direction.

Y-axis set follow the East – West direction.

To set measurement range for equipment is 30 – 90 dB.

From L_{max} and Leq values showed that: Most of testing time. vibration acceleration is lower than 60dB. However. appearance of measurement values are higher than 60dB in each measurement range but still lower than 75dB.

The values of L_{10}. L_{50}. L_{90} have decreasing rule that the larger values only occurring in short time of the each measurement range.

Results of table 38 showed that all vibration values are within allowable limit according to QCVN 27:2008/ BTNMT (75dB).

Average Lva value in the range from 35.2 to 56.3dB.

The value of Lva_{max} is 83.3 dB which is highest at the time from 9:00 to 9:30 AM on July 12th. 2012.

The value of Lva_{min} is 30.4 dB which is lowest at the time from 23:00 to 23:30 PM on July 13th. 2012.

TABLE 33. THE SIXTH RESULTS OF VIBRATION SAMPLE OF THE PACKAGE EX10 (JULY 2012)

Time		From 9:00 am to 9:30 am on July 12th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	33.5	32.5	33.6	33.6	56.3	55.8	48.4	56.3
L_{max}		54.9	41	43.8	54.9	81.7	83.3	72.8	83.3
L_{min}		20.8	21.4	24.7	24.7	36.3	34.8	32.4	36.3
L_{10}		33.2	35.1	36.4	36.4	56.7	54	50.1	56.7
L_{50}		28.1	31.7	32.7	32.7	44.2	42.8	39.9	44.2
L_{90}		25.4	28.3	29.1	29.1	39.5	38.2	35.7	39.5

Time		From 11:00 am to 11:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.1	33.4	34.9	34.9	49.7	48	46	49.7
L_{max}		49.2	41.6	42.6	49.2	75.5	72.9	69.8	75.5
L_{min}		22.4	21.7	24.9	24.9	32.2	30.4	30.2	32.2
L_{10}		30.7	36.1	37.7	37.7	47.7	46.7	45.6	47.7
L_{50}		27.6	32.5	34	34	40.4	38.7	38.6	40.4
L_{90}		25.5	29	30.4	30.4	36	34.5	34.6	36

Time		From 13:00 pm to 13:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.2	34.7	36.8	36.8	39.8	36.6	37.3	39.8
L_{max}		36.3	44.3	45.1	45.1	49.3	44.4	45.6	49.3
L_{min}		21.2	23	27.1	27.1	35.3	31.8	30.5	35.3
L_{10}		30.2	37.4	39.6	39.6	41.9	38.6	39.8	41.9
L_{50}		27.6	33.6	35.9	35.9	38.8	35.9	36.2	38.8
L_{90}		25.5	30.1	32.4	32.4	37	33.9	33.8	37

Time		From 15:00 pm to 15:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28	33.4	35.2	35.2	43.5	41.5	40.6	43.5
L_{max}		36.7	43.9	44.1	44.1	55.8	52.6	51.3	55.8
L_{min}		22.7	23.4	25.8	25.8	40.2	38.5	36.3	40.2
L_{10}		29.8	36.1	37.9	37.9	44.8	42.6	42.2	44.8
L_{50}		27.4	32.5	34.2	34.2	43	41.3	40.2	43
L_{90}		25.4	28.8	30.5	30.5	41.6	39.8	38.1	41.6

Time		From 17:00 pm to 17:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.5	32.9	35.2	35.2	39	37.7	38.5	39
L_{max}		42.3	42.6	43.7	43.7	52.4	58.9	56.8	58.9
L_{min}		21.9	22.6	23.7	23.7	33.4	31.4	31.9	33.4
L_{10}		29.8	35.5	37.9	37.9	40.5	38.4	40.1	40.5
L_{50}		27.2	32.1	34.6	34.6	37.9	35.2	36.7	37.9
L_{90}		25.2	28.5	30.9	30.9	36.1	33.3	34.3	36.1

Time		From 19:00 pm to 19:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27.9	33	36.1	36.1	45.5	44.5	42.80	45.5
L_{max}		66	66.3	67.5	67.5	63.4	60.8	59.2	63.4
L_{min}		21.7	21.1	24.7	24.7	33.1	30.8	30.4	33.1
L_{10}		29.1	35	37.5	37.5	47.8	46	49.9	49.9
L_{50}		26.6	31.4	33.4	33.4	38.7	37.1	36.6	38.7
L_{90}		24.7	28.2	29.7	29.7	36	34.1	33.5	36

Time		From 21:00 pm to 21:30 pm on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.3	32.1	34.8	34.8	35.2	33	34.8	35.2
L_{max}		36.1	40	43.2	43.2	48.1	42.1	48.1	48.1
L_{min}		20.2	20.4	25.5	25.5	30.5	27.5	27.9	30.5
L_{10}		28.2	34.8	37.7	37.7	37.1	35.2	37.2	37.2
L_{50}		25.9	31.3	33.8	33.8	34.6	32.1	33.9	34.6
L_{90}		23.8	27.7	30.3	30.3	32.9	30.1	31	32.9

Time		From 23:00 pm to 23:30 pm on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27.1	31.4	34.8	34.8	40.5	35.5	36	40.5
L_{max}		40.2	39.5	41.7	41.7	63.6	55.9	53.2	63.6
L_{min}		21.5	21.9	23.80	23.8	30.4	28.2	27.7	30.4
L_{10}		28.6	34.1	37.2	37.2	39.4	35.8	37.7	39.4
L_{50}		26.1	30.7	33.8	33.8	35	32.2	38.9	38.9
L_{90}		24.2	27.3	30.3	30.3	32.9	30	30.9	32.9

Time		From 1:00 am to 1:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27.1	33.5	36.9	36.9	43.4	40.4	42.3	43.4
L_{max}		75.4	72.9	74	75.4	61.6	69.5	63.8	69.5
L_{min}		21.6	21.6	22.8	22.8	34.9	31.2	32.7	32.7
L_{10}		28.4	34.7	26	34.7	44.2	40	44.1	44.2
L_{50}		20.1	30.8	32.2	32.2	40.4	35	37.6	40.4
L_{90}		24.1	27.2	28.7	28.7	37.1	32.9	35	37.1

Time		From 3:00 am to 3:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.2	31.8	33.1	33.1	45.5	43.7	41.6	45.5
L_{max}		33.4	39.9	41.3	41.3	71.4	68.1	63.1	71.4
L_{min}		19.7	22.1	24.2	24.2	36.5	36.5	35.9	36.5
L_{10}		28.8	34.2	35.9	35.9	42.6	42.3	42	42.6
L_{50}		25.6	30.9	32.1	32.1	39.1	38.9	38.8	39.1
L_{90}		23.4	27.6	28.5	28.5	37.8	37.7	37.2	37.8

Time		From 5:00 am to 5:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27	31.4	34.3	34.3	40.9	37.3	38.7	40.9
L_{max}		36.6	38.3	41.9	41.9	58.9	55.5	59.4	59.4
L_{min}		20.7	21.2	22.9	22.9	32.7	30.1	30.6	32.7
L_{10}		29.4	34.1	37	37	42.3	38.5	39.8	42.3
L_{50}		26.1	30.6	33.4	33.4	37.5	34.9	35.6	37.5
L_{90}		23.8	27.3	29.8	29.8	35.1	32.8	33	35.1

Time		From 7:00 am to 7:30 am on July 13th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.4	31.6	32.9	32.9	47.1	42.1	42.9	47.1
L_{max}		44.7	39.8	41.2	44.7	64.4	61.7	58.2	64.4
L_{min}		22.1	23.4	21.8	23.4	35.3	31	31.6	35.3
L_{10}		31.2	34.2	35.7	35.7	49.6	44.3	45.5	49.6
L_{50}		27.7	30.9	31.9	31.9	42.1	37.2	38.7	42.1
L_{90}		25	27.8	28.3	28.3	38.6	34	35.7	38.6

Allowable maximum value of the vibration acceleration level for construction activities

No.	Location	Testing time per day	Allowable vibration acceleration level. dB Average level. Leq
1	Special location	6:00 AM – 6:00 PM	75
		6:00 PM – 6:00 AM	Background level
2	Normal location	6:00 AM – 9:00 PM	75
		9:00 PM – 6:00 AM	Background level

+ Results of surface water sample:

Surface water sample (coded NM 5.6) was monitored and sampled at Lach Tray river – Hai Phong City. Coordinates of sampling location: N 20° 57.730 - E 105° 57. 265. Sample was taken 3 times at the times. a sample per 8 hours in 24 hours with 01 blank sample. pH and DO parameters are tested on location. The samples were refrigerated and fixed after sampling and transported to the laboratory in the shortest time. NM 5.6.1: sampling at 3:00 PM on July 12th. 2012; NM 5.6.2: sampling at 23:00 PM on July 12th. 2012; NM 5.6.3: sampling at 7:00 AM on July 13th. 2012. During the sampling process. appearance of boats in navigation on the Lach Tray river. Results of sample analysis are shown in table 34 as below.

The result table showed that oil & grease parameters are 0.11; 0.11; and 0.11 mg/L higher than ones in the column B1 (0.1 mg/L. lower than the limit value is 0.3 mg/L in column B2 of National technical regulation on surface water quality (QCVN 08:2008/BTNMT). COD and BOD_5 parameters of all 03 samples are lower than both B1 and B2 column at the different times according to QCVN 08:2008/BTNMT. All parameter of TSS (Total suspended solids). total phosphorus and total nitrogen are lower than QCVN 08:2008/BTNMT. The values of DO (Dissolved Oxygen) are lower than ones in the column B1 (≥ 4mg/L) (QCVN 08:2008/BTNMT).

As for pesticides of organic chlorine group have quantitative limit of analysis method is 0.05 µg/L (the most of environmental laboratories only determine this quantitative limit). However. according to National technical regulation on surface water quality (QCVN 08:2008/BTNMT). comparative value about 0.004 – 0.01 µg/L (Aldrin - Dieldrin); 0.014 – 0.01 µg/L (Endrin) etc.

On the other hand. comparison of National technical regulation on surface

water quality (QCVN 08:2008) and Surface water quality standard (TCVN 5942:1995). DDT is 0.01 mg/L corresponding to 10 µg/L in Viet Nam standard. Vietnam standard (TCVN) by Ministry of science and technology promulgate while Vietnam regulation by Ministry of natural resources and environment promulgate that regulation for parameters of surface water but different to 2500 times.

TABLE 34. THE SIXTH RESULTS OF SURFACE WATER OF THE PACKAGE EX10 (JULY 2012)

No	Parameter	Unit	Result				QCVN 08:2008/BTNMT	
			NM 5.6.1	NM 5.6.2	NM 5.6.3	MT	Column B1	Column B2
1.	pH	-	8.05	7.88	7.98	7.20	5.5 -9	5.5 -9
2.	DO	mg/L	5.30	5.00	4.53	7.38	≥4	≥2
3.	COD	mgO_2/L	17	16	18	<1.0	30	50
4.	BOD_5	mg/L	8.7	8.2	9.3	<1.0	15	25
5.	TSS	mg/L	18	15	16	<3.0	50	100
6.	Total P	mg/L	0.19	2.65	0.14	0.01	-	-
7.	Total N	mg/L	12.5	7	10.2	<0.10	-	-
8.	*Pesticides	mg/L	< 0.5	< 0.5	< 0.5	<0.5	-	-
9.	Aldrine+Dieldrine	µg/L	< 0.05	< 0.05	< 0.05	<0.05	0.008	0.01
10.	Endrine		< 0.05	< 0.05	< 0.05	<0.05	0.014	0.01
11.	BHC		< 0.05	< 0.05	< 0.05	<0.05	0.13	0.015
12.	DDT		< 0.05	< 0.05	< 0.05	<0.05	0.004	0.005
13.	DDD		< 0.05	< 0.05	< 0.05	<0.05	-	-
14.	Endosunfane (Thiodan)		< 0.05	< 0.05	< 0.05	<0.05	0.01	0.02
15.	Lindane		< 0.05	< 0.05	< 0.05	<0.05	0.38	0.4
16.	Chlordane		< 0.05	< 0.05	< 0.05	<0.05	0.02	0.03
17.	Heptachlor		< 0.05	< 0.05	< 0.05	<0.05	0.02	0.05
18.	Mineral oil	mg/L	0.11	0.11.	0.11	< 0.05	0.1	0.3
19.	*Coliform	MPN/100 mL	930	960	1100	ND	7500	10000

Note: QCVN 08:2008/BTNMT - National technical regulation on surface water quality

B1 – For the usage of irrigation or other purpose having the similar quality requirement like B2 level

B2 – For the usage of water navigation and other purpose with less water quality

MT: Blank sample.

IV. MEASURES TO REDUCE AND RESOLVE THE NEGATIVE IMPACTS ON ENVIRONMENT.

4.1. Mitigation and treatment of negative environmental impacts are applied

As mentioned in the sources of waste. the project's the most negative impacts in this stage are those impacts to the environment of air. noise. So the company made a number of solutions following:

- For air environment:

Cleaning of material transporting vehicles before leaving the site.

Vehicles must be covered with tarpaulins. the powder material should be packed and transportation must meet the standard of toxic gas emissions.

Arranging a reasonable schedule for the truck coming in and out of the site to avoid driving vehicles into the field with no way out or the trucks on the road making the line –up that will increase the total amount of dust. emissions per unit of length as well as distance per unit of time. thus contributing to reduce the unfortunate incidents occurring during transportation. such as reducing visibility of vehicles. traffic. traffic jam . traffic accidents. ...

For warehouse: all types of sand. small particles of materials for concrete production is concentrated in the warehouse or covered carefully.

Water spraying to control dust: Regularly spraying water to the dump heaps of material or materials stockpiles. especially in dry or windy weather.

Batching plants: located far from residential areas; mixed materials from the plant transferred to the vehicle should have been sealed top at three sides and covered curtain over the entrance. For materials those can be easy to cause dust. packaging should not exceed 2 sides overflow into the car and blocked the car door. in addition to using clean canvas to cover. Periodically wash and flush batching plants.

- Control noise pollution:

Rationally arrange construction schedule. restrict the continuous construction at night

Transport time of construction materials should be arranged appropriately especially when passing through the area of villages. schools. churches... must reduce speed and definitely avoid blowing horns

For equipments with big noise should be arranged with revolving construction to avoid the phenomenon of resonance noise.

For workers who have suffered from noise were equipped more protective equipment such as ear protection. helmet. ... to protect health

Material stockpiles. batching plants should be far from area of schools. resident. administrative and professional units. ...

- Protect water environment:

Coordinate with local authorities and local people to implement the ditch rehabilitation

- Handle living waste and construction waste:

Based on the guidance of Ordinance No. 59/2007/ND-CP dated 09/04/2008 signed on "solid waste". not allowed to pour the waste into the street. rivers. streams. water channels and surface water.

Make the most use of waste to reduce the amount of waste to be handled. do not dump garbage indiscriminately

Contracts with Public Works and Tourism Services Company for waste collection and treatment in time.

4. 2. Control other effects on the environment

- Protect fields and gardens

- Arrange the reasonable construction site. carefully make layout areas of batching plants. material stockpiles. living and working areas.

Protect daily lives of local people by:

Building service road during construction to facilitate traveling.

All trucks carrying materials not exceeding specified load Bureau of Vietnam's roads. speed should not exceed 60km/h.

Setting the speed limit signs. weight restrictions. aimed at minimizing the damage to the existing road network

Putting sign boards at restricted areas for people traveling or not being traveled through the construction site under construction.

V. CONCLUSION AND RECOMMENDATION

Results of soil. groundwater. surface water. noise. vibration and air environmental quality monitoring shows that air and water environmental quality are rather good. There is favorable condition for implementing of the Ha Noi – Hai Phong expressway project.

However. parameters of total oil & grease. coliform. COD are equal as allowable

limit of regulation.

Analysis results of dust at EX3 package by General construction company China road at the site monitoring Ly Thuong Kiet commune, Yen My District, Hung Yen province exceeded 1.6 standard allows times. Recommend contractor should strengthen the implementation of fresh water and measures to minimize dust. Analysis results of dust at pack EX 8 (Quan Re, My Duc, An Lao District, Hay Phong City) by Son Dong road and bridge Co.. Ltd . Observation time daytime dust concentrations exceed the permitted standards. Contractor should strengthen measures to minimize dust during construction to minimize dust.

According to the results of environmental monitoring. the contractors need to implement and maintain measures to reduce environmental pollution in order to ensure project in next time. Vietnam Infrastructure development and finance investment joint stock company undertook to implemented well about measures of environmental pollution reduction that proposed in the content of Environmental monitoring report.

APPENDIX

VIETNAM ACADEMY OF SCIENCE AND TECHNOLOGY
INSTITUTE OF ENVIRONMENTAL TECHNOLOGY
DEPARTMENT OF ENVIRONMENTAL QUALITY ANALYSIS
VILAS 366

Address: R.712, A30 Building 18 Hoang Quoc Viet Road –Cau Giay District – Hanoi - Vietnam
Tel: (84 - 4) 3791 1654
Fax: (84 - 4) 3791 1203

ANALYTICAL RESULT

No: **W1207.183**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Ground water (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **02**

Preservation : **01 PE Bottle 0,5L refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate.
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate.
01 glass Bottle 1,0 L

Sampling place : **Nguyen Van Than, Dau Cau Hamlet ,Nguyen Village ,Cuu Cao Commune, Van Giang District, Hung Yen Province(Package EX2-NN2.6)**

Co-ordinate : **N 20° 57,730- E 105° 57, 265**

Sampling time : **July 3rd, 2012**

Testing time : **From July 05th to July 16th 2012**

No	Parameter	Unit	Test methods	Results		QCVN 09:2008/ BTNMT
				NN 2.6	MT	
1.	Temperature	°C	TCVN 4457-1988	27.8	27.0	-
2.	pH	-	TCVN 6492 – 1999	7.71	7.10	**5.5 – 8.5**
3.	COD	mgO_2/L	$KMnO_4$ Method	2.2	< 1.0	4
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	<1.0	< 1.0	-
5.	TSS	mg/L	SMEWW 2540D – 2005	5	< 3.0	-
6.	Total P	mg/L	TCVN 6202 – 2008	0.07	< 0.01	-
7.	*Total N*	mg/L	TCVN 5987-1995	4.5	< 0.10	-
8.	*Coliform*	MPN/ 100mL	TCVN 6187 – 1 –1996	5	ND	3
9.	*E. Coli*			ND	ND	ND

Note: QCVN 09:2008/BTNMT: National technical regulation on underground water quality.
ND: Non detect

Hanoi. July 16th. 2012

Department of Environmental Quality Analysis

Vu Van Tu

INSTITUTE OF ENVIRONMENTAL TECHNOLOGY
Deputy Director

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Dr. Nguyen Thi Hue

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VILAS 366

ANALYTICAL RESULT

No: **W1207.186-188**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Surface water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **4**
Preservation : **01 PE Bottle 0,5L refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate.
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate
01 glass Bottle 1,0 L
Sampling place : **Bac Hung Hai River, Cuu Cao Commune, Van Giang District, Hung Yen Province (Package EX2)**
Co-ordinate : **N 20° 57'730"- E 105° 57' 265"**
Sampling time : **From July 3rd to July 4th 2012**
Testing time : **From July 5th to July 16th 2012**

No	Parameter	Unit	Test methods	Results				QCVN	
				NM 1.6.1	NM 1.6.2	NM 1.6.3	MT	Column B1	Column B2
1.	pH	-	TCVN 6492 – 1999	7.63	7.71	7.33	7.1	**5.5 -9**	**5.5 -9**
2.	DO	mg/L	TCVN 7325 – 2004	4.65	3.90	2.70	7.0	**≥4**	**≥2**
3.	COD	mgO_2/L	$KMnO_4$ Method	12.8	8.8	15.2	< 1.0	**30**	**50**
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	6.3	4.9	7.1	< 1.0	**15**	**25**
5.	TSS	mg/L	SMEWW 2540 D – 2005	9	8	8	< 3.0	**50**	**100**
6.	Total P	mg/L	TCVN 6202 – 2008	0.67	0.73	0.74	< 0.01	-	-
7.	*Total N*	mg/L	TCVN 5987-1995	11.8	12.0	12.7	< 0.10	-	-
8.	*Pesticides*	µg/L	TCVN 7876 : 2008	**<0.5**	**<0.5**	**<0.5**	**< 0.5**	-	-
9.	*Aldrine+*			<0.05	<0.05	<0.05	<0.05	**0.008**	**0.01**
10.	*Endrine*			<0.05	<0.05	<0.05	<0.05	**0.014**	**0.01**

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No	Parameter	Unit	Test methods	Results				QCVN	
				NM 1.6.1	NM 1.6.2	NM 1.6.3	MT	Column B1	Column B2
11.	*BHC*	µg/L	TCVN 7876 : 2008	<0.05	<0.05	<0.05	<0.05	**0.13**	**0.015**
12.	*DDT*			<0.05	<0.05	<0.05	<0.05	**0.004**	**0.005**
13.	*DDD*			<0.05	<0.05	<0.05	<0.05	-	-
14.	*Endosunfane*			<0.05	<0.05	<0.05	<0.05	**0.01**	**0.02**
15.	*Lindane*			<0.05	<0.05	<0.05	<0.05	**0.38**	**0.4**
16.	*Chlordane*			<0.05	<0.05	<0.05	<0.05	**0.02**	**0.03**
17.	*Heptachlor*			<0.05	<0.05	<0.05	<0.05	**0.02**	**0.05**
18.	*Mineral oil*	mg/L	SMEWW 5520 B – 2005	0.10	0.10	0.11	<0.05	**0.1**	**0.3**
19.	*Coliform*	MPN/100 mL	TCVN 6187-1:1996	2300	2100	2800	ND	**7500**	**10000**

Note: QCVN 08:2008/BTNMT: National technical regulation on surface water quality

B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level

B2 – For the usage of water navigation and other purpose with less water quality

NM 1.6.1: Sampling at 15:00 pm on July 3rd. 2012; M 1.6.2: Sampling at 23:00 pm on July 3rd. 2012; NM 1.6.3: Sampling at 7:00 am on July 4th. 2012; MT: Blank sample; *ND: non detect*

Hanoi. July 16th. 2012

Department of Environmental Quality Analysis

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VILAS 366

ANALYTICAL RESULT

No: **A1207.64-67**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **4**

Sampling place : **179 Intersection, Cuu Cao Commune, Van Giang District, Hung Yen Province (Package EX2-K2.6)**

Co-ordinate : **N 20° 57,73.0"- E 105° 57', 26.5"**

Testing time : **From 9 am July 03rd to 7 am on July 4th, 2012**

Name of sample	Parameter	Unit	K 2.6.1	K 2.6.2	K 2.6.3	K 2.6.4	QCVN 05:2009/BTNMT
EX 2 – K 2.6	Time	µg/m³	9:00 am July 03rd.2012	15:00 pm July 03rd. 2012	21:00 pm July 03rd. 2012	3:00 am July 04th. 2012	
	VOCs		195	160	122	154	-
	Dust		83	112	92	78	**300**
	SO_2		86	95	90	81	**350**
	NO_2		63	27	27	30	-
	CO		1073	3018	1460	2048	**30000**

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

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ANALYTICAL RESULT

No: **A1207.64-67**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **4**

Sampling place : **179 Intersection, Cuu Cao Commune, Van Giang District, Hung Yen Province (Package EX2-K2.6)**

Co-ordinate : **N 20° 57,73.0"- E 105° 57', 26.5"**

Testing time : **From 9 am July 03rd to 7 am on July 4th, 2012**

Name of sample	Parameter	Unit	K 2.6.1	K 2.6.2	K 2.6.3	K 2.6.4	QCVN 05:2009/BTNMT
EX 2 – K 2.6	Time	µg/m³	9:00 am July 03rd.2012	15:00 pm July 03rd. 2012	21:00 pm July 03rd. 2012	3:00 am July 04th. 2012	
	VOCs		195	160	122	154	-
	Dust		83	112	92	78	**300**
	SO_2		86	95	90	81	**350**
	NO_2		63	27	27	30	-
	CO		1073	3018	1460	2048	**30000**

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi. July 16th. 2012

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ANALYTICAL RESULT

No: **A1207.EX2**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **12**
Name of sample : **EX 2 – K2.6**
Testing place : **179 Intersection, Cuu Cao Commune, Van Giang District, Hung Yen Province (Package EX2)**
Co-ordinate : **N 20° 57'73.0"- E 105° 57' 26.5"**
Testing time : **From 9:00 am July 03rd to 7:30 am July 04th, 2012**

Time		From 9:00 am to 9:30 am on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35.9	31.8	33.8	35.9	58.8	51.8	50.9	58.8
L_{max}		47.7	38.4	41.7	47.7	80.5	67.2	69.7	80.5
L_{min}		29.2	24.8	25.3	29.2	47.3	42.5	43.5	47.3
L_{10}		33.3	34.2	36.3	36.3	59.4	54.2	53.1	59.4
L_{50}		34.4	31	33	34.4	53.6	48.5	47.6	53.6
L_{90}		32.1	28.2	29.9	32.1	50	46	45.5	50

Time		From 11:00 am to 11:30 am on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31.2	32.8	36	36	57.5	51.4	48.5	57.5
L_{max}		45.8	52.1	56.5	56.5	73.3	67.1	62.1	73.3
L_{min}		22.3	22.9	23.2	23.2	44	37.7	35.7	44
L_{10}		34.1	35.3	38	38	61	54	51.1	61
L_{50}		29.2	31.7	34.2	34.2	53.2	46.9	44.8	53.2
L_{90}		26.6	28.4	30.7	30.7	48.5	42.9	41	48.5

Time		From 13:00 pm to 13:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31.8	33.2	34.8	34.8	55.8	52.9	49.4	55.8
L_{max}		46	40.4	43.8	46	80.8	75.1	70.7	80.8
L_{min}		22.4	23.8	25.1	25.1	38.2	35.4	32.5	38.2
L_{10}		34.1	35.9	37.5	37.5	58.3	55.8	52.5	58.3
L_{50}		28.8	32.4	34	34	48.3	45.6	44.1	48.3
L_{90}		26.3	28.9	30.6	30.6	42.5	39.6	37.9	42.5

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Time		From 15:00 pm to 15:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	37.9	32.4	34.5	37.9	58.2	55.5	49.6	58.2
L_{max}		46.7	41.1	45.2	46.7	78.1	71	65.5	78.1
L_{min}		30.2	23.1	26.5	30.2	44	40.6	37.8	44
L_{10}		40.3	35	37	40.3	61.3	59.2	52.8	61.3
L_{50}		37	31.5	33.7	37	53.1	51	45.6	53.1
L_{90}		34.5	28.5	30.7	34.5	47.6	45.6	42	47.6

Time		From 17:00 pm to 17:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.2	30.9	32.7	34.2	59.6	55.2	52	59.6
L_{max}		45.2	37.6	39.7	45.2	83.2	79.9	76.8	83.2
L_{min}		23.9	23.4	23.3	23.9	45.6	40.2	37.5	45.6
L_{10}		37.3	33.4	35.3	37.3	60.2	55.4	51.8	60.2
L_{50}		32.3	30.3	31.9	32.3	53.6	48.8	45.3	53.6
L_{90}		27.3	27.3	28.7	28.7	50	44.6	40.9	50

Time		From 19:00 pm to 19:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.5	30.3	31.8	31.8	56.7	54.5	49.4	56.7
L_{max}		40.4	37.8	40.3	40.4	80	78.5	70.2	80
L_{min}		22.6	21.8	23.1	23.1	38	35.7	32	38
L_{10}		31.3	32.8	34.3	34.3	57.5	54.9	49.4	57.5
L_{50}		28.7	29.7	31	31	48.1	45.7	40.9	48.1
L_{90}		26.7	26.1	27.8	27.8	42.8	40.3	35.9	42.8

Time		From 21:00 pm to 21:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35.3	30.5	32	35.3	56.7	46.3	45.1	56.9
L_{max}		46.7	40	38.8	46.7	70.3	62.2	61.5	70.3
L_{min}		31.9	21.6	23.4	31.9	53.8	43.2	41.1	53.8
L_{10}		36.8	33.1	34.6	36.8	58.2	47.5	46.6	58.2
L_{50}		33.7	29.7	31.3	33.7	55.4	44.8	43.5	55.4
L_{90}		33	26.5	27.9	33	54.7	43.9	42.3	54.7

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Time		From 23:00 pm to 23:30 pm on July 03rd, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.8	30.1	31.6	31.6	42.6	40.9	41.8	42.6
L_{max}		44.7	37.8	38.2	44.7	57.2	56.8	56.8	57.2
L_{min}		20.2	21.2	22.6	22.6	33.3	29.6	29.7	33.3
L_{10}		28.8	22.7	34.2	34.2	45.2	43	44.4	45.2
L_{50}		25.2	29.4	31	31	36.4	33.5	35.2	36.4
L_{90}		22.9	26.2	27.5	27.5	34.6	31.2	32.6	34.6

Time		From 1:00 am to 1:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.2	30	32.5	32.5	36.1	36.3	33.5	36.3
L_{max}		45.9	37.1	40.7	45.9	53.2	59.4	43.6	59.4
L_{min}		20	22.6	23.9	23.9	31.3	28.8	28.5	31.3
L_{10}		30.9	32.6	35.2	35.2	37.3	35.4	35.7	37.3
L_{50}		25.1	29.3	31.7	31.7	34.5	32.3	32.5	34.5
L_{90}		22.7	25.9	28.1	28.1	33	30.8	30.4	33

Time		From 3:00 am to 3:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.9	30.5	32.2	32.2	43.9	40.7	40.5	43.9
L_{max}		46.1	38.6	38.8	46.1	60.3	55.4	57	60.3
L_{min}		20.2	20.5	23.1	23.1	36.8	32.4	32.3	36.8
L_{10}		30.4	33.1	34.8	34.8	46.5	43.8	43.5	46.5
L_{50}		27.7	29.8	31.4	31.4	38.9	35.5	35.7	38.9
L_{90}		23.8	26.4	27.9	27.9	37.5	33.7	33.8	37.5

Time		From 5:00 am to 5:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.8	30.2	31.8	31.8	46.7	44.9	47.3	47.3
L_{max}		44.6	37.2	38.9	44.6	67.2	66.5	66.8	67.2
L_{min}		20.9	21.2	21.7	21.7	33.5	31	33.4	33.5
L_{10}		31.5	32.9	34.4	34.4	48.7	46.6	50.1	50.1
L_{50}		20.2	29.4	31	31	41.5	39.6	42.1	42.1
L_{90}		23.8	25.9	27.7	27.7	36.5	34.1	37.7	37.7

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Time		From 7:00 am to 7:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31.7	30.3	32.1	32.1	52.8	51	45.8	52.8
L_{max}		46.8	37.5	40.3	46.8	69.8	63.5	60.2	69.8
L_{min}		22.8	20.5	22.7	22.8	39.1	37	33.4	39.1
L_{10}		34.5	32.8	34.9	34.9	55.9	54.2	48.2	55.9
L_{50}		29.1	29.5	31.3	31.3	49.9	48.6	42.6	49.9
L_{90}		26.1	26.5	27.8	27.8	44.3	42.1	38	44.3

Allowable maximum value of the vibration acceleration for contruction activitics

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 18 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 9 pm to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi, July 16th, 2012

Department of Environmental Quality Analysis

Vu Van Tu

INSTITUTE OF ENVIRONMENTAL TECHNOLOGY
Deputy Director

VIỆN CÔNG NGHỆ MÔI TRƯỜNG

Dr. Nguyen Thi Hue

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ANALYTICAL RESULT

No: **W1207.184**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Ground water (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **02**

Preservation : **01 PE Bottle 0,5L refrigerate**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate
01 glass Bottle 1,0 L

Sampling place : **Mr. Le Van Hoa, Tu Duong Village- Ly Thuong Kiet Commune – Yen My District, Hung Yen Province (Depth: 45m). (Package EX3-NN3.6)**

Co-ordinate : **N 20° 51,603- E 106° 01, 448**

Sampling time : **From July 4th 2012**

Testing time : **From July 5th to July 16th 2012**

No	Parameter	Unit	Test methods	Results		QCVN 09:2008/ BTNMT
				NN 3.6	MT	
1.	Temperature	°C	TCVN 4457-1988	27.8	27.0	-
2.	pH	-	TCVN 6492 – 1999	7.70	7.10	**5.5 – 8.5**
3.	COD	mgO_2/L	$KMnO_4$ Method	3.2	< 1.0	4
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	1.5	< 1.0	-
5.	TSS	mg/L	SMEWW 2540 D – 2005	5	< 3.0	-
6.	Total P	mg/L	TCVN 6202 – 2008	0.06	< 0.01	-
7.	*Total N*	mg/L	TCVN 5987-1995	0.5	< 0.10	-
8.	*Coliform*	MPN/ 100mL	TCVN 6187 – 1 –1996	9	ND	**3**
9.	*E. Coli*			ND	ND	**ND**

Note: QCVN 09:2008/BTNMT: National technical regulation on underground water quality.
ND: Non detect

Hanoi. July 16th. 2012

Dept. Environmental Quality Analysis

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VILAS 366

ANALYTICAL RESULT

No: **A1207.68-71.1**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **4 sample**

Sampling place : **Tu Duong Village - Ly Thuong Kiet Commune – Yen My District, Hung Yen Province, Intersection with the 39 road far from the expressway about 5 m and 39 road about 150 m (Package EX3-K3.6)**

Co-ordinate : **N 20° 51'60.3"- E 106° 01' 48.8"**

Testing time : **From 9 am July 4th to 7 am on July 5th, 2012**

Name of sample	Parameter	Unit	K 3.6.1	K 3.6.2	K 3.6.3	K 3.6.4	QCVN 05:2009/BTNMT
EX 3 – K 3.6	Time	µg/m³	9:00 am July 4th. 2012	15:00 pm July 4th. 2012	21:00 pm July 4th. 2012	3:00 am July 5th. 2012	
	VOCs		165	154	110	105	-
	Dust		267	324	218	182	**300**
	SO_2		103	120	109	97	**350**
	NO_2		30	28	23	22	-
	CO		2683	4812	2465	1163	**30000**

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi, July 16th, 2012

Department of Environmental Quality Analysis

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VILAS 366

ANALYTICAL RESULT

No: A1204. EX 3

Client : Viet Nam Infrastructure Development and Finance Investment Joint Stock Company
Address : 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi
Kind of sample : Noise (Contract : 74/VDIFI-VCNMT/2010)
Number of sample : 12
Name of sample : EX3 –K3.6
Sampling place : Tu Duong Village- Ly Thuong Kiet Commune – Yen My District, Hung Yen Province, Intersection with the 39 road far from the expressway about 5 m and 39 road about 150 m (Package EX3-K3.6)
Co-ordinate : N 20° 51,603- E 106° 01, 488
Testing time : From 9 am July 04th to 7 am July 05th, 2012

Name of sample		Noise	From 9 am July 04th to 7 am July 05th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 3-K3.6	Leq	(dB)	67.2	64.4	61.7	64.3	62.5	51.7	55.0	57.1	48.0	53.4	55.5	61.8
	Lmax		88.0	85.5	90.1	85.6	80.1	72.6	65.5	73.4	58.7	78.4	81.5	85.1
	Lmin		42.5	41.7	36.9	44.4	47.4	41.4	51.8	48.7	45.5	46.7	39.3	42.3
	L50		51.1	50.4	48.9	51.2	55.9	46.3	54.3	57.1	47.7	51.4	45.3	50.2
	L90		46.1	45.7	43.4	47.1	51.6	43.5	53.5	56.1	47.0	49.1	42.2	45.7
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

Hanoi. July 23rd 2012

Department of Environmental Quality Analysis

Vu Van Tu

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ANALYTICAL RESULT

No: **A1207.EX3**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **12**
Name of sample : **EX 3 – K3.6**
Testing place : **Intersection with the 39 road, Ly Thuong Kiet Commune, Yen My District, Hung Yen Province (Package EX3)**
Co-ordinate : **N 20° 51'60.3"- E 106° 01' 48.8"**
Testing time : **From 9:00 am on July 04th to 7:30 am on July 05th, 2012**

Time		From 8:00 am to 9:30am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.1	33	33.7	33.7	57.9	50.7	50.4	57.9
L_{max}		43.9	40.3	41.7	43.9	72.7	67.90	67.7	72.7
L_{min}		24.5	27.5	24.9	27.5	36.5	31.7	33.2	36.5
L_{10}		35.6	35.1	36.5	36.5	62.6	56.1	55.9	62.6
L_{50}		29.9	32.5	32.8	32.8	45.7	43.7	42.7	45.7
L_{90}		27.4	30.3	29.7	30.3	39.2	35.6	36.3	39.2

Time		From 11:00 am to 11:30 am on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	44.1	44.5	51.6	51.6	54.6	51.1	46.2	54.6
L_{max}		63.4	70.2	77.4	77.4	76.1	73.3	68.8	76.1
L_{min}		23	26.7	26.8	26.8	33.8	32.5	31.2	33.8
L_{10}		48.1	40	39.6	48.1	53.4	51.4	47.4	53.4
L_{50}		32.2	34.1	35.3	35.3	39.9	38.1	37.3	39.9
L_{90}		28.2	31	31.8	31.8	36.3	34.8	33.9	36.3

Time		From 13:00 am to 13:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	47.2	46.8	56.8	56.8	50.5	45.9	48.6	50.5
L_{max}		65.6	72	81.4	81.4	69.8	63.9	69.7	69.8
L_{min}		24.1	27.2	28.1	28.1	32.7	31	31.5	32.7
L_{10}		45.5	38.7	41.1	45.5	52.2	47.2	48.6	52.2
L_{50}		33.2	34.7	37.2	37.2	38.5	36.5	38.7	38.7
L_{90}		28.3	31.5	33.5	33.5	35.3	33.6	35.1	35.3

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Time		From 15:00 pm to 15:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	47.3	36	36.7	47.3	52.3	48.6	44	52.3
L_{max}		66.7	48	45.8	66.7	68.9	59.5	56.1	68.9
L_{min}		26.3	26.8	28.1	28.1	44.5	42.6	38.1	44.5
L_{10}		43.7	38.2	39.2	43.7	55.6	51.5	46.8	55.6
L_{50}		34.2	34.5	36	36	48.1	46.2	42.2	48.1
L_{90}		29.7	31.3	32.8	32.8	45.8	44.4	39.7	45.8

Time		From 17:00 pm to 17:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	52.3	38.4	37.7	52.3	57.7	54.6	56.5	57.7
L_{max}		72.1	57.2	49.3	72.1	79.7	75.3	76.2	79.7
L_{min}		25.6	26.5	26.8	26.8	37.1	35.8	36.6	37.1
L_{10}		49.9	40.6	40	49.9	60.5	57.3	59.2	60.5
L_{50}		34.9	34.1	35.9	35.9	48.7	46.3	48.1	48.7
L_{90}		29.3	30.5	32.4	32.4	41.6	40.2	41.6	41.6

Time		From 19:00 pm to 19:30 pm on July 04th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	29.5	31.8	33.7	33.7	57.1	50.5	45.5	57.1
L_{max}		44.2	38.2	41.3	44.2	76.8	67.5	64.6	76.8
L_{min}		22.2	23.9	24.7	24.7	35.1	32.3	29.6	35.1
L_{10}		31.2	34.1	36.3	36.3	60.3	54.2	48.3	60.3
L_{50}		27.8	31.3	32.9	32.9	45.4	40.3	37.1	45.4
L_{90}		25.6	28.8	29.5	29.5	37.7	34.6	33.5	37.7

Time		From 21:00 pm to 21:30 pm on July 04th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.2	32.2	34.7	34.7	59.1	57.2	57.6	59.1
L_{max}		49.7	51.5	52.3	52.3	85.7	82.9	83.8	85.7
L_{min}		20.1	23.5	24.9	24.9	34.5	32.7	31.8	34.5
L_{10}		29.3	33.9	36.6	36.6	54.9	50.8	48.1	54.9
L_{50}		26.2	31	33.3	33.3	40.3	37.8	36.3	40.3
L_{90}		23.9	28.6	30.1	30.1	37.3	35.4	33.9	37.3

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Time		From 23:00 pm to 23:30 pm on July 04th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	27	31	34.1	34.1	38.3	35.2	36.6	38.3
L_{max}		37	37	41.6	41.6	57.3	52.7	54	57.3
L_{min}		19.7	22.6	25.6	25.6	34.3	31.5	31.9	34.3
L_{10}		29.3	33.3	36.9	36.9	38.9	36.3	38.3	38.9
L_{50}		25.8	30.4	23.1	30.4	36.7	33.8	35.1	36.7
L_{90}		23.2	27.5	29.5	29.5	35.8	32.6	33.5	35.8

Time		From 1:00 am to 1:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.1	30.8	33.8	33.8	36.3	33.4	35.2	36.3
L_{max}		43.7	37.6	41.7	43.7	45.5	43.1	45.2	45.5
L_{min}		20.4	22.4	24.5	24.5	32.5	30	30.7	32.5
L_{10}		29.8	33.5	36.6	36.6	38.1	35.2	37.5	38.1
L_{50}		25.8	30.1	32.8	32.8	35.6	32.7	34.4	35.6
L_{90}		23.1	26.7	28.9	28.9	34	31.1	32	34

Time		From 3:00 am to 3:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.8	30.7	33.4	33.4	57.6	52.5	49.9	57.6
L_{max}		38.1	39.3	40.7	40.7	82	74.6	71.7	82
L_{min}		19.6	22.6	22.5	22.6	43.7	38.4	37.1	43.7
L_{10}		29.1	33.2	36.1	36.1	50.3	46.9	45.2	50.3
L_{50}		25.6	29.8	32.5	32.5	45.3	39.8	38.8	45.3
L_{90}		23.1	26.7	29.2	29.2	44.4	39	37.8	44.4

Time		From 5:00 am to 5:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	42.2	31.5	32.8	42.2	51.2	48.3	50.5	51.2
L_{max}		64.1	45	42	64.1	70.4	68.9	70.6	70.6
L_{min}		20.5	20.5	23.3	23.3	32.4	32.2	31.5	32.4
L_{10}		34.9	33.9	35.5	35.5	52.9	50	52.2	52.9
L_{50}		26.8	30.2	31.8	31.8	40.5	39.5	39.3	40.5
L_{90}		24	27	28.5	28.5	35.6	34.8	34.9	35.6

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Time		From 7:00 am to 7:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	43.9	35.1	34	43.9	57.9	57	54.9	57.9
L_{max}		60.8	50.8	45.3	60.8	80.3	81.8	80.3	81.8
L_{min}		22.1	24.8	23.5	24.8	33.7	30.8	29.4	33.7
L_{10}		45.1	37.8	36.6	45.1	57.3	51.6	49.3	57.3
L_{50}		31.6	32.2	32.4	32.4	41.4	38.1	36.8	41.4
L_{90}		27.1	29	29	29	35.9	33.6	33	35.9

Allowable maximum value of the vibration acceleration for contruction activities

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 6 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 9 pm to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi. July 16th. 2012

Department of Environmental Quality Analysis

Vu Van Tu

INSTITUTE OF ENVIRONMENTAL TECHNOLOGY
Deputy Director

VIỆN CÔNG NGHỆ MÔI TRƯỜNG

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Tel: (84 - 4) 3791 1654
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ANALYTICAL RESULT

No: **W1207.185**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Ground water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **02**
Preservation : **01 PE Bottle 0,5L refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate.
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate.
01 glass Bottle 1,0 L
Sampling place : **Mr. Nam- Tân Phuc Commune –An Thi District, Hung Yen Province . (Package EX4-NN4.4)**
Co-ordinate : **N 20° 50'92.7"- E 106° 66' 37.6"**
Sampling time : **July 5th, 2012**
Testing time : **From July 06th to July16th 2012**

No	Parameter	Unit	Test methods	Results		QCVN 09:2008/ BTNMT
				NN 4.4	MT	
1.	Temperature	°C	TCVN 4457-1988	29.8	28.0	-
2.	pH	-	TCVN 6492 – 1999	6.65	7.10	**5.5 – 8.5**
3.	COD	mgO_2/L	$KMnO_4$ Method	1.9	< 1.0	4
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	<1.0	< 1.0	-
5.	TSS	mg/L	SMEWW 2540 D – 2005	9	< 3.0	-
6.	Total P	mg/L	TCVN 6202 – 2008	0.04	< 0.01	-
7.	*Total N*	mg/L	TCVN 5987-1995	5.3	< 0.10	-
8.	*Coliform*	MPN/ 100mL	TCVN 6187 – 1 –1996	5	ND	**3**
9.	*E. Coli*			ND	ND	**ND**

Note: QCVN 09:2008/BTNMT: National technical regulation on underground water quality.
ND: Non detect

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VILAS 366

ANALYTICAL RESULT

No: **A1207.72-75**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **4 sample**

Sampling place : **Intersection with the 38 road, Tan Phuc Commune, An Thi District, Hung Yen Province (Package EX4-K4.4)**

Co-ordinate : **N 20° 50' 92.7" - E 106° 66' 37.6"**

Testing time : **From 9:00 am on July 5th to 7 am on July 6th, 2012**

Name of sample	Parameter	Unit	K 4.4.1	K 4.4.2	K 4.4.3	K 4.4.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 05th, 2012	15:00 pm July 05th, 2012	21:00 pm July 05th, 2012	3:00 am July 06th, 2012	
EX 4 – K 4.4	VOCs	µg/m³	142	136	86	78	-
	Dust		94	158	124	88	300
	SO_2		79	89	85	73	350
	NO_2		18	25	22	25	-
	CO		1860	1601	991	1441	30000

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi. July 16th, 2012

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ANALYTICAL RESULT

No: A1207. EX4

Client : Viet Nam Infrastructure Development and Finance Investment Joint Stock Company
Address : 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi
Kind of sample : Noise (Contract : 74/VDIFI-VCNMT/2010)
Number of sample : 12
Name of sample : EX4-K4.4
Sampling place : Intersection with the 38 road, Tan Phuc Commune, An Thi District, Hung Yen Province (Package EX4-K4.4)
Co-ordinate : N-20^{0}50'927"; E-106^0 66' 376"
Testing time : From 9 am July 05th to 7 am July 06th, 2012

Name of sample		Noise	From 9 am July 05th to 7 am July 06th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 4-K4.4	Leq	(dB)	62.2	59.4	55.7	56.1	59.3	54.4	54.8	57.6	48.1	47.8	55.3	68.7
	Lmax		83.0	78.3	71.3	76.0	77.9	79.2	75.1	72.3	67.9	56.8	73.4	87.8
	Lmin		44.7	41.5	43.5	44.5	48.4	42.3	50.2	44.4	44.2	44.5	40.4	50.6
	L50		53.4	55.9	50.9	50.7	58.0	50.9	53.5	54.2	47.1	46.9	44.8	62.2
	L90		48.9	49.2	45.7	47.0	55.1	46.5	52.2	48.6	45.5	45.7	42.1	62.1
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

Hanoi. July 23rd 2012

Department of Environmental Quality Analysis

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ANALYTICAL RESULT

No: **A1207.EX4**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **12**
Name of sample : **EX 4 – K4.4**
Testing place : **Intersection with the 38 road, Tan Phuc Commune, An Thi District (Package EX4)**
Co-ordinate : **N 20° 50' 92.7" - E 106° 66' 37.6"**
Testing time : **From 9:00 am July 05th to 7:30 am on July 06th, 2012**

Time		From 9:00 am to 9:30 am on July 05th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	44.1	37.2	36.9	44.1	60.9	63.7	64.1	64.1
L_{max}		60.9	50.1	49.8	60.9	88.8	88.9	90	90
L_{min}		22.6	24.5	25.5	25.5	35.9	36.3	36.3	36.3
L_{10}		47.4	40.5	39.9	47.4	53.1	63.7	61.8	63.7
L_{50}		35.5	35.2	35.6	35.6	50.8	62.2	60.4	62.2
L_{90}		28.8	30.6	31.2	31.2	40.6	40	40.2	40.6

Time		From 11:00 am to 11:30 am on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	45.2	35.3	35.7	45.2	60.00	57.8	61.1	61.1
L_{max}		63.2	48.8	49.3	63.2	76.4	74.8	77.8	77.8
L_{min}		23.2	21.2	23.5	23.5	33.9	30.7	33.4	33.9
L_{10}		45.5	37.8	38.2	45.5	61.9	60	62.7	62.7
L_{50}		33.8	32.5	33.5	33.8	41.7	39.2	41.5	41.7
L_{90}		27.4	28.2	29.6	29.6	37.9	35.4	37	37.9

Time		From 13:00 am to 13:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	31	32.9	31.2	32.9	67.4	67.7	66.4	67.7
L_{max}		44	39.7	41.1	44	90.1	90.1	89.8	90.1
L_{min}		20.7	23.3	25.3	25.3	35.7	35.6	36.1	36.1
L_{10}		34.1	35.6	36.8	36.8	50.6	52.1	53.4	53.4
L_{50}		28.8	32.2	33.4	33.4	41.3	40.1	40.8	41.3
L_{90}		25.2	28.7	29.8	29.8	38.3	37.5	38.3	38.3

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Time		From 15:00 pm to 15:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.9	33.1	35.5	35.5	47.9	46	46.5	47.9
L_{max}		53.7	40.3	52.8	53.7	63	61.1	63.2	63.2
L_{min}		25	25.1	26.3	26.3	41.6	40.7	40.4	41.6
L_{10}		37.9	35.5	37.5	37.9	49.8	48	48.4	49.8
L_{50}		31.7	32.4	33.9	33.9	44.8	44.3	44.5	44.8
L_{90}		28.5	29.2	30.7	30.7	43.1	42	41.9	43.1

Time		From 17:00 pm to 17:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	45.5	44.8	44.2	45.5	47.9	52.5	51.4	52.5
L_{max}		62.7	61	61.4	62.7	73.6	79.8	78.1	79.8
L_{min}		36.6	35.7	35.7	36.6	36.9	36.9	38.6	38.6
L_{10}		47.5	45.8	45.4	47.5	45	46.3	47.4	47.4
L_{50}		41.4	43	42.9	43	41.9	42.7	43.1	43.1
L_{90}		39.7	40.8	40.9	40.9	39.1	40.6	40.8	40.8

Time		From 19:00 pm to 19:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.3	34.2	38	39.3	38.7	38.3	39.3	39.3
L_{max}		56.4	50.8	57.3	57.3	54.8	51.1	34.1	54.8
L_{min}		20.8	21.9	24.4	24.4	32.5	30.9	30.3	32.5
L_{10}		42.6	36.2	37.5	42.6	40.5	40.5	41.7	41.7
L_{50}		29.1	31.8	33.2	33.2	37.8	37.5	38.3	38.3
L_{90}		25	28.2	29.8	29.8	35.3	34.2	35.1	35.3

Time		From 21:00 pm to 21:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.5	34.9	37.6	37.6	50.7	51.4	51.4	51.4
L_{max}		72.2	72.7	73.7	73.7	75.8	76	75.6	76
L_{min}		21.2	22.4	23.5	23.5	38	37.6	38.4	38.4
L_{10}		35.2	35.4	36.5	36.5	50.5	52.9	52.4	52.9
L_{50}		28.8	32	32.7	32.7	43.9	44.9	45.4	45.4
L_{90}		25.1	28.5	29.4	29.4	39.9	40.3	40.9	40.9

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Time		From 23:00 pm to 23:30 pm on July 05th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	36.1	34.1	36.4	36.4	42	41.4	40.8	42
L_{max}		53.8	50.7	54.7	54.7	55.1	56.3	55.4	56.3
L_{min}		22.8	22.3	24.7	24.7	32.2	31.3	31.4	32.2
L_{10}		39.6	35.3	36.5	39.6	45.8	44.8	44.1	45.8
L_{50}		31.3	31.9	33	33	39.6	38.1	38.3	39.6
L_{90}		26.3	28.6	29.7	29.7	35.3	34.6	34.6	35.3

Time		From 1:00 am to 1:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40	38.2	36.7	40	44	42.8	41.5	44
L_{max}		53.7	54	51.5	54	61.2	60.3	58	61.2
L_{min}		37.2	35.3	33.6	37.2	37.7	35.9	33.9	37.7
L_{10}		40.9	38.7	37.3	40.9	45.3	43.3	41.8	45.3
L_{50}		39.2	37	35.2	39.2	39.6	38	30.5	39.6
L_{90}		38.4	36.3	34.3	38.4	38.4	30.5	34.9	38.4

Time		From 3:00 am to 3:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	46.4	41.9	39.6	46.4	47.7	48.4	42.4	48.4
L_{max}		68.2	62.7	57	68.2	73.8	71.3	71.1	73.8
L_{min}		32.5	31.4	31.5	32.5	38.4	36.1	34.4	38.4
L_{10}		44.1	42.2	41.3	44.1	48.7	45.5	42.4	48.7
L_{50}		37.9	36.2	36.2	37.9	43	40	38.5	43
L_{90}		35.4	33.6	33.9	35.4	40	37.6	36.2	40

Time		From 5:00 am to 5:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.4	38	38.8	38.8	56.2	53.7	56.7	56.7
L_{max}		45.4	55.1	55.8	55.8	90.1	89.9	89.8	90.1
L_{min}		21.2	22	23.4	23.4	30.8	29.2	28.5	30.8
L_{10}		32.4	34.9	36.4	36.4	45.3	42.8	42.3	45.3
L_{50}		26.3	30.2	31.4	31.4	35.6	33.4	34	35.6
L_{90}		24	26.8	28.1	28.1	33	31	31.1	33

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Time		From 7:00 am to 7:30 am on July 06th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.8	32.6	31.8	32.8	66.7	67.2	66.9	67.2
L_{max}		48.6	41.5	33.2	48.6	75	76.1	74.2	76.1
L_{min}		26.1	24.1	29.8	29.8	41.7	43.2	42.8	43.2
L_{10}		35.2	34.8	37	37	70.2	70.4	70.5	70.5
L_{50}		31	31.4	35.9	35.9	65.8	66.8	65.4	66.8
L_{90}		28.8	28.6	28.9	28.9	59.3	58.7	59	59.3

Allowable maximum value of the vibration acceleration for contruction activities

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 6 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 9 pm to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi, July 16th, 2012

Department of Environmental Quality Analysis

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ANALYTICAL RESULT

No: **W1207.192**

Client : **Viet Nam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Ground water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **02**
Preservation : **01 PE Bottle 0,5L refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate.
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate.
01 glass Bottle 1,0 L
Sampling place : **Mr. Vu Van Hoi- Nhan Quyen Commune –Binh Giang District, Hai Duong Province (Package EX4-NN 5.4)**
Co-ordinate : **N 20° 51,204 - E 106° 12, 149**
Sampling time : **July 03rd, 2012**
Testing time : **From July 05th to July 16th 2012**

No	Parameter	Unit	Test methods	Results		QCVN 09:2008/ BTNMT
				NN 5.4	MT	
1.	Temperature	°C	TCVN 4457-1988	27.5	28.0	-
2.	pH	-	TCVN 6492 – 1999	7.01	7.10	**5.5 – 8.5**
3.	COD	mgO_2/L	$KMnO_4$ Method	10.6	< 1.0	4
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	3.6	< 1.0	-
5.	TSS	mg/L	SMEWW 2540 D – 2005	31	< 3.0	-
6.	Total P	mg/L	TCVN 6202 – 2008	0.15	< 0.01	-
7.	*Total N*	mg/L	TCVN 5987-1995	28.8	< 0.10	-
8.	*Coliform*	MPN/ 100mL	TCVN 6187 – 1 –1996	21	ND	3
9.	*E. Coli*			ND	ND	ND

Note: QCVN 09:2008/BTNMT: National technical regulation on underground water quality.
ND: Non detect

Hanoi. July 16th. 2012

Department of Environmental Quality Analysis

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ANALYTICAL RESULT

No: **W1207.189-191**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Surface water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **4**
Preservation : **01 PE Bottle 0,5L refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate.
01 PE Bottle 0,5L, preserved refrigerate.
01 glass Bottle 1,0 L
Sampling place : **O Xuyen River, O Xuyen Village, Co Bi Commune, Binh Giang District, Hai Duong Province (Package EX4)**
Co-ordinate : **N 20° 51'309"- E 105° 15' 081"**
Sampling time : **From July 6th to July 7th 2012**
Testing time : **From July 9th to July 16th 2012**

No	Parameter	Unit	Test methods	Results				QCVN	
				NM 2.4.1	NM 2.4.2	NM 2.4.3	MT	Column B1	Column B2
1.	pH	-	TCVN 6492 – 1999	7.11	7.45	7.36	7.20	**5.5 -9**	**5.5 -9**
2.	DO	mg/L	TCVN 7325 – 2004	2.60	2.45	2.37	7.38	**≥4**	**≥2**
3.	COD	mgO_2/L	$KMnO_4$ Method	9.6	10.4	26.2	<1.0	**30**	**50**
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	5.2	5.8	13.9	<1.0	**15**	**25**
5.	TSS	mg/L	SMEWW 2540 D – 2005	5	7	8	<3.0	**50**	**100**
6.	Total P	mg/L	TCVN 6202 – 2008	0.21	0.15	0.25	0.01	-	-
7.	*Total N*	mg/L	TCVN 5987-1995	6.6	3.8	3.8	<0.10	-	-
8.	*Pesticides*	µg/L	TCVN 7876 : 2008	**<0.5**	**<0.5**	**<0.5**	**<0.5**	-	-
9.	*Aldrine+Dieldrine*	µg/L	TCVN 7876 : 2008	< 0.05	< 0.05	< 0.05	< 0.05	**0.008**	**0.01**

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No	Parameter	Unit	Test methods	Results				QCVN	
				NM 2.4.1	NM 2.4.2	NM 2.4.3	MT	Column B1	Column B2
10.	*Endrine*	µg/L	TCVN 7876 : 2008	< 0.05	< 0.05	< 0.05	< 0.05	**0.014**	**0.01**
11.	*BHC*			< 0.05	< 0.05	< 0.05	< 0.05	**0.13**	**0.015**
12.	*DDT*			< 0.05	< 0.05	< 0.05	< 0.05	**0.004**	**0.005**
13.	*DDD*			< 0.05	< 0.05	< 0.05	< 0.05	-	-
14.	*Endosunfane*			< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.02**
15.	*Lindane*			< 0.05	< 0.05	< 0.05	< 0.05	**0.38**	**0.4**
16.	*Chlordane*			< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.03**
17.	*Heptachlor*			< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.05**
18.	*Mineral oil*	mg/L	SMEWW 5520 B – 2005	0.12	0.13	0.15	< 0.05	**0.1**	**0.3**
19.	*Coliform*	MPN/100 mL	TCVN 6187-1:1996	38	96	200	ND	**7500**	**10000**

Note: QCVN 08:2008/BTNMT: National technical regulation on surface water quality

B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level

B2 – For the usage of water navigation and other purpose with less water quality

NM 2.4.1: Sampling at 14:00pm on July 6th. 2012; NM 2.4.2: Sampling at 22:00 pm on July 6th. 2012; NM 2.4.3: Sampling at 6:00 am on July7th. 2012; MT: Blank sample; *ND: non detect*

Hanoi. July*16th. 2012*

Department of Environmental Quality Analysis

Vu Van Tu

INSTITUTE OF ENVIRONMENTAL TECHNOLOGY
Deputy Director

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VILAS 366

ANALYTICAL RESULT

No: **A1207.76-79**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract: 74/VDIFI-VCNMT/2010)**

Number of sample : **4**

Sampling place : **Intersection with TL 20, Nhan Quyen Commune, Binh Giang District, Hai Duong Province (Package EX4-K5.4)**

Co-ordinate : **N 20° 51'20.4" - E 106° 12' 14.9"**

Testing time : **From 9 am on Apr 6th to 6:30 am on Apr 7th, 2012**

Name of sample	Parameter	Unit	K 5.4.1	K 5.4.2	K 5.4.3	K 5.4.4	QCVN 05:2009/BTNMT
	Time		9 am July 6th, 2012	15:00 pm July 6th, 2012	21:00 pm July 6th, 2012	3:00 am July 7th, 2012	
EX4 – K 5.4	VOCs	µg/m³	130	150	130	120	-
	Dust		456	589	284	352	**300**
	SO_2		93	119	117	105	**350**
	NO_2		33	20	20	22	-
	CO		945	1346	1020	1696	**30000**

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi. July 16th.2012

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ANALYTICAL RESULT

No: A1207.EX4

Client : Viet Nam Infrastructure Development and Finance Investment Joint Stock Company
Address : 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi
Kind of sample : Noise (Contract : 74/VDIFI-VCNMT/2010)
Number of sample : 12
Name of sample : EX4 –K5.4
Sampling place : Intersection with TL 20, Nhan Quyen Commune, Binh Giang District, Hai Duong Province (Package EX4)
Co-ordinate : N 20° 51' 204" - E 106° 12' 149"
Testing time : From 9 am July 06th to 7 am July 07th, 2012

Name of sample		Noise	From 9 am July 06th to 7 am July 07th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 4-K5.4	Leq	(dB)	72.3	72.7	69.5	68.1	68.2	68.0	66.0	57.9	55.0	66.2	69.2	70.4
	Lmax		90.8	101.4	99.6	87.7	87.1	94.3	91.8	89.6	86.2	84.7	90.1	90.1
	Lmin		54.1	47.9	48.9	50.5	51.3	46.5	48.0	43.3	41.1	47.0	46.9	51.2
	L50		67.9	64.1	60.1	63.1	63.6	61.6	59.1	50.1	48.1	57.0	57.7	65.3
	L90		62.3	56.5	53.4	55.3	57.8	54.2	53.3	47.7	45.0	53.0	51.5	58.0
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

Hanoi. July 23rd. 2012

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ANALYTICAL RESULT

No: **A1204.EX4**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **12**

Name of sample : **EX 4 – K5.4**

Testing place : **Intersection with the 20 provincial road, Nhan Quyen Commune, Binh Giang District, Hai Duong Province (Package EX4)**

Co-ordinate : **N 20° 51'20.4" - E 106° 12' 14.9"**

Testing time : **From 9:00 am on July 06th to 7:30 am on July 07th, 2012.**

Time		From 9:00 am to 9:30 am on July 06th , 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	50.6	37.1	38.1	50.6	66.9	69.9	64.5	69.9
L_{max}		68.3	50.8	57.4	68.3	79.2	78.4	74.2	79.2
L_{min}		32.8	29.8	29.3	32.8	60.5	60.9	55.6	60.9
L_{10}		53.6	39.3	39.8	53.6	67.2	71.5	65.9	71.5
L_{50}		47	35.9	36.9	47	66.4	69.4	64.2	69.4
L_{90}		43.4	33	33.5	43.4	66	67.2	62.1	67.2

Time		From 11:00 am to 11:30 am on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	48.8	35.8	36.8	48.8	61.5	59.2	60.1	61.5
L_{max}		64.3	49.9	45.5	64.3	84.6	81.1	85.6	85.6
L_{min}		27	25.9	26.3	27	44	39.2	39.7	44
L_{10}		52.9	38.5	39.4	52.9	61.5	59.6	58.9	61.5
L_{50}		42.2	34.6	36	42.2	54	51.1	50.6	54
L_{90}		32.9	31.3	32.6	32.9	49	45.6	45.7	49

Time		From 13:00 pm to 13:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	43.7	34.9	36.5	43.7	56.7	56.9	55.1	56.9
L_{max}		59.5	43.4	47.1	59.5	76.3	74.9	76.4	76.4
L_{min}		26.6	26.2	26.1	26.6	38	35.5	34.5	38
L_{10}		47.3	37.7	38.9	47.3	61.1	60.8	58.1	61.1
L_{50}		38.7	33.9	35.7	38.7	49.7	48.3	46.1	49.7
L_{90}		31.7	30.8	32.1	32.1	43	41.2	39.6	43

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Time		From 15:00 pm to 15:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	48.1	37.4	38.5	48.1	54.4	55.2	53.2	55.2
L_{max}		59.8	46	46.1	59.8	72.6	71.6	70.4	72.6
L_{min}		29.6	28.5	27.8	29.6	42.6	44.7	42.9	44.7
L_{10}		51.9	40	41.1	51.9	50.6	57.9	55.5	57.9
L_{50}		44.7	36.5	37.7	44.7	48.9	50.7	47.9	50.7
L_{90}		37.4	35.2	34.4	37.4	44.9	47	44.7	47

Time		From 17:00 pm to 17:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	46.1	34.8	35.3	46.1	55.6	52.3	50.6	55.6
L_{max}		60.2	42.6	42.6	60.2	69.2	67.7	65.4	69.2
L_{min}		26.8	26.7	23.9	26.8	40.9	36.6	36.4	40.9
L_{10}		50.2	37	37.8	50.2	59.4	55.5	54.3	59.4
L_{50}		42	34	34.7	42	50	46.4	45.5	50
L_{90}		33.9	31.1	31.6	33.9	44.6	40.8	40.2	44.6

Time		From 19:00 pm to 19:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40	32.7	33.9	40	54.9	54.3	53.5	54.9
L_{max}		59.8	40	43.9	59.8	68.9	69.1	67.3	69.1
L_{min}		22.6	24.3	24.3	24.3	36.5	35.1	35.2	36.5
L_{10}		38.4	35.5	36.5	38.4	58.8	58.1	57.5	58.8
L_{50}		30.7	31.7	33.1	33.1	49.4	48.7	48.5	49.4
L_{90}		27.1	28.4	29.5	29.5	42.1	40.9	40.4	42.1

Time		From 21:00 pm to 21:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	40.8	32.2	33.3	40.8	53.5	53.7	51.7	53.7
L_{max}		60.8	42.2	42.7	60.8	71.7	72.7	70.4	72.7
L_{min}		22.5	22.7	23.7	23.7	45.9	46.9	43.7	46.9
L_{10}		40.7	34.8	35.9	40.7	55	54.3	53	55
L_{50}		29.5	31.2	32.4	32.4	51.6	51	48	51.6
L_{90}		26.1	27.9	28.9	28.9	47	49.1	46.5	49.1

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Time		From 23:00 pm to 23:30 pm on July 06th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.7	31.7	34.3	34.3	51.5	53.3	47.3	53.3
L_{max}		57.5	51.2	56.2	57.5	73.5	79	71.6	79
L_{min}		20.8	21.3	24.6	24.6	31.8	29.7	30.1	31.8
L_{10}		29.3	33.8	35.7	35.7	53	50.6	47.2	53
L_{50}		25.6	30.3	32.1	32.1	43.1	40.9	38.2	43.1
L_{90}		23.3	27	28.9	28.9	35.1	33	33.5	35.1

Time		From 1:00 am to 1:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.5	31.2	33.1	39.5	63.6	61.8	61.5	63.6
L_{max}		58.9	42.8	44.7	58.9	90.1	90.1	90	90.1
L_{min}		21.5	21.9	23.4	23.4	35.5	36	34.6	36
L_{10}		38.5	33.8	35.7	38.5	60.4	56.6	54.5	60.4
L_{50}		29.2	30.3	32.1	32.1	46.8	44.6	42.8	46.8
L_{90}		25.3	27	28.9	28.9	38.4	38.3	37.7	38.4

Time		From 3:00 am to 3:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	41	30.5	32.4	41	55.3	51.3	49.3	55.3
L_{max}		59.9	39	43.3	59.9	72.5	68.9	65.2	72.5
L_{min}		20.6	21.3	24.3	24.3	36.2	36.4	37	37
L_{10}		39.6	33.1	35.1	39.6	58.6	54.4	52.7	58.6
L_{50}		27.3	29.6	31.2	31.2	45	42.5	42.6	45
L_{90}		24.1	26.2	27.8	27.8	37.7	37.7	39.1	39.1

Time		From 5:00 am to 5:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	36.5	30.3	31.5	36.5	58.2	54.7	51.6	58.2
L_{max}		58.8	38.4	41.4	58.8	83.7	79.1	73.3	83.7
L_{min}		21.4	22.3	23.3	23.3	34.4	30.5	31.3	34.4
L_{10}		34.1	32.8	34	34.1	58.9	56.8	53.9	58.9
L_{50}		27.8	29.6	30.8	30.8	48.4	45.8	44	48.4
L_{90}		24.6	26.3	27.7	27.7	39.2	37.4	35.9	39.2

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Fax: (84 - 4) 3791 1203

Time		From 7:00 am to 7:30 am on July 07th . 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	45.1	33.6	34.9	45.1	61.7	59.2	56	61.7
L_{max}		65.3	65.3	66.2	66.2	82.1	83.2	76.5	83.2
L_{min}		24.5	22.6	23.5	24.5	39.9	37	36.2	39.9
L_{10}		48.9	30.6	30.5	48.9	64.3	61	59	64.3
L_{50}		39.7	32	32.5	39.7	52.6	49.9	48.8	52.6
L_{90}		31	28.2	29	31	44.2	41.9	39.9	44.2

Allowable maximum value of the vibration acceleration for contruction activities

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 6 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 9 pm to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi, July 23rd, 2012

Department of Environmental Quality Analysis

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Deputy Director

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ANALYTICAL RESULT

No: **W1207.279**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Ground water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **02**
Preservation : **01 PE Bottle 0,5L Refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 Refrigerate.
01 PE Bottle 0,5L, preserved H_2SO_4 Refrigerate.
01 glass Bottle 1,0 L
Sampling place : **Mr. Cao Tho Vien – Gia Loc Town –Hai Duong Province (Package EX5-NN 6.4)**
Co-ordinate : **N 20° 51'34.1"- E 106° 18' 13.1"**
Sampling time : **July 10th, 2012**
Testing time : **From July 13th to July 23rd 2012**

No	Parameter	Unit	Test methods	Results		QCVN 09:2008/ BTNMT
				NN 6.4	MT	
1.	Temperature	°C	TCVN 4457-1988	28.8	28.0	-
2.	pH	-	TCVN 6492 – 1999	7.30	7.10	**5.5 – 8.5**
3.	COD	mgO_2/L	$KMnO_4$ Method	9.8	< 1.0	**4**
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	5.4	< 1.0	-
5.	TSS	mg/L	SMEWW 2540 D – 2005	10	< 3.0	-
6.	Total P	mg/L	TCVN 6202 – 2008	0.55	< 0.01	-
7.	*Total N*	mg/L	TCVN 5987-1995	29	< 0.10	-
8.	*Coliform*	MPN/ 100mL	TCVN 6187 – 1 –1996	7	ND	**3**
9.	*E. Coli*			ND	ND	**ND**

Note: QCVN 09:2008/BTNMT: National technical regulation on underground water quality.
ND: Non detect

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VILAS 366

ANALYTICAL RESULT

No: **A1207.48-51**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract: 74/VDIFI-VCNMT/2010)**

Number of sample : **4**

Sampling place : **Gia Loc Highschool, Gia Loc Town, Gia Loc District, Hai Duong Province (Package EX5-K6.4)**

Co-ordinate : **N 20° 51'34.1" - E 106° 18' 13.1"**

Testing time : **From 9 am on July 9th to 7 am on July 10th, 2012**

Name of sample	Parameter	Unit	K 6.4.1	K 6.4.2	K 6.4.3	K 6.4.4	QCVN 05:2009/BTNMT
	Time		9 am July 9th, 2012	15:00 pm July 9th, 2012	21:00 pm July 9th, 2012	3:00 am July 10th, 2012	
EX 5 – K 6.4	VOCs	µg/m³	145	130	110	105	-
	Dust		128	112	96	88	300
	SO_2		79	95	87	74	350
	NO_2		22	23	18	18	-
	CO		1175	1866	1219	1385	30000

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi, July 23rd, 2012

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ANALYTICAL RESULT

No: A1207. EX5

Client : Viet Nam Infrastructure Development and Finance Investment Joint Stock Company
Address : 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi
Kind of sample : Noise (Contract : 74/VDIFI-VCNMT/2010)
Number of sample : 12
Name of sample : EX5-K6.4
Sampling place : Gia Loc Highschool, Gia Loc Town, Gia Loc District, Hai Duong Province (Package EX5-K6.4)
Co-ordinate : N 20° 51'341"- E 106° 18'131"
Testing time : From 9am July 09th to 7 am July 10th, 2012

Name of sample		Noise	From 9am July 09th to 7 am July 10th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 5-K6.4	Leq	(dB)	62.0	60.3	59.3	62.7	60.9	59.8	59.5	50.6	57.1	55.8	54.9	66.5
	Lmax		80.6	77.4	76.8	86.1	82.8	74.2	74.5	77.5	74.1	72.1	79.9	89.1
	Lmin		50.8	47.3	44.4	53.7	50.5	47.8	50.8	45.3	52.9	47.2	42.7	56.3
	L50		58.8	56.5	53.2	59.5	58.5	58.4	56.4	47.4	55.9	53.7	46.6	61.6
	L90		55.3	51.4	48.0	57.0	55.1	54.0	53.6	46.4	55.4	51.4	44.4	59.3
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

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Time		From 7:00 am to 7:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{cq}	dB	40.3	31.2	32.6	40.3	50.8	47.6	44.5	50.8
L_{max}		53.9	42	39.1	53.9	63.5	63.6	57.8	63.6
L_{min}		26.9	22.3	22.3	26.9	37	35	34.4	37
L_{10}		45.1	33.5	35	45.1	37	35	34.4	37
L_{50}		34.3	30.4	32	34.3	54.2	49.9	46.1	54.2
L_{90}		30.8	27.3	28.7	30.8	45	41.8	40.2	45

Allowable maximum value of the vibration acceleration for contruction activities

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 18 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 21 to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi. July 23rd. 2012

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VILAS 366

ANALYTICAL RESULT

No: **A1207.52-55**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **4**

Sampling place : **13 Hamlet, Vinh Ninh small village, Thanh Cuong Commune, Thanh Ha District, Hai Duong Province (Package EX6-K7.4)**

Co-ordinate : **N 20° 49'18.1" - E 106° 28' 49.0"**

Testing time : **From 9 am on July 10th to 7 am on July 11th, 2012**

Name of sample	Parameter	Unit	K 7.4.1	K 7.4.2	K 7.4.3	K 7.4.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 10th, 2012	15:00 pm July 10th, 2012	21:00 pm July 10th, 2012	3:00 am July 11th, 2012	
EX 6 – K 7.4	VOCs	µg/m³	120	130	90	105	-
	Dust		105	95	86	90	300
	SO_2		86	93	78	72	350
	NO_2		33	18	20	18	-
	CO		1259	3223	984	969	30000

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi, July 23rd, 2012

Department of Environmental Quality Analysis

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VILAS 366

ANALYTICAL RESULT

No: A1207. EX 6

Client : Viet Nam Infrastructure Development and Finance Investment Joint Stock Company
Address : 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi
Kind of sample : Noise (Contract : 74/VDIFI-VCNMT/2010)
Number of sample : 12
Name of sample : EX6 –K7.4
Sampling place : Vinh Ninh small village, Thanh Cuong Commune, Thanh Ha District, Hai Duong Province (Package EX6-K7.4)
Co-ordinate : N 20° 49'18.1" - E 106° 28' 49.0"
Testing time : From 9am July 10th to 7 am July11th, 2012

Name of sample		Noise	From 9am July 10th to 7 am July11th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 6-K7.4	Leq	(dB)	58.2	59.5	51.8	55.6	60.6	57.8	54.0	48.3	48.6	42.0	55.1	57.8
	Lmax		78.1	84.1	71.6	77.6	86.8	778.3	85.2	68.9	70.9	52.4	70.3	81.5
	Lmin		42.6	42.7	40.8	46.2	41.5	40.0	45.2	44.6	43.1	40.6	38.8	40.2
	L50		53.3	52.7	47.7	52.9	52.0	51.2	49.1	46.9	45.0	41.8	47.4	49.1
	L90		48.0	47.8	44.3	49.1	46.7	45.2	47.5	45.6	44.1	41.2	42.1	43.6
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

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ANALYTICAL RESULT

No: **A1207.EX6**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **12**
Name of sample : **EX 6 – K7.4**
Testing place : **13 Hamlet, Vinh Ninh small village, Thanh Cuong Commune, Thanh Ha District, Hai Duong Province (Package EX6)**
Co-ordinate : **N 20° 51'34.1" - E 106° 18' 13.1"**
Testing time : **From 9:00 am on July10th to 7:30 am on July 11th, 2012**

Time		From 9:00 am to 9:30 am on July 10th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.9	35.1	34.8	39.9	66.9	63.9	62.3	66.9
L_{max}		64.2	57.2	42.4	64.2	89.4	87.6	84.3	89.4
L_{min}		25.1	25.6	25.9	25.9	39.6	36.1	35.6	39.6
L_{10}		40.3	36	37.3	40.3	60.3	58	58	60.3
L_{50}		32.40	32.8	34	34	50.2	47.4	47	50.2
L_{90}		29.2	29.8	30.9	30.9	44.3	41.1	40.1	44.3

Time		From 11:00 am to 11:30 am on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	38.3	33.6	34.8	38.3	52.4	50.8	52.4	52.4
L_{max}		52.7	41.8	42.3	52.7	71.1	76.5	75.5	76.5
L_{min}		24	24.4	25.5	25.5	37.4	33.3	34.4	37.4
L_{10}		41.3	36.1	37.5	41.3	54.9	30.1	53.8	54.9
L_{50}		34	32.7	34	34	48.9	43.9	47.7	48.9
L_{90}		28.5	29.5	30.7	30.7	42.9	38.2	40.2	42.9

Time		From 13:00 pm to 13:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	39.9	36.5	37.8	39.9	46.4	42.6	43.9	46.4
L_{max}		54.5	48.5	49.2	54.5	60.3	57.3	55.7	60.3
L_{min}		23.6	24.4	28.8	28.8	34.2	30.3	32	34.2
L_{10}		43.7	39.2	40.6	43.7	49.9	45.8	47.5	49.9
L_{50}		36.5	35.4	36.8	36.8	44.1	40.5	41.9	44.1
L_{90}		28.3	31.5	33.4	33.4	38.5	35.7	36.5	38.5

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Time		From 15:00 pm to 15:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	34.5	34.3	35.9	35.9	56.3	55.8	56	56.3
L_{max}		48.7	42.2	46.6	48.7	80.6	81.2	81.8	81.8
L_{min}		25.2	25.8	26.1	26.1	37.8	34.2	34.4	37.8
L_{10}		37.2	36.9	38.5	38.5	58.2	52.4	49	58.2
L_{50}		31.3	33.5	35	35	55.3	49.9	46.6	55.3
L_{90}		28.4	30.3	31.5	31.5	41.7	38.1	37.3	41.7

Time		From 17:00 pm to 17:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	33.1	33.7	34.8	34.8	46.2	45.6	43.9	46.2
L_{max}		47.5	41.5	42	47.5	61.7	64.1	61.6	64.1
L_{min}		24.2	24.9	25.8	25.8	36	34	32.8	36
L_{10}		34.9	36.3	37.3	37.3	49	47.6	46.3	49
L_{50}		30.8	33	34.1	34.1	43.8	41.8	40.6	43.8
L_{90}		28.2	29.7	30.7	30.7	39.8	37.3	36.6	39.8

Time		From 19:00 pm to 19:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.7	31.9	33.2	33.2	51.6	51.7	48.5	51.7
L_{max}		48	39.8	42.9	48	71.7	69.8	68.1	71.7
L_{min}		22.7	22	22.6	22.7	32.3	29.7	29.2	32.3
L_{10}		31.7	34.5	36	36	54.4	55.2	51.2	55.2
L_{50}		28.3	31.1	32.3	32.3	45	43.4	40.9	45
L_{90}		26	27.8	28.9	28.9	38	35.2	34.5	38

Time		From 21:00 pm to 21:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.7	31.4	32.6	32.7	51	47.5	48.4	51
L_{max}		52.60	39.1	40.4	52.6	72.2	68.6	68.4	72.2
L_{min}		21.7	22.2	24.2	24.2	37.9	33.3	34	37.9
L_{10}		34.2	34	35.1	35.1	49.9	46.5	48	49.9
L_{50}		28.2	30.6	31.8	31.8	40.7	37.2	37.3	40.7
L_{90}		25.2	27.6	28.7	28.7	39.3	35.2	35.3	39.3

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Time		From 23:00 pm to 23:30 pm on July 10th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.6	31.2	32.1	32.1	49.5	50.6	43.2	50.6
L_{max}		43.4	39.9	39.7	43.4	76.8	78.8	70	78.8
L_{min}		20.2	21.7	21.5	21.7	34.3	30.8	30.6	34.3
L_{10}		28	33.8	34.7	34.7	45.3	39	39.7	45.3
L_{50}		25.2	30.3	31.3	31.3	37.8	33.8	34	37.8
L_{90}		23	27	28	28	36	32.2	32	36

Time		From 1:00 am to 1:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	26.8	30.9	32.3	32.3	52.9	46.1	45.5	52.9
L_{max}		39.4	38.9	39.1	39.4	77.1	66.2	68.4	77.1
L_{min}		20.1	22	22.4	22.4	34.3	30.3	30.3	34.3
L_{10}		29.5	33.5	35	35	51.9	46.4	46.2	51.9
L_{50}		25.4	30.1	31.5	31.5	38.9	35.1	35.3	38.9
L_{90}		23	26.8	28	28	35.9	32.1	32	35.9

Time		From 3:00 am to 3:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.4	30.8	32.2	32.2	55.5	50.6	47.9	55.5
L_{max}		48.7	40.3	39.8	48.7	80	75.7	72.9	80
L_{min}		20.9	19.8	22.4	22.4	45.7	38	35.2	45.7
L_{10}		32.5	33.4	34.8	34.8	54.9	50.5	47.7	54.9
L_{50}		29	30	31.5	31.5	47.6	41.7	38.4	47.6
L_{90}		24.9	26.5	28	28	46.9	39.9	36.5	46.9

Time		From 5:00 am to 5:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	32.3	30.6	32	32.3	60.3	44.9	50.2	60.3
L_{max}		47.5	38.6	38.7	47.5	85.8	67.2	75.2	85.8
L_{min}		22.6	22.8	23.2	23.2	33.7	29.5	29.6	33.7
L_{10}		35.4	33.2	34.8	35.4	49.7	42.2	40.8	49.7
L_{50}		29.6	29.7	31.1	31.1	40.8	35.8	35.9	40.8
L_{90}		25.8	26.6	27.8	27.8	37.2	32.4	32.8	37.2

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Time		From 7:00 am to 7:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.6	31.3	32.6	32.6	44.9	36.8	36.1	44.9
L_{max}		44.2	39.9	40.5	44.2	65.8	56.3	52.1	65.8
L_{min}		21.7	21.2	23.9	23.9	34.2	28.3	29	34.2
L_{10}		33.6	33.8	35.2	35.2	48.1	38.7	38.8	48.1
L_{50}		27.4	30.4	31.8	31.8	40.4	34.1	34.4	40.4
L_{90}		24.6	27.1	28.5	28.5	36.6	31.3	31.6	36.6

Allowable maximum value of the vibration acceleration for contruction activities

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 18 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 21 to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi. July 23rd. 2012

Department of Environmental Quality Analysis

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Deputy Director

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ANALYTICAL RESULT

No: **W1207.280**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Ground water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **02**
Preservation : **01 PE Bottle 0,5L refrigerate.**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate.
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate.
01 glass Bottle 1,0 L
Sampling place : **Mr. Tran Van Doai- My Duc Commune –An Lao District, Hai Phong Province (Package EX8-NN 8.5)**
Co-ordinate : **N 20° 51'34.1"- E 106° 18' 13.1"**
Sampling time : **July 12th, 2012**
Testing time : **From July 13th to July 23rd 2012**

No	Parameter	Unit	Test methods	Results		QCVN 09:2008/ BTNMT
				NN 8.5	MT	
1.	Temperature	°C	TCVN 4457-1988	31.0	28.0	-
2.	pH	-	TCVN 6492 – 1999	7.78	7.10	**5.5 – 8.5**
3.	COD	mgO_2/L	$KMnO_4$ Method	10.3	< 1.0	4
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	5.9	< 1.0	-
5.	TSS	mg/L	SMEWW 2540 D – 2005	8	< 3.0	-
6.	Total P	mg/L	TCVN 6202 – 2008	0.27	< 0.01	-
7.	*Total N*	mg/L	TCVN 5987-1995	8.5	< 0.10	-
8.	*Coliform*	MPN/ 100mL	TCVN 6187 – 1 –1996	12	ND	**3**
9.	*E. Coli*			ND	ND	**ND**

Note: QCVN 09:2008/BTNMT: National technical regulation on underground water quality.
ND: Non detect

Hanoi. July 23rd. 2012

Department of Environmental Quality Analysis

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VILAS 366

ANALYTICAL RESULT

No: **W1207.281-283**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Surface water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **04 sample**
Preservation : **01 PE Bottle 0,5L refrigerate**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate
01 glass Bottle 1,0 L
Sampling place : **Da Do River, My Duc Commune, An Lao District, Hai Phong City (Package EX8-NM4.5)**
Co-ordinate : **N 20° 46'814"- E 105° 36'858"**
Sampling time : **From July 11th to July 12th , 2012**
Testing time : **From July 13th to July 23rd , 2012**

No	Parameter	Unit	Test methods	Results				QCVN 08:2008/BTNMT	
				NM 4.5.1	NM 4.5.2	NM 4.5.3	MT	Column B1	Column B2
1.	pH	-	TCVN 6492 – 1999	8.25	8.27	8.33	7.20	**5.5 -9**	**5.5 -9**
2.	DO	mg/L	TCVN 7325 – 2004	6.45	6.50	5.20	7.38	**≥4**	**≥2**
3.	COD	mgO_2/L	$KMnO_4$ Method	15.5	16.1	12.1	<1.0	**30**	**50**
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	7.7	8.3	6.5	<1.0	**15**	**25**
5.	TSS	mg/L	SMEWW 2540 D – 2005	10	15	10	<3.0	**50**	**100**
6.	Total P	mg/L	TCVN 6202 – 2008	0.59	0.11	0.13	0.01	-	-
7.	Total N	mg/L	TCVN 5987-1995	5	6	5.5	<0.10	-	-
8.	*Pesticides*	µg/L	TCVN 7876 : 2008	**< 0.5**	**< 0.5**	**< 0.5**	**<0.5**	-	-

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No	Parameter	Unit	Test methods	Results				QCVN 08:2008/BTNMT	
				NM 4.5.1	NM 4.5.2	NM 4.5.3	MT	Column B1	Column B2
9.	*Aldrine+Dieldrine*	µg/L	TCVN 7876 : 2008	< 0.05	< 0.05	< 0.05	<0.05	**0.008**	**0.01**
10.	*Endrine*			< 0.05	< 0.05	< 0.05	<0.05	**0.014**	**0.01**
11.	*BHC*			< 0.05	< 0.05	< 0.05	<0.05	**0.13**	**0.015**
12.	*DDT*			< 0.05	< 0.05	< 0.05	<0.05	**0.004**	**0.005**
13.	*DDD*			< 0.05	< 0.05	< 0.05	<0.05	-	-
14.	*Endosunfane (Thiodan)*			< 0.05	< 0.05	< 0.05	<0.05	**0.01**	**0.02**
15.	*Lindane*			< 0.05	< 0.05	< 0.05	<0.05	**0.38**	**0.4**
16.	*Chlordane*			< 0.05	< 0.05	< 0.05	<0.05	**0.02**	**0.03**
17.	*Heptachlor*			< 0.05	< 0.05	< 0.05	<0.05	**0.02**	**0.05**
18.	*Mineral oil*	mg/L	SMEWW 5520 B – 2005	0.12	0.12	0.10	< 0.05	**0.1**	**0.3**
19.	*Coliform*	MPN/100 mL	TCVN 6187-1:1996	380	490	460	ND	**7500**	**10000**

Note: QCVN 08:2008/BTNMT: National technical regulation on surface water quality
B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level
B2 – For the usage of water navigation and other purpose with less water quality
NM 4.5.1: Sampling at 14:00 pm on July 11th. 2012; NM 4.5.2: Sampling at 22:00 pm July11th. 2012; NM 4.5.3: Sampling at 6:00 am July12th. 2012;
MT: Blank sample; ND: non detect

Hanoi. April *23rd. 2012*

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ANALYTICAL RESULT

No: **A1207.56-59**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **4**

Sampling place : **Three - way crossroads Quan Re, My Duc Commune, An Lao District, Hai Phong City (Package EX 8-K10.5)**

Co-ordinate : **N 20° 46'12.8" - E 106° 36' 35.2"**

Testing time : **From 9 am on July 11th to 7 am on July 12th, 2012**

Name of sample	Parameter	Unit	K 10.5.1	K 10.5.2	K 10.5.3	K 10.5.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 11th, 2012	15:00 pm July 11th, 2012	21:00 pm July 11th, 2012	3:00 am July 12th, 2012	
EX 8 – K 10.5	VOCs	µg/m³	285	245	218	234	-
	Dust		706	522	328	372	300
	SO_2		73	89	84	70	350
	NO_2		25	27	18	17	-
	CO		1297	1462	1289	1709	30000

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality

Hanoi, July 23rd, 2012

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ANALYTICAL RESULT

No: A1207. EX 8

Client : **Viet Nam Infrastructure Development and Finance Investment Joint Stock Company**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Noise (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **12**
Name of sample : **EX8-K10.5**
Sampling place : **Three - way crossroads Quan Re, My Duc Commune, An Lao District, Hai Phong City (Package EX 10-K10.5)**
Co-ordinate : **N 20° 46'12.8" - E 106° 36' 35.2"**
Testing time : **From 9 am July 11th to 7 am July12th, 2012**

Name of sample		Noise	From 9 am July 11th to 7 am July12th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 8-K10.5	Leq	(dB)	62.6	65.3	53.5	67.0	62.0	62.6	60.6	57.8	57.6	53.7	48.7	62.8
	Lmax		82.2	92.6	72.6	87.5	84.9	88.7	77.2	72.6	63.5	57.2	70.6	85.1
	Lmin		48.9	46.2	41.2	55.1	47.2	49.2	50.4	49.3	50.5	52.5	41.8	51.2
	L50		54.0	57.8	50.3	62.1	56.9	57.5	58.6	57.2	57.5	53.6	45.1	59.9
	L90		51.2	50.9	46.3	59.8	52.4	53.4	52.7	56.2	56.7	53.1	43.0	56.5
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70							55				70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

Hanoi. July 23rd. 2012

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ANALYTICAL RESULT

No: **A1207.EX 8**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**

Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street Me Tri commune, Tu Liem, Ha Noi**

Kind of sample : **Vibration (Contract : 74/VDIFI-VCNMT/2010)**

Number of sample : **12**

Name of sample : **EX 8 – K10.5**

Testing place : **Three - way crossroads Quan Re, My Duc Commune, An Lao District, Hai Phong City (Package EX 8)**

Co-ordinate : **N 20° 46'12.8" - E 106° 36' 35.2"**

Testing time : **From 9:00 am on July 11th to 7:30 am on July 12th, 2012**

Time		From 9:00 am to 9:30 am on July 11th, 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	41.2	34.7	35.5	41.2	53.3	50.3	47.7	53.3
L_{max}		53.6	42.2	42.4	53.6	72.6	69.7	69.9	69.9
L_{min}		31.7	26.4	27.5	31.7	41.2	39.3	33.7	41.2
L_{10}		43.6	36.9	38.1	43.6	53.8	51.8	45.8	53.8
L_{50}		39.5	34	34.7	39.5	47.4	45.4	41	47.4
L_{90}		35.8	31.3	31.7	35.8	44.3	42.3	38.4	44.3

Time		From 11:00 am to 11:30 am on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	48.8	40.4	38.5	48.8	63.7	63.6	60.4	63.7
L_{max}		58.7	52.8	46.3	58.7	90	89.6	86.5	90
L_{min}		37.3	29	29.9	37.3	42.2	36.9	36.7	42.2
L_{10}		52	42.8	41	52	54.5	48.9	48.6	54.5
L_{50}		47	38.6	37.8	47	48.6	42.7	42.7	48.6
L_{90}		42.5	35.1	34.7	42.5	44.9	39.7	39.4	44.9

Time		From 13:00 pm to 13:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	37.4	33.3	34.1	37.4	50	46.6	44.9	50
L_{max}		49.8	41.5	41.7	49.8	74	71.4	69.3	74
L_{min}		26.6	24.1	24.3	26.6	38	33.8	33.8	38
L_{10}		40.9	35.7	36.8	40.9	48.7	44	43.5	48.7
L_{50}		33.7	32.7	33.3	33.7	44	39.5	39.5	44.0
L_{90}		30	29.9	29.9	30	41.2	36.4	36.7	41.2

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http://www.iet.ac.vn

Time		From 15:00 pm to 15:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	63.9	69.3	71.4	71.4	54	50.4	48	54
L_{max}		89.9	90	89.7	90	68.9	69.4	66.3	69.4
L_{min}		37.7	30.8	30	37.7	43.2	39.5	39	43.2
L_{10}		54.1	41.7	42.3	54.1	57.4	51.5	50	57.4
L_{50}		48.4	38.4	37.9	48.4	50.5	45.6	44.3	50.5
L_{90}		43	35.6	34.7	43	46.7	42.3	41.3	46.7

Time		From 17:00 pm to 17:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	44.7	36.5	36.1	44.7	54.6	49.1	49.1	54.6
L_{max}		53	43.2	43	53	76.7	68.6	67.6	76.7
L_{min}		33.8	27.7	27.3	33.8	41.2	36.5	35.4	41.2
L_{10}		47.9	39.1	38.5	47.9	57.3	51.1	50	57.3
L_{50}		43.7	35.7	35.5	43.7	48.8	43.5	42.6	48.8
L_{90}		38.3	32.2	32	38.3	43.8	38.6	38.4	43.8

Time		From 19:00 pm to 19:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	38.3	32.9	33.9	38.3	53.1	47.9	46.5	53.1
L_{max}		50.7	48.2	49.7	50.7	73.9	69.3	66.7	73.9
L_{min}		28.9	24.1	25.3	28.9	38.5	34.2	34.4	38.5
L_{10}		41.6	35.2	36.3	41.6	55.2	49.1	48.2	55.2
L_{50}		36.7	32.2	33	36.7	46.3	41.7	40.9	46.3
L_{90}		32.6	29.2	30	32.6	41.6	38.2	37.5	41.6

Time		From 21:00 pm to 21:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35.3	31.8	33.8	35.3	48.3	49.6	48.8	49.6
L_{max}		51.1	48.5	51.8	51.8	67.5	72.1	71.2	72.1
L_{min}		24	23.9	21.6	24	40.6	36	34.9	40.6
L_{10}		38.7	34.4	36.4	38.7	49.7	50.3	49.7	50.3
L_{50}		32.3	31.2	32.8	32.8	44.4	41.8	41.2	44.4
L_{90}		28.5	28.1	29.3	29.3	42.5	38	37.8	42.5

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Time		From 23:00 pm to 23:30 pm on July 11th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	36.1	32	33.6	36.1	42.3	38.7	39.2	42.3
L_{max}		50.9	38.5	43.1	50.9	54.7	60	57.5	60
L_{min}		23.3	22.4	23.2	23.3	38.9	33.4	34.4	38.9
L_{10}		39.5	34.7	36.2	39.5	43.3	39.4	40.3	43.3
L_{50}		29.8	31.3	32.7	32.7	41.8	36.3	37.7	41.8
L_{90}		26.2	27.8	29.2	29.2	40.9	35.1	36.4	40.9

Time		From 1:00 am to 1:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	28.7	32.2	35	35	43.1	42.6	40.9	43.1
L_{max}		59.4	58.6	59.5	59.5	59.7	67.9	64.9	67.9
L_{min}		23.1	21.7	23.5	23.5	38.4	32.4	33.1	38.4
L_{10}		30.2	34.2	36.1	36.1	43.7	38.7	38.6	43.7
L_{50}		26.7	30.8	32.4	32.4	42.3	35.9	35.8	42.3
L_{90}		25	27.5	28.8	28.8	41.1	34.2	34.5	41.1

Time		From 3:00 am to 3:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	30.6	30.7	32.5	32.5	43.1	39.7	40	43.1
L_{max}		43.7	37.9	40.7	43.7	57.8	63.3	61.5	63.3
L_{min}		22.9	22.1	22.2	22.9	39	36.3	36.8	39
L_{10}		33.3	33.2	35.1	35.1	44.3	38.9	39.9	44.3
L_{50}		28.6	30.1	31.6	31.6	43.1	37.9	38.8	43.1
L_{90}		26.4	26.9	28.1	28.1	40.2	37.1	38.1	40.2

Time		From 5:00 am to 5:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	35	33.3	36.3	36.3	45.1	42.7	43.3	45.1
L_{max}		72.6	72.6	73.8	73.8	66.7	68	69.8	69.8
L_{min}		22.1	23.1	24.2	24.2	35.2	31.7	31.2	35.2
L_{10}		38.1	34.5	35.7	38.1	46.2	40.4	40.9	43.1
L_{50}		31.5	31	32.3	32.3	43.1	36	36.1	38.6
L_{90}		26.6	27.7	28.8	28.8	38.60	34.1	33.5	38.6

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Time		From 7:00 am to 7:30 am on July 12th. 2012							
Parameter	Unit	Vibration Level (Lv)				Vibration Acceleration (Lva)			
		Z	Y	X	Average	Z	Y	X	Average
L_{eq}	dB	41.5	34.3	34.2	41.5	49.4	48.3	47.5	49.4
L_{max}		51.8	41.3	39.7	51.8	68.3	71.1	69.5	71.1
L_{min}		34.2	25.7	27	34.2	40.8	36.5	35.5	40.8
L_{10}		44.1	36.8	36.5	44.1	50.9	47.8	47.5	50.9
L_{50}		40.2	33.5	33.7	40.2	46.7	42.2	41.3	46.7
L_{90}		37.1	30.6	30.9	37.1	43.9	39.1	38.5	43.9

Allowable maximum value of the vibration acceleration for contruction activities

No	Area	Time in day	Vibration Acceleration (dB) Average (Leq)
1	Special area	From 6 am to 6 pm	75
		From 18 pm to 6 am	Background level
2	Normal area	From 6 am to 9 pm	75
		From 9 pm to 6 am	Background level

Note: QCVN 27:2008/ BTNMT: National Technical Regulation on Vibration

Hanoi. July 23rd. 2012

Department of Environmental Quality Analysis

Vu Van Tu

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VILAS 366

ANALYTICAL RESULT

No: **W1207.284-286**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI., JSC)**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Surface water (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **04**
Preservation : **01 PE Bottle 0,5L refrigerate**
01 PE Bottle 0,5L, preserved HNO_3 refrigerate
01 PE Bottle 0,5L, preserved H_2SO_4 refrigerate
01 glass Bottle 1,0 L
Sampling place : **Lach Tray River, Trang Cat commune, Hai An district, Hai Phong Province (Package EX10)**
Co-ordinate : **N 20° 57'730"- E 105° 57'265"**
Sampling time : **From July 12th to July 13th**
Testing time : **From July 13th to July 23rd**

No	Parameter	Unit	Test methods	Results				QCVN 08:2008/BTNMT	
				NM 5.6.1	NM 5.6.2	NM 5.6.3	MT	Column B1	Column B2
1.	pH	-	TCVN 6492 – 1999	8.05	7.88	7.98	7.20	**5.5 -9**	**5.5 -9**
2.	DO	mg/L	TCVN 7325 – 2004	5.30	5.00	4.53	7.38	**≥4**	**≥2**
3.	COD	mgO_2/L	$KMnO_4$ Method	17	16	18	<1.0	**30**	**50**
4.	*BOD_5*	mg/L	TCVN 6001 – 2008	8.7	8.2	9.3	<1.0	**15**	**25**
5.	TSS	mg/L	SMEWW 2540 D – 2005	18	15	16	<3.0	**50**	**100**
6.	Total P	mg/L	TCVN 6202 – 2008	0.19	2.65	0.14	0.01	-	-
7.	Total N	mg/L	TCVN 5987-1995	12.5	7	10.2	<0.10	-	-
8.	*Pesticides*	µg/L	TCVN 7876 : 2008	**< 0.5**	**< 0.5**	**< 0.5**	**<0.5**	-	-
9.	*Aldrine+Dieldrine*	µg/L	TCVN 7876 : 2008	< 0.05	< 0.05	< 0.05	<0.05	**0.008**	**0.01**
10.	*Endrine*			< 0.05	< 0.05	< 0.05	<0.05	**0.014**	**0.01**

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No	Parameter	Unit	Test methods	Results				QCVN 08:2008/BTNMT	
				NM 5.6.1	NM 5.6.2	NM 5.6.3	MT	Column B1	Column B2
11.	*BHC*	µg/L	TCVN 7876 : 2008	< 0.05	< 0.05	< 0.05	<0.05	**0.13**	**0.015**
12.	*DDT*			< 0.05	< 0.05	< 0.05	<0.05	**0.004**	**0.005**
13.	*DDD*			< 0.05	< 0.05	< 0.05	<0.05	**-**	**-**
14.	*Endosunfane (Thiodan)*			< 0.05	< 0.05	< 0.05	<0.05	**0.01**	**0.02**
15.	*Lindane*			< 0.05	< 0.05	< 0.05	<0.05	**0.38**	**0.4**
16.	*Chlordane*			< 0.05	< 0.05	< 0.05	<0.05	**0.02**	**0.03**
17.	*Heptachlor*			< 0.05	< 0.05	< 0.05	<0.05	**0.02**	**0.05**
18.	*Mineral oil*	mg/L	SMEWW 5520 B – 2005	0.11	0.11.	0.11	< 0.05	**0.1**	**0.3**
19.	*Coliform*	MPN/100 mL	TCVN 6187-1:1996	930	960	1100	ND	**7500**	**10000**

Note: QCVN 08:2008/BTNMT: National technical regulation on surface water quality
B1– For the usage of irrigation or other purpose having the similar quality requirement like B2 level
B2 – For the usage of water navigation and other purpose with less water quality
NM 5.6.1: Sampling at 15:00 pm on July 12th. 2012; NM 5.6.2: Sampling at 23:00 pm July13th. 2012; NM 5.6.3: Sampling at 7:00 am July13th. 2012;
MT: Blank sample; ND: non detect

Hanoi. July 23rd. 2012

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VILAS 366

ANALYTICAL RESULT

No: **A1207.60-63**

Client : **Vietnam Infrastructure Development and Finance Investment Joint Stock Company**
Address : **8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi**
Kind of sample : **Air (Contract : 74/VDIFI-VCNMT/2010)**
Number of sample : **04 sample**
Sampling place : **House of culture in Tan Vu Village, Trang Cat Commune, Hai An District, Hai Phong City (Package EX10- K12.6).**
Co-ordinate : **N 20° 48'059" - E 106° 44' 839"**
Testing time : **From 9 am July 12th to 7 am July 13th, 2012**

Name of sample	Parameter	Unit	K 12.6.1	K 12.6.2	K 12.6.3	K 12.6.4	QCVN 05:2009/BTNMT
	Time		9:00 am July 12th, 2012	15:00 pm July 12th, 2012	21:00 pm July 12th, 2012	3:00 am July 13th, 2012	
EX 10 – K 12.6	VOCs	µg/m³	115	105	82	78	-
	Dust		48	52	46	42	**300**
	SO_2		65	73	68	60	**350**
	NO_2		23	23	25	23	-
	CO		811	835	718	523	**30000**

Note: QCVN 05:2009/ BTNMT : National technical regulation on ambient air quality.

Hanoi, July 23rd, 2012

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ANALYTICAL RESULT

No: A1207. EX 10

Client : Viet Nam Infrastructure Development and Finance Investment Joint Stock Company
Address : 8th-9th-10th floors, LILAMA 10 Building, Le Van Luong street, Me Tri commune, Tu Liem, Ha Noi
Kind of sample : Noise (Contract : 74/VDIFI-VCNMT/2010)
Number of sample : 12
Name of sample : EX10-K12.6
Sampling place : Tan Vu Village, Trang Cat Commune, Hai An District, Hai Phong City (Package EX10- K12.6)
Co-ordinate : N 20° 48'059" - E 106° 44' 839"
Testing time : From 9 am July 12th to 7:00 am July 13th, 2012

Name of sample		Noise	From 9 am July 12th to7:00 am July 13th, 2012										
			9am	11am	13pm	15pm	17pm	19pm	21pm	23pm	01am	03am	05am	07am
EX 10-K12.6	Leq	(dB)	56.1	52.0	51.2	56.3	56.6	56.7	47.3	49.8	47.4	46.5	52.6	56.3
	Lmax		87.4	72.1	68.9	79.0	77.6	72.4	70.7	78.9	67.9	69.7	71.8	79.2
	Lmin		38.7	38.5	37.6	45.5	41.4	43.4	37.2	39.9	39.9	40.5	45.0	39.2
	L50		51.0	47.5	50.9	55.3	51.1	56.2	43.3	46.5	41.5	45.8	52.4	51.4
	L90		46.0	42.2	43.0	47.6	46.2	50.2	40.5	41.7	40.8	44.1	48.2	47.3
QCVN 26:2010/BTNMT (Nomarl area - Leq)			70						55					70

Note: QCVN 26:2010/BTNMT – National Technical Regulation on Noise

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