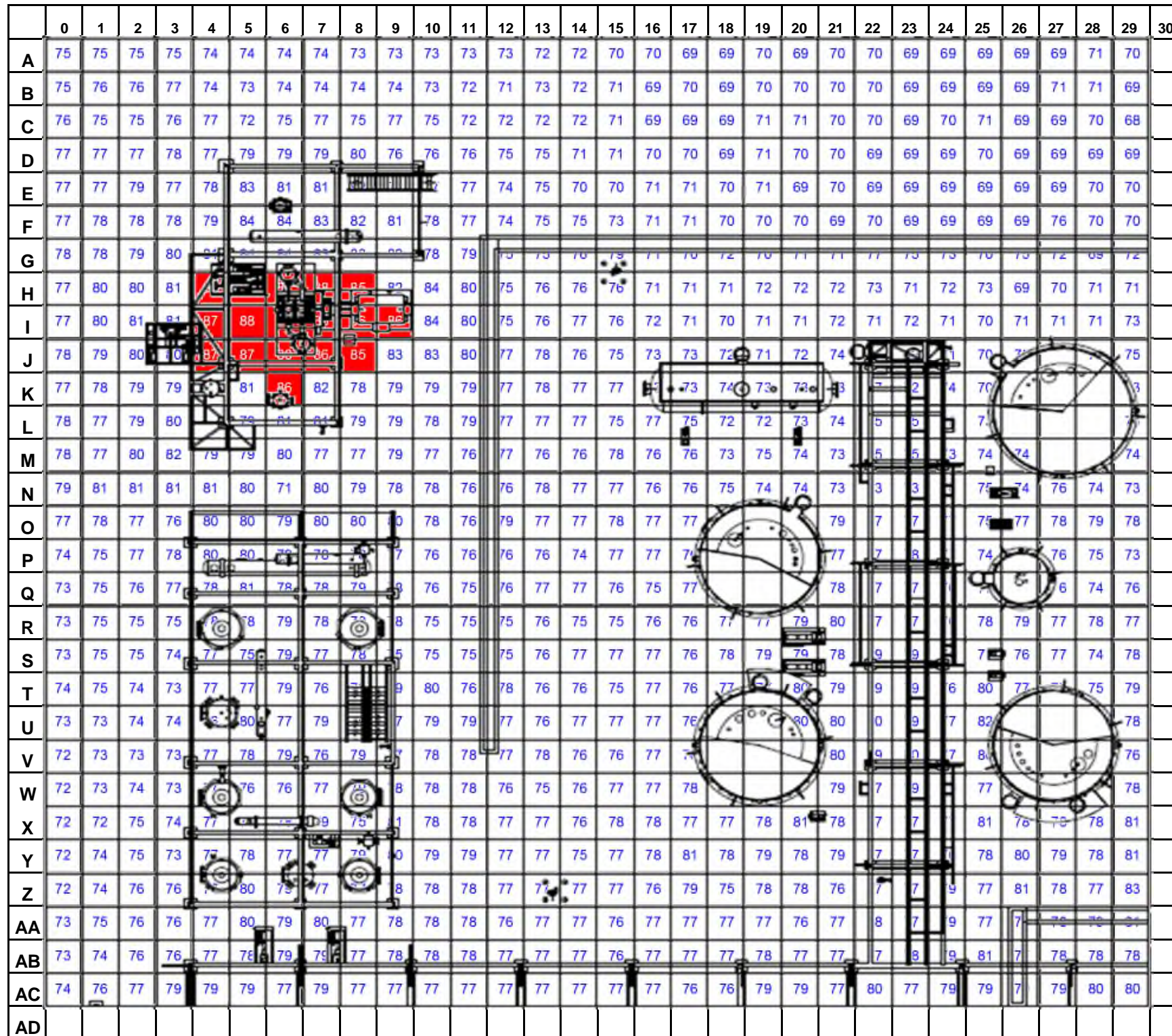


แผนผังแสดงระดับเสียง (Noise Contour Map)

ของบริษัท สยามเลทกซ์สังเคราะห์ จำกัด หน่วยผลิตเม็ดพลาสติกโพลีเอททีลีน ประเภท Specialty Elastomer ณ พื้นที่ Ethylene Compressor\_Ground floor



ข้อมูล ณ วันที่ 6 กุมภาพันธ์ 2560

## SE IND 002 SE Hearing Conservation Program

### Overview

#### Introduction

This program contains information about the management of Occupational Noise Exposure at this facility in, accordance with the Company's Hearing Conservation Standard.

#### Applicability

This facility needs a Hearing Conservation Program because:

- Data indicates that area noise levels may be at or above a level of 85 dBA.
- Data indicates that task noise levels may be at or above a level of 85 dBA.
- Exposure monitoring data indicates that worker noise exposures may be at or above a level of 85 dBA, as an 8hr Time Weighted Average (TWA), using a 3 dB Exchange Rate.

#### Hearing conservation policy

The DOW and SCG-DOW group are commits to comply hearing conservation regulatory and Dow requirement.

The hearing conservation program shall be established when the average area/task noise level meet or exceed 85 dBA.

#### Regulatory Compliance

This written program details the means by which this facility will meet the requirements of the Dow Chemical Company's Global EH&S Standard for Hearing Conservation as well as Thailand regulations (The updated Thai regulations is documented in Site IND 004 Hearing Conservation standard)

#### Responsible person

Roles and responsibility are identified as follows;

Person responsible for administering and reviewing the Facility Hearing conservation program is: EHS Delivery and Industrial Hygiene Specialist.

The other roles that not described in this program is aligned with the Global Hearing Conservation Standard and SITE IND 004 Hearing Conservation Standard

#### Area/task Monitoring

Where noise may be at or above 85 dBA, Area/Task noise levels are required to be measured every 3 years following EIA.

The date of the last area noise survey was February, 2017.

(See area noise monitoring at: [\\th014ndowd001\mtp\\_se\Approved\Responsible Care\Employee Health & Safety\Industrial Hygiene\Hearing Conservation Program\2017 Noise contour map of SE plant & SE WH.xlsx](\\th014ndowd001\mtp_se\Approved\Responsible Care\Employee Health & Safety\Industrial Hygiene\Hearing Conservation Program\2017 Noise contour map of SE plant & SE WH.xlsx))

The facility requires hearing protection in all areas where the noise level is at or above 85 dBA. The following areas have been evaluated for hearing protection need:

Area	Noise level (dBA)	Hearing protection required	Limiting exposure duration/Shift	Demarcation	
Ethylene compressor	Ground floor	88.0	Ear plugs foam or Ear muffs	N/A	
Ethylene compressor	1st Floor	92.0	Ear plugs foam or Ear muffs	N/A	
High pressure pump (P-231 A-B)	Ground floor	85.0	Ear plugs foam or Ear muffs	N/A	
STR-631	Ground floor	85.0	Ear plugs foam or Ear muffs	N/A	
STR-631	1st Floor	85.0	Ear plugs foam or Ear muffs	N/A	
MRU-533 (A,B)	Ground floor	96.0	Doubles protections	N/A	Posted signs and painted boundary lines
MRU 530	Ground floor	92.0	Doubles protections	N/A	Posted signs and painted boundary lines
Recycle ethylene compressor (C-731)	Ground floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
Recycle ethylene compressor (C-731)	1st Floor	86.0	Ear plugs foam or Ear muffs	N/A	N/A
Recycle ethylene compressor (C-731)	2nd Floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
Recycle ethylene compressor (C-731)	3rd Floor	85.0	Ear plugs foam or Ear muffs	N/A	N/A
Recycle ethylene compressor (C-731)	4th Floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
MRU 533 C	Ground floor	97.0	Doubles protections	N/A	Posted signs and painted boundary lines
Cooling Tower	1st Floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
Cooling Tower	2nd Floor	86.0	Ear plugs foam or Ear muffs	N/A	N/A
MCC Sub # 25	1st Floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-231 Reactor	Ground floor	85.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-231 Reactor	1st Floor	85.0	Ear plugs foam or Ear muffs	N/A	N/A
MCC Sub # 25	2nd Floor	89.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-231 Reactor	Ground floor	85.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-231 Reactor	1st Floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-531	1st Floor	89.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-231 Reactor	2nd Floor	92.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-531	2nd Floor	87.0	Ear plugs foam or Ear muffs	N/A	N/A
STR-531	3rd Floor	86.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	Ground floor	89.0	Ear plugs foam or Ear muffs	N/A	Posted signs
Finishing cutter	Ground floor	85.0	Ear plugs foam or Ear muffs	N/A	Posted signs
Fluid bed	1st Floor	94.0	Ear plugs foam or Ear muffs	Exposed <8 hrs. when used ear plugs foam	N/A
Finishing cutter	1st Floor	88.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	6th Floor	88.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	Ground floor	92.0	Ear plugs foam or Ear muffs	N/A	Posted signs
Fluid bed	1st Floor	91.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	2nd Floor	92.0	Ear plugs foam or Ear muffs	N/A	Posted signs
Fluid bed	3rd Floor	88.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	4th Floor	92.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	5th Floor	90.0	Ear plugs foam or Ear muffs	N/A	N/A
Fluid bed	6th Floor	92.0	Ear plugs foam or Ear muffs	N/A	Posted signs

**Personal Exposure Assessment**

Qualitative personal exposure assessment was performed in part of the Qualitative exposure assessment program (QEA) for Chemical Physical and Biological agents

**There are no operation tasks in SE at or above 85 dBA**

Refer to 2015 to 2016 Personal noise monitoring, the result is less than OEL limit (<85 dB(A)) for the following task.

- Field reading
- Forklift driving at D-536
- Plant audit and inspection

Thus, no required personal monitoring for above tasks in 2017-2018.

**Impacted Workers**

All workers at or above an 8 hour TWA of 85 dBA, using a 3 dB exchange rate, are enrolled in an audiometric testing program. Testing is conducted annually

All workers who are required to wear hearing protection, receive Hearing Conservation Training (CP0423) at least once (initial). All workers at or above an 8 hour TWA of 85 dBA, using a 3 dB exchange rate, receive this training every 3 years.

Personal noise monitoring is completed when jobs are identified as potentially being at or above an 8 hour TWA of 85 dBA, using a 3 dB exchange rate. Personal noise monitoring has been completed for the following job assignments:

EHS Job	TWA* [95%UCL of mean] (dBA)	TWA* [95%UCL of mean]	n**	Year(s) of Monitoring	Audiometric Testing	Hearing Conservation Training Required?	Attenuation Required	Method to validate
Field Operator	Forklift driving	83	4	2013-2014	Yes	Recurrent	None	NA
Field Operator	Field reading	83.4	3	2015	Yes	Recurrent	None	NA
Supervision / Admin	Plant audit and inspection	81.9	6	2012-2014	No	Initial Only	None	NA

\*TWA based on Dow IHG perimeters (Criterion = 85 dBA, No Threshold, Exchange Rate = 3 dB, Meter Response = slow, Projected Time = 8 hours)

\*\*n = the number of samples used to calculate the 95%UCL of the Mean for the TWA

**Noise Control**

Where worker noise exposures exceed the Dow IHG, the company's Exposure Assessment and Control standard requires the development of an action plan to reduce exposure, based on the application of the hierarchy of controls.

This facility's action plan to reduce noise exposure is:

- Not required (no exposures above the Dow IHG)
- Included in the MI plan
- Included in a Plant Specific Technology Plan (PSTP)
- Documented in the Event and Action Tool (EAT)
- Documented in a Layers of Protection Document
- Other: \_\_\_\_\_

**Approved Hearing Protection Devices**

Only approved hearing protection devices are authorized for use at this facility. The following table lists the approved hearing protecting devices:

Hearing Protection Devices	Manufacturer Noise Reduction Rating (NRR)
Plug (Foam ear plug) Brand: Moldex; Model: Softies™ 6600	33 dB(A)
Ear Muff (Old models) Brand: Bilsom ; Model: Thunder 2TH	25 dB(A)
<b>Ear Muff (New Model)</b> <b>Brand: BESTSAFE; Model: HVC-27</b>	<b>27 dB(A)</b>
Double protection - Foam ear plug + Ear Muff	NA

The Noise reduction rate that meet Dow requirement can be calculated as Dow calculation template as link [Hearing Protection Noise Reduction Calculation](#)

**Hazard communication and demarcation**

The following communication/demarcation procedures are in place:

- Signs posted at the boundaries of a unit
- Signs posted in the vicinity of the equipment
- Through Safe Work Permit
- Through Pre-Task analysis
- Painted blue line

**Training**

All personnel who are required to wear hearing protection devices have been trained on the appropriate use and maintenance of such devices according to Site Industrial Hygiene Training Program.

Personnel in job assignments listed above with average full-shift exposures of 85 dB(A) 8h TWA or 83.30 dB(A) 12h TWA or greater receive periodic training on exposure reduction. Training takes place upon assignment to the job classification and at least once every three years.

**Audiometry**

Annually, a list of the names of people required to participate in an audiometric testing program is provided to the Health Services organization. This is part of the annual health assessment scheduling review between Delivery and Health Services. See the table in the Impacted Workers section of this program for a list of EHS Jobs that require audiometric testing.

**Reporting**

Hearing loss cases are reported according to the criteria of Dow's

The following number of cases , which were related to this facility have been reported:

Year/time frame	Number of cases
2011 – To date	No hearing loss has been reported

**Revision History****Owner/Approver**  
การอนุมัติ

The last revision of this procedure was approved by:

ขั้นตอนการปฏิบัติงานนี้ได้รับการอนุมัติโดย

Jittima D./ SE Production Leader18-Oct-2018

(Name ชื่อ / Job Title ตำแหน่ง)

(Date วันที่)

**Management of Change (MOC)**MOC# SE2018100002Date Approved : 18-Oct-2018

(Delete this entire row (block) if not applicable in your organization)

**Supporting Document**

เอกสารที่เกี่ยวข้อง

Document number (เลขที่เอกสาร)	Document title (ชื่อเอกสาร)

**Revision history**

ประวัติการแก้ไขเอกสาร

The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.

ข้อมูลด้านล่างนี้เป็นการบันทึกประวัติการแก้ไขเอกสารอย่างน้อย 3 ครั้งล่าสุดที่เกิดขึ้น รวมถึงการแก้ไขที่เกิดขึ้นภายในระยะเวลา 6 เดือน

Date	Revised By	Changes
18-Oct-2018	Yuttapong T. / Yaowaluk	<ul style="list-style-type: none"> <li>Update HPC template to align with New hearing conservation streamlined standard by adding items as below <ul style="list-style-type: none"> <li>Applicability</li> <li>Impacted Workers</li> <li>Noise Control</li> </ul> </li> <li>Refer new local regulation to Site IND 004 Hearing Conservation standard</li> <li>Updated link for noise contour map and Hearing protection noise reduction calculation and update area monitoring results at fluid bed area (recheck in 2018)</li> <li>Add new ear muff model</li> <li>Update Hearing protection devices required for each area/tasks</li> <li>Review Training program and hearing loss case</li> </ul>
20-Apr-2017	Dollaporn K.	<ul style="list-style-type: none"> <li>Update noise contour map</li> <li>Update Area's/tasks where hearing protection is required</li> <li>Deleted the word in Personal Exposure</li> </ul>

		<p>Assessment as below.</p> <p><b>Supervision-Administration</b></p> <p><b>Maintenance</b></p> <p><del><b>MTC-Analyzer</b></del></p> <ul style="list-style-type: none"> <li>● <del>Calibration gas analyzer</del></li> <li>● <del>Calibration liquid analyzer</del></li> <li>● <del>Cast film analyzer</del></li> </ul> <p><b>MTC-Electrical</b></p> <ul style="list-style-type: none"> <li>● <del>PPM in Low voltage</del></li> <li>● <del>PPM motor(online)</del></li> </ul> <p><b>MTC-Instrument</b></p> <ul style="list-style-type: none"> <li>● <del>PPM pressure switch deluge system (Calibrate), Cooling, MRU, Sub station</del></li> <li>● <del>Repair control valve/PCV</del></li> <li>● <del>Repair Instrument transmitter</del></li> </ul> <p><b>MTC-Rotating</b></p> <ul style="list-style-type: none"> <li>● <del>Change Lubricant oil</del></li> <li>● <del>Pump/motor Test &amp; Inspection</del></li> <li>● <del>Repair Equipment (install, Remove, Repair)</del></li> </ul>
24-Aug-2015	Kris B.	Insert Area's with Noise Levels Above 85 dB(A)