FLOW TECH CHEMICALS PVT. LTD.
An ISO 9001 : 2008 & ISO 14001:2004 Certified
Manufacturer & Exporters of Chlorinated Paraffin & HCL
CIN NO. : U25202DL1996PTC079956

Date: - 15/11/2019

To,

Member Secretary
Expert Appraisal Committee Industry-2
Ministry of Environment Forest & Climate Change, GOI
Indira Paryavaran Bhawan, Jor Bagh Road,
New Delhi

Sub: - EDS Reply – Application for issuance of TORs for increase the capacity (expansion) of Chlorinated Paraffin Wax 19200 to 38,400 TPA and Hydrochloric Acid 38,400 to 76,800 TPA as by-product by M/s Flowtech Chemicals (P) Limited at PACL Campus Tehsil Nangal District Ropar, Punjab.

Reference: Regarding EDS

Respected Sir,

Application for issuance of EC of M/s Flowtech Chemicals (P) Limited for expansion within the existing unit with Proposal no. IA/PB/IND2/120631/2012 & File no. - J-11011/335/2012-IA (II) has been scrutinized, wherein some EDS are raised and asked to submit reply for same. Accordingly we are submitting herewith the reply as under:

S. No.	Observations	Reply
1.	Submit the copy of existing EC.	The copy of existing EC is attached as **Annexure-I.**
2.	Submit the valid CTO.	Valid CTO of air & water is attached as **Annexure-II.**
3.	Submit action taken report on non/partial complied point raised in certified compliance report dated 9/8/2019.	Action taken report for the same is attached as **Annexure-III.**

Yours Faithfully
For Flowtech Chemicals Pvt. Ltd.

Authorized Signatory

REGD. / CORPORATE OFFICE : 314, DP TOWER, NETAJI SUBHASH PLACE, PITAMPURA, DELHI-110034
TEL. : 011- 47049211-214, E-FAX : 91-11-43850818, FAX : 011 47049200
WEB. : www.flowtechgroup.in, E-MAIL : info@flowtechgroup.in

Annexure-I

EC LETTER

F. No. J-11011/336/2012-IA II (I)
Government of India
Ministry of Environment, Forests and Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road,
New Delhi -110003

E-mail : lk.bokolia@nic.in
Telefax : 011: 24695401
Dated: January 30th 2015

To,

Shri SS Dahiyal (Director)
M/s Flow Tech Chemicals Pvt. Ltd.
PACL Campus Naya Nangal,
District Ropar, Punjab.

E-mail: info@flowtechgroup.com

Subject: Chemical manufacturing Unit of M/o Flow Tech Chemicals Pvt. Ltd. at PACL Campus, Naya Nangal, Dist. Ropar, Punjab– Environmental Clearance reg.

Ref.: Your letter no. nil dated 5th September, 2013.

Sir,

Kindly refer your letter dated 5th September, 2013 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report and subsequent communications vide your letter dated 29th May, 2014, 9th September, 2014 and clarification obtained from Regional Office, MoEF&CC letter dated 14th November, 2014 regarding above mentioned project..

2.0 The Ministry of Environment, Forests and Climate Chnage has examined the application. It is noted that the proposal is for setting up of Chemical manufacturing Unit at PACL Campus, Naya Nangal, Dist. Ropar, Punjab by M/s Flow Tech Chemicals Pvt. Ltd. Proposed unit will be established within the campus of M/s Punjab Alkali Chemical Limited Campus and chlorine will be obtained through pipeline from M/s Punjab Alkali. M/s Flowtech has entered into a MoU with PACL for using chlorine gas to be supplied. River Satluj is flowing at a distance of 3.5 km. Inter-state boundary (Himachal Pradesh) is at a distance of 4 Km. It is reported that no notified national parks/wildlife sanctuaries are located within 10 Km distance. Nagal wet land from the project site which is approximately 5 Km. Nearest sanctuary "Takhani Rehampur" is located at a distance of 51 Km from the project site. Palsed protected forest, Thapal protected forest, Ramgarh Parla protected forest and RamgarhAwarla protected forest are located within 10 Km distance. Plot area is 12000 m^2. Cost of project is Rs. 47.50 Lakh. The following products will be manufactured:

S.N.	Products	Quantity (MTPA)
1	Chlorinated Paraffin Wax	19200 MTPA
2	Hydrochloric Acid (HCl) By-products	38400 MTPA

1

3.0 Graphite block absorber will be provided to process vents to control process emissions viz. HCl. Diluted HCl in graphite absorbers and excess emitted chlorine gas will be neutralized with caustic soda solution and formation of commercial grade hypochloride solution will be carried out in Punjab Alkali Chemical Ltd. Chlorine alarm system will be installed for early warning on action of chlorine control. No chlorine will be stored in the plant premises.Fresh water requirement from ground water source will be 90 m^3/day. Entire effluent from utilities blow down, domestic sewage etc will be treated in biological effluent treatment plant followed by Reverse Osmosis. Treated effluent will be recycled/reused for the cooling tower make up. No effluent shall be discharged outside the plant premises and 'Zero' effluent discharge concept will be followed. ETP sludge will be sent to treatment storage disposal facility for hazardous waste (TSDF). Spent oil will be sent to authorized recyclers/re-processor.

4.0 Public Hearing / Public Consultation meeting was conducted on 3rd April, 2013.

5.0 All Synthetic Organic Chemicals Units located outside the notified industrial area/estate are listed at S.N. 5(f) under category 'A' and appraised at Central level.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its meetings held during 8th – 9th January, 2013, 28th – 30th May, 2014 and 1st- 2nd December, **2014** respectively. Project Proponent and the EIA Consultant namely Vardan Environet, S.N. 158, List of Accredited Consultant Organizations (Alphabetically)/ Rev. 20/ May 05, 2014, have presented EIA / EMP report as per the TOR EAC has found the EIA / EMP Report and additional information to be satisfactory and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment, Forests and Climate Chnage hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

i) National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended time to time shall be followed by the unit.

ii) Two stage chilled water/caustic scrubber/ Graphite block absorber shall be provided to process vents to control HCl. The scrubbing media shall be sent to effluent treatment plant (ETP) for treatment. Efficiency of scrubber shall be monitored regularly and maintained properly. At no time, the emission levels shall go beyond the prescribed standards.

iii) Chlorine shall be supplied through pipeline. Chlorine alarm system shall be installed for early warning on action of chlorine control. No chlorine shall be stored in the plant premises. An adequate safety and Risk Assessment Plan for use of Chlorine shall be prepared based on which an On-site and Off-site Emergency Preparedness and Disaster Management Plan shall be prepared and implemented.

iv) In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Adequate dust suppression systems with water spray shall be provided for storage yard, junction houses. Raw material loading and

unloading area shall be covered and also provided with water spraying system. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored and records maintained. The emissions shall conform to the limits stipulated by the Punjab Pollution Control Board (PPCB).

v) Continuous monitoring system for HCl and chlorine shall be installed at all important places/areas. Effective measures shall be taken immediately, when monitoring results indicate above the permissible limits.

vi) The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.

vii) The company shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the Punjab Pollution Control Board (PPCB). The levels of PM_{10}, SO_2, NO_x, CO, HCl, Cl_2, VOCs in ambient air shall be monitored and displayed at a convenient location near the main gate of the company and at important public places.

viii) Total fresh water requirement from ground water source shall not exceed 90 m^3/day and prior permission shall be obtained from the CGWA/SGWA.

ix) Entire effluent from utilities blow down, domestic sewage etc shall be treated in biological effluent treatment plant followed by Reverse Osmosis. Treated effluent shall be recycled/reused for the cooling tower make up. Water quality of treated effluent shall meet the norms prescribed by CPCB/SPCB. Water quality of treated effluent from ETP shall be monitored regularly.

x) No effluent from the plant shall be discharged outside the factory premises and 'Zero' effluent discharge concept shall be followed.

xi) Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.

xii) The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes and prior permission from PPCB shall be obtained for disposal of solid / hazardous waste in the TSDF. Measures shall be taken for firefighting facilities in case of emergency.

xiii) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All Transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.

xiv) Alarm for chlorine leakage if any in the liquid chlorine storage area is provided along with automatic start of the scrubbing system.

xv) Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees should be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

xvi) As proposed, green belt over 33 % of the total project area shall be developed within plant premises with at least 10 meter wide green belt on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.

xvii) All the commitment made regarding issues raised during the Public Hearing/ consultation meeting held on 3rd April, 2013 shall be satisfactorily implemented.

xviii) At least 5 % of the total cost of the project shall be earmarked towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bhopal. Implementation of such program shall be ensured accordingly in a time bound manner.

xix) Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.

B. GENERAL CONDITIONS:

i. The project authorities shall strictly adhere to the stipulations made by the Punjab Pollution Control Board.

ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.

iii. The locations of ambient air quality monitoring stations shall be decided in consultation with the Punjab Pollution Control Board (PPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.

iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).

v. The Company shall harvest rainwater from the roof-tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.

vi. The Company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling

and Trans-boundary Movement) Rules, 2008 and its amendment time to time and prior permission from PPCB shall be obtained for disposal of solid / hazardous waste including boiler ash.

vii. During transfer of materials, spillages shall be avoided and garland drains be constructed to avoid mixing of accidental spillages with domestic wastewater and storm water drains.

viii. Usage of Personnel Protection Equipments by all employees/ workers shall be ensured.

ix. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.

x. The company shall also comply with all the environmental protection measures and safeguards proposed in the project report submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.

xi. The company shall undertake CSR activities and all relevant measures for improving the socio-economic conditions of the surrounding area.

xii. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.

xiii. A separate Environmental Management Cell equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.

xiv. As proposed, the company shall earmark sufficient funds toward capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.

xv. A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal.

xvi. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the Punjab Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.

xvii. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the Punjab Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Chandigarh Regional Offices of MoEF by e-mail.

xviii. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

xix. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9.0 The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008and the Public Liability Insurance Act, 1991 along with their amendments and rules.

(Lalit Bokolia)
Additional Director

Copy to :-

1. The Principal Secretary, Environment Department, Government of Punjab, Chandigarh.
2. The Chief Conservator of Forests, Regional Office (Northern Zone), Bay No.24-25, Sector 31-A, DakshimMarg, Chandigarh-160030.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Punjab Pollution Control Board, VatavaranBhawan, Nabha Road, Patiala, 147001, Punjab.
5. Monitoring Cell, Ministry of Environment, Forests and Climate Change ParyavaranBhavan, CGO Complex, New Delhi.
6. Guard File/Monitoring File/Record File/ Notice Board.

(Lalit Bokolia)
Additional Director

Annexure-II

CONSENT TO OPERATE

PUNJAB POLLUTION CONTROL BOARD

Zonal Office-I, Vatavaran Bhawan, Nabha Road, Patiala.

Website:- www.ppcb.gov.in

Office Dispatch No : **Registered/Speed Post** **Date:**

Industry Registration ID: *RISRPN2370525* **Application No :** *7572177*

To,

S.S. Bahiya
PACL Campus, Tehsil Anandpur Sahib, Nangal, District Ropnagar
Nagal,Ropnagar-140001

Subject: **Renewal of consent to operate granted under Air (Prevention & Control of Pollution) Act, 1981.**

1. Particulars of Consent to Operate under Air Act, 1981 granted to the industry

Consent to Operate Certificate No.	*CTOA/Renewal/RPN/2018/7572177*
Date of issue :	*11/07/2018*
Date of expiry :	*31/03/2021*
Certificate Type :	*Renewal*
Previous CTO No. & Validity :	*CTOA/Renewal/RPN/2017/5426412 From:05/07/2017 To:30/06/2018*

2. Particulars of the Industry

Name & Designation of the Applicant	*S.S. Dahiya, (Managing Director)*
Address of Industrial premises	*Flowtech chemicals (p) limited, Pacl campus, tehsil nangal, ropnagar, Anandpur sahib,Ropnagar-140001*
Capital Investment of the Industry	*388.79 Lakhs*
Category of Industry	*Red*
Type of Industry	*Processes involving chlorinated hydrocarbons and manufacturing of chlorinated paraffin wax.*
Scale of the Industry	*Small*
Office District	*Ropnagar*

"This is computer generated document from OCMMS by PPCB"

Flowtech chemicals (p) limited,Pacl campus, tehsil nangal, ropnagar, Anandpur sahib,Ropnagar,140001

Page1

ADDITIONAL CONDITONS

1. The industry shall make proper arrangements for reusing the cooling water in the process again. The industry shall provide permanent pipeline to reuse the cooling water in process.
2. The industry shall maintain the proper housekeeping within the industry and shall maintain the green area and plantation area so as to properly utilize the treated domestic effluent in the plantation.
3. The industry shall not discharge any treated or untreated trade effluent in the green area/plantation area without prior written permission of the Board.

All other contents shall remain unchanged.This letter be appended with the original consent granted to the industry vide no. R16RPNCTOA3598600 dated 03/03/2016, valid upto 30/06/2017 and its subsequent extensions issued vide Board letter no. 4277 dated 07/07/2017 under the Air (Prevention & Control of Pollution) Act, 1981.

11/07/2018

(Om Parkash)
Environmental Engineer
For & on behalf
of
(Punjab Pollution Control Board)

Endst. No.: **Dated:**

A copy of the above is forwarded to the following for information and necessary action please:

Environmental Engineer, Punjab Pollution Control Board, Regional Office, SAS Nagar. He is requested to ensure the compliance of the consent conditions.

11/07/2018

(Om Parkash)
Environmental Engineer
For & on behalf
of
(Punjab Pollution Control Board)

PUNJAB POLLUTION CONTROL BOARD

Zonal Office-I, Vatavaran Bhawan, Nabha Road, Patiala.

Website:- www.ppcb.gov.in

Office Dispatch No : **Registered/Speed Post** **Date:**

Industry Registration ID: *R15RPN2378525* **Application No :** *7572238*

To,

Mr SS Dahiya
PACL Campus, Tehsil Anandpur Sahib, Nangal, District Rupnagar
Nagal,Rupnagar-140001

Subject: **Renewal of consent to operate granted under Water (Prevention & Control of Pollution) Act, 1974.**

1. Particulars of Consent to Operate under Water Act, 1974 granted to the industry

Consent to Operate Certificate No.	*CTOW/Renewal/RPN/2018/7572238*
Date of issue :	*27/06/2018*
Date of expiry :	*31/01/2021*
Certificate Type :	*Renewal*
Previous CTO No. & Validity :	*CTOW/Renewal/RPN/2017/5549436 From:05/07/2017 To:30/06/2018*

2. Particulars of the Industry

Name & Designation of the Applicant	*S.S. Dahiya, (Managing Director)*
Address of Industrial premises	*Flextech chemicals (p) limited. Pacl campus, tehsil nangal, rupnagar, Anandpur sahib,Rupnagar-140001*
Capital Investment of the Industry	*388.79 lakhs*
Category of Industry	*Red*
Type of Industry	*Processes involving chlorinated hydrocarbons and manufacturing of chlorinated paraffin wax.*
Scale of the Industry	*Small*
Office District	*Rupnagar*

ADDITIONAL CONDITIONS

1. The industry shall make proper arrangements for reusing the cooling water in the process again. The industry shall provide permanent pipeline to reuse the cooling water in process.
2. The industry shall maintain the proper housekeeping within the industry and shall maintain the green area and plantation area so as to properly utilize the treated domestic effluent in the plantation.
3. The industry shall not discharge any treated or untreated trade effluent in the green area/plantation area without prior written permission of the Board.

All other coments shall remain unchanged.This letter be appended with the original consent granted to the industry vide no. R16RPNCTOW3598917 dated 03/03/2016, valid upto 30/06/2017
and its subsequent extensions issued vide Board letter no. 4275 dated 07/07/2017 under the Water (Prevention & Control of Pollution) Act, 1974.

27/07/2018

(Om Parkash)
Environmental Engineer
For & on behalf
of
(Punjab Pollution Control Board)

Endst. No.: [illegible] **Dated:**

A copy of the above is forwarded to the following for information and necessary action please:

Environmental Engineer, Punjab Pollution Control Board, Regional Office, SAS Nagar. He is requested to ensure the compliance of the consent conditions.

27/07/2018

(Om Parkash)
Environmental Engineer
For & on behalf
of
(Punjab Pollution Control Board)

Annexure-III

ACTION TAKEN REPORT

The following point submission may please be considered against the status of compliance of EC:-

A. SPECIFIC CONDITIONS			
S.No.	**Condition**	**Compliance**	**Action taken/proposed**
(iii)	Chlorine shall be supplied through pipeline. Chlorine alarm system shall be installed for early warning on action of chlorine control. No chlorine shall be stored in the plant premises. An adequate safety and risk assessment plan for use of chlorine shall be prepared based on which an on-site and off-site emergency preparedness and disaster management plan shall be prepared and implemented.	Chlorine is being supplied through pipeline and chlorine alarm system has been installed for early warning. However, safety and risk assessment plan has not been prepared by the unit	Safety & risk assessment plan has been prepared. Copy enclosed as **Annexure- VIII.**
(v)	Continuous monitoring system for HCL and chlorine shall be installed at all and chlorine shall be installed at all important places/area. Effective measures shall be taken immediately, when monitoring results indicate above the permissible limits.	Continuous monitoring system for HCl fumes has not been provided.	At present, HCl & chlorine emissions are being monitored manually. However, continuous monitoring system shall be in place within 3 months.
(vii)	The company shall upload the status of compliance of the	The monitoring data and compliance report of the	Monitoring data has already been uploaded on website. However, the monitored values of specified parameters are displayed on the

	stipulated environmental clearance conditions, including results of monitored data on the website and shall update the same periodically. IT shall simultaneously be sent to the Regional office of MoEF, the respective zonal office of CPCB and the Punjab Pollution Control board (PPCB). The levels of PM_{10}, SO_2, NO_X, CO, HCl, Cl_2, VOCs in ambient air shall be monitored and displayed at a convenient location near the main gate of the company and at important public places.	conditions of environment clearance was not available in the website during the visit. The levels of PM_{10}, SO_2, NOX, CO, HCl, Cl_2, VOCs in ambient air are monitored but it was not being displayed at a convenient location near the main gate.	board near the entry gate. Photographs for the same are attached as **Annexure-IV.**
xiv	Alarm for chlorine leakage if any in the liquid chlorine storage area is provided along with automatic start of the scrubbing system.	Alarm for chlorine leakage has been provided automatic starting of scrubbing system is yet to be linked with it.	Chlorine is being supplied by the industry through pipeline and charged directly to the reactor. There is no storage of chlorine.
xvi	As proposed, green belt over 33% of the total project area shall be developed within plant premises with at least 10 meter wide green belt on all sides along the periphery of the project area, in downwind direction and along road sides etc. selection of plant species shall be as per CPCB guidelines in consultation with the DFO	Very few trees were observed within the unit premises. It was appraised that due to space constrain plantation is limited. There is still scope of further plantation along the periphery of the unit. The representative agreed to do plantation in upcoming monsoon season.	Plantation along the periphery is underway and will be maintained. Photographs of existing green belt is provided in **Annexure-V**
xviii	At least 5% of the total cost of the project shall be	During the visit, it was apprised that funds for Enterprise	The company is continuously undertaking social activities as per the details given in point xi of General Conditions.

	earmarked towards the Enterprise Social responsibility based on Public hearing issues and item wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional office at Chandigarh. Implementation of such programme shall be ensured accordingly in a time bound manner.	Social Responsibility have been earmarked. However, no time bound action plan has been prepared and submitted to this office.	
B. GENERAL CONDITIONS			
v	The company shall harvest rainwater from roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	Rain water harvesting structures have not been provided.	Being a chemical manufacturing unit, rain water harvesting is not permissible by Punjab Pollution Control Board.
xi	The company shall undertake CSR activities and all relevant measures for improving the socio-economic conditions of the surrounding area.	The unit representative appraised that they are spending regularly for the activities to be undertaken under the Corporate Social Responsibility program however, no documents supporting his claim was submitted.	CSR activities are regularly being undertaken. Details are attached as **Annexure- VI**
xii	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment	The unit representative appraised that they are spending regularly for the activities to be undertaken under the Corporate Social Responsibility	Being covered under CER, the following eco-development measures shall be completed within one year. Details are attached as **Annexure- VII**

		program however, no documents supporting his claim was submitted.	
xvi	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental clearance including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional office of CPCB and the Punjab Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status reports shall be posted on the website of the company.	Six monthly reports on the status of compliance of the stipulated environmental clearance including results of monitored data are being submitted to concerning departments however, it was not available on the website.	The details are already uploaded on the website of the company (http://www.flowtechgroup.in/index.php).

Annexure- IV

PHOTOGRAPHS

Annexure- V

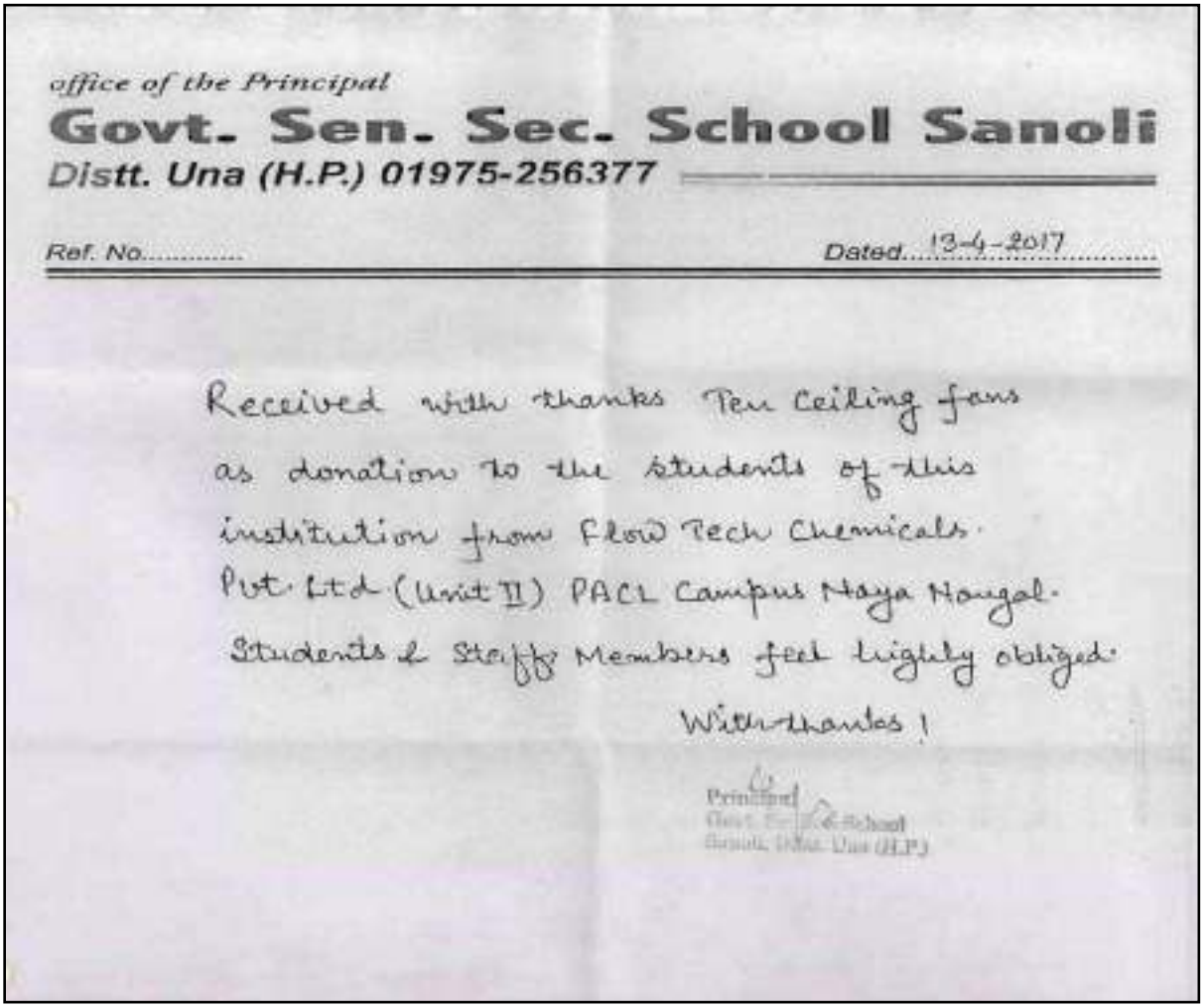
EXISTING GREEN BELT

Annexure- VI

CSR ACTIVITIES

S.No.	Name of Beneficiary	Activity	Amount (INR)	Year
1.	Sen. Sec. Schools of Villages- Sanoli, Binewal & Malukpur	25 no. of ceiling fans	0.25 lacs	2017
2.	Sen. Sec. Schools of Villages- Sanoli, & Binewal	02 nos. of computers	0.30 lacs	2018
3.	Plantation in the surroundings of factory	Plantation of 800 trees	2.0 lacs	2015-2018

SCHOOL CERTIFICATE
FOR THE DONATION OF CEILING FANS



office of the Principal
Govt. Sen. Sec. School Sanoli
Distt. Una (H.P.) 01975-256377

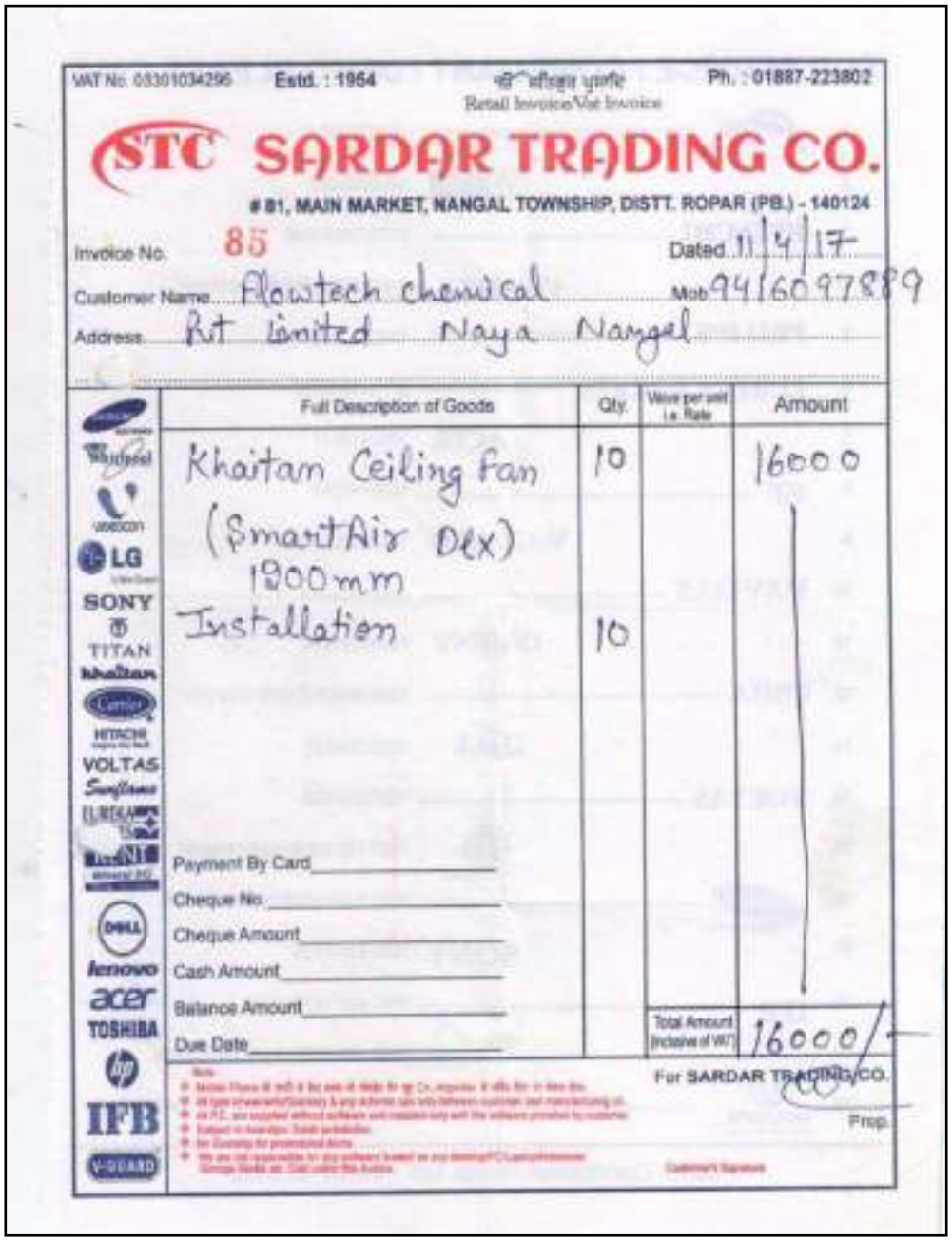
Ref. No..... Dated...13-4-2017.....

Received with thanks Ten Ceiling fans as donation to the Students of this institution from Flow Tech Chemicals Pvt. Ltd (Unit II) PACL Campus Naya Nangal. Students & Staff Members feel highly obliged.

With thanks !

Principal
Govt. Sen. Sec. School
Sanoli, Distt. Una (H.P.)

PURCHASE RECEIPT OF CEILING FANS



VAT No. 03301034296 Estd. : 1964 Ph. : 01887-223802

Retail Invoice/Vat Invoice

STC SARDAR TRADING CO.

81, MAIN MARKET, NANGAL TOWNSHIP, DISTT. ROPAR (PB.) - 140124

Invoice No. 85 Dated 11/4/17

Customer Name Flowtech chemical Mob 9416097889

Address Rit limited Naya Nangal

Full Description of Goods	Qty.	Value per unit i.e. Rate	Amount
Khaitan Ceiling Fan (SmartAir Dex) 1900mm	10		16000
Installation	10		
Total Amount (Inclusive of VAT)			16000/-

Payment By Card

Cheque No.

Cheque Amount

Cash Amount

Balance Amount

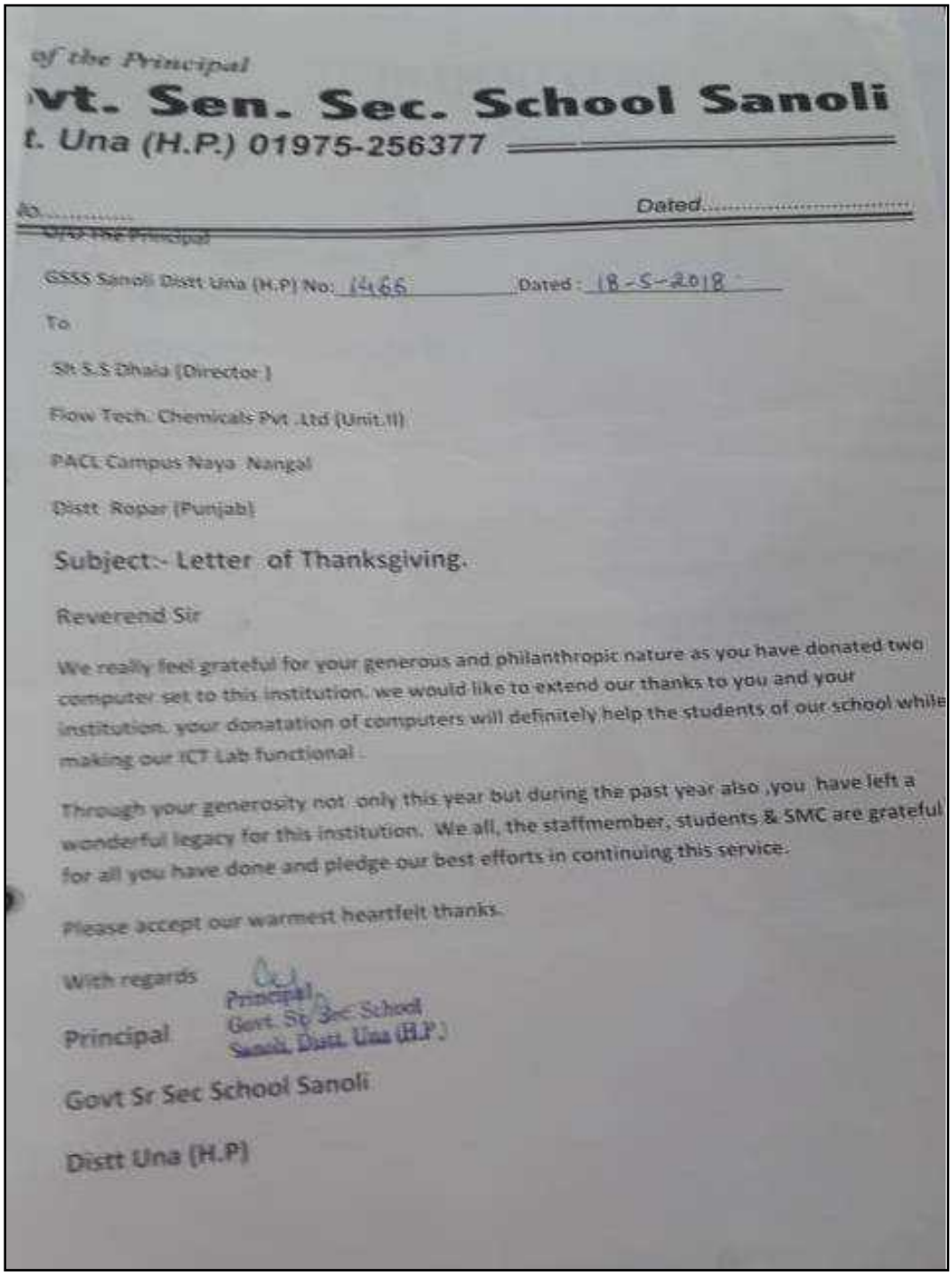
Due Date

For SARDAR TRADING CO.

Prop.

CSR PHOTOGRAPHS- CEILING FANS

SCHOOL CERTIFICATE
FOR THE DONATION OF COMPUTERS



of the Principal

vt. Sen. Sec. School Sanoli

t. Una (H.P.) 01975-256377

No..... Dated.....

~~O/O The Principal~~

GSSS Sanoli Distt Una (H.P) No: 1466 Dated : 18-5-2018

To

Sh S.S Dhaia (Director)

Flow Tech. Chemicals Pvt .Ltd (Unit.II)

PACL Campus Naya Nangal

Distt Ropar (Punjab)

Subject:- Letter of Thanksgiving.

Reverend Sir

We really feel grateful for your generous and philanthropic nature as you have donated two computer set to this institution. we would like to extend our thanks to you and your institution. your donatation of computers will definitely help the students of our school while making our ICT Lab functional .

Through your generosity not only this year but during the past year also ,you have left a wonderful legacy for this institution. We all, the staffmember, students & SMC are grateful for all you have done and pledge our best efforts in continuing this service.

Please accept our warmest heartfelt thanks.

With regards

Principal

Principal
Govt. Sr Sec School
Sanoli, Distt. Una (H.P.)

Govt Sr Sec School Sanoli

Distt Una (H.P)

PURCHASE RECEIPT OF COMPUTERS

Original Copy

(This copy does not entitle the holder to claim Input Tax Credit)

TAX INVOICE

GANPATI COMPUTERS

Since 2005

CABIN SHOP NO 19, MAIN MARKET
NANGAL TOWNSHIP, DISTT RUPNAGAR
PAN : APCPK3698H
GSTIN : 03APCPK3698H1ZU
Tel. : 01887-223818 email : gcnangal@yahoo.co.in ashwani.patra@gmail.com ashwani@ganpaticomputers.co.in
PUNJAB - 140124

Invoice No. : 0053 Date of Invoice : 24-04-2018	Place of Supply : Punjab (03) Reverse Charge : N
Billed to : FLOWTECH CHEMICALS NAYA NANGAL DISTT. RUPNAGAR State : Punjab (03) GSTIN / UIN :	***Shipped to :*** FLOWTECH CHEMICALS NAYA NANGAL DISTT. RUPNAGAR State : Punjab (03) GSTIN / UIN :

S.N.	Description of Goods	HSN/SAC Code	Qty.	Unit	Price	CGST Rate	CGST Amount	SGST Rate	SGST Amount	Amount(₹)
1.	INTEL MOTHERBOARD KIT WITH 2GB RA	8473	2.00	Pcs.	3,983.05	9.00 %	716.95	9.00 %	716.95	9,400.00
2.	HDD 320GB SATA *320 GB SATA HARD DISK*	8471	2.00	Pcs.	1,271.19	9.00 %	228.81	9.00 %	228.81	3,000.00
3.	ATX CABINET ZEBRONICS	8473	2.00	Pcs.	1,271.19	9.00 %	228.81	9.00 %	228.81	3,000.00
4.	KEYBOARD MOUSE KIT ZEBRONICS	8471	2.00	Pcs.	338.98	9.00 %	61.02	9.00 %	61.02	800.00
5.	LED 16" ZEBRONICS	8528	2.00	Pcs.	3,559.32	9.00 %	640.68	9.00 %	640.68	8,400.00
6.	UPS ZEBRONICS	8504	2.00	Pcs.	1,610.17	9.00 %	289.83	9.00 %	289.83	3,800.00
			Grand Total		**12.00 Pcs.**					₹ **28,400.00**

HSN Code	Tax Rate	Taxable Amt.	CGST	SGST	Total Tax
8471	18%	3,220.34	289.83	289.83	579.66
8473	18%	10,508.48	945.76	945.76	1,891.52
8504	18%	3,220.34	289.83	289.83	579.66
8528	18%	7,118.64	640.68	640.68	1,281.36
Totals		**24,067.80**	**2,166.10**	**2,166.10**	**4,332.20**

Rupees Twenty Eight Thousand Four Hundred Only

Bank Details : ICICI BANK LTD. A/C NO.: 152305500101 IFSC : ICIC0001523
RAILWAY ROAD NANGAL DISTT. RUPNAGAR (PUNJAB)

Terms & Conditions
E.& O.E.
1. Goods once sold will not be taken back.
2. All warranties express, implied are manufactures Warranties,provided by their respective service centers only
3. All disputes subj. to 'Anandpur Sahib' Jurisdiction only.
4. Payment within 30 days after that interest charged @ 15%.

Receiver's Signature :

for GANPATI COMPUTERS

Authorised Signatory

Annexure- VII

CER ACTIVITIES

S.No.	Activity	Village	Environmental Concern	Amount (INR)	Timeline
1.	Providing standalone solar lights 25 nos. @ Rs. 12000 each	Sanoli	Resource conservation & energy saving	3.0 lakh	One year
2.	Providing cross drains & repair of streets	Binewal	Health & sanitation	5.0	One year

ON-SITE EMERGENCY PLAN OF

FLOW TECH CHEMICALS

(PVT) LIMITED

PACL COMPLEX

NAYA NANGAL

DISTT ROPAR (PUNJAB

CONTENTS

A1 Scope of Onsite Emergency plan

Onsite Emergency plan

The present document outlines a comprehensive plan to control & mitigate the major accident such as fire, explosion and toxic gas release etc along with the detail information regarding activities of the plant, hazards facilities, training awareness system available within the plant as well as outside the plant.
The obligation of occupier of MAH installation is to prepare an Onsite Emergency Plan as stipulated in Rule13 of the MSHIC Rule 1989 & 41B of the Factory Act 1948 and rule made there under

Methodology
Following methodology was adopted for preparing the onsite emergency Plan

- Existing organization system was studied
- Layout plan was studied
- Existing hazards at work place studied
- Risk assessment at the site analyzed

DEFINITIONS
Emergency

1. Emergency is defined as a situation consequent to an untoward event i.e. fire, major solvent spillage or a major injury/accident requiring mobilization of all possible resources to tackle it.

Onsite Emergency

2. An Accident which takes place in an industry and its effect are confined to the factory premises involving only the people working in the factory.

Offsite emergency

3. If an accident takes place in an industry and its effects are felt outside the factory premises, the situation thus generated is called on off site emergency.

Major Accident

4. An occurrence including any particular major emission, fire and explosion involving one or more hazardous chemicals resulting from uncontrolled development from an industrial activity or due to natural events leading to serous effects both immediate or delayed, inside or outside the installation likely to cause substantial loss of life or property including adverse effect to the environment.

A2. IDENTIFICATION OF FACTORY

PLANT LOCATION AND SURROUNDING

Plant Location: M/S Flow Tech Chemicals (P) Limited is proposing to manufacturer of chlorinated paraffin plasticizer a small scale unit which is situated in the PACL complex Naya Nangal Distt Roper (Punjab)

The company is applying to get the chlorine license from Chief Controller of Explosive to keep & use filled chlorine Cylinders. The unit has proposed to have 8 person (trained supervisor & helpers) The manpower shall be trained in PACL complex to meet any emergency and the plant shall runs in all the three shifts.

The company shall manufacture chlorinated paraffin and its capacity shall be to produce app 64M ton /day and byproduct Hydrochloric Acid shall be 128MT/day
Although proper care shall be taken and arrangement shall have been made to use the liquid chlorine gas and handling of hydrochloric acid.
Still keeping in view that from some of the chemicals /gas /liquid may leaked out resulting in the disaster which may causes various injuries, loss of life and extensive damage of property. Therefore keeping in view these hazards in mind it is found necessary to prepare emergency plan to fight such unforeseen emergency situation with all resources under our command. Detail of the factory given below.

1. Full Name of Factory	:	Flow Tech Chemicals (P) Limited PACL complex Naya Nangal Distt-Ropar (Punjab)
Phone No FAX	:	91-11-47065960,47049211-14, 9316430999 91-11-43850818
2.Full name & address of correspondence the occupier	:	Mr S.S Dahiya 314 ,PP Tower Netaji Subhash Place Pitampura , New Delihi -34
3. Location of the factory	:	Situated in the PACL Campus Naya Nangal Distt Ropar (Pb)
4.Name of the Factory	:	Mr.

Manager		
5. Neighborhood details	:	Northern Side: PNFC Eastern Side: NFL Western Side: Main Road Southern side: Agriculture Land
6. Total Population with in 3 Kms Radius	:	App 1000
7. Shift Timings	:	General shift : 9.30 AM to 6. PM A Shift : 6AM to 2 PM B Shift : 2 PM to 10 PM C Shift : 10 PM to 6 AM
8.Nature Of Process Continuous ,non-continuous	:	Continuous process s
9. Detail of workers in each shift shall be	:	A Shift : 3 B Shift : 2 C Shift : 2
10. Previous history of any disaster which might have occurred in the factory		No accident occurred so far in the factory as it is newly established company
Area of land		3 Acre

A.4 OBJECTIVES OF THE EMERGENCY PLAN:-

The present Onsite Emergency Plan has been prepared keeping in view of the major accident scenario.

1. To define and assess emergencies, including risk and environmental impact assessment.
2. To control and contain incidents that may arise due to failure of chlorine gas, bursting of the chlorine gas pipelines, and explosion in the boiler.
3. To safeguard employees and people in vicinity.
4. To minimize damage to property or/and the environment.
5. To inform employees, the general public and the authority about the hazards/risks assessed safeguards provided residual risk if any and the role to be played by them in the event of emergency.
6. To be ready for mutual aid if need is raised to help neighboring unit. .
7. To inform authorities and mutual aid centers to come for help.
8. To effect rescue and treatment of casualties and to count injured.
9. To identify and list any dead and to inform and help the relatives.

10. To secure the safe rehabilitation of affected areas and to restore normalcy.
11. To provide authoritative information to the news & media.

Procedure plan for handling of emergency

1. Main objective of this procedure is to give basic guidelines to combat emergency situation .The key personnel handling a situation should assess the situation on the spot and take quick decision to start counter measures to overcome the situation

2. The plan identifies all services /departments required to combat emergency and also identifies the key persons to discharge their duties.

3. Manager will act as Chief Emergency Coordinator and will retain the overall responsibility

B-1 Manufacturing Process:

The production of chlorinated paraffin plasticizer is an exothermic reaction of heavy normal paraffin /normal paraffin /light paraffin with liquid chlorine with development of

HCl fumes which is converted to commercial grade HCl by passing gas & water/dil HCl . Acid in graphitr sbsorbers and excess emitted chlorine gas is neutralized in cautic Soda solution in tower making commercial grade Sodium Hypochlorite . The process of neutralization and formation shall be carried out In PACL.

Heavy normal paraffin /normal paraffin /LNP are saturated alkenes of hydrocarbon chain(C-9-18) are commercially available from

1. Reliance Industries Limited Patalganga Maharashtra

2. IPCL Vadodra Gujrat

3. Tamilnadu Petro Products Madras

4. Imported

HNP (Heavy Norma Paraffin) shall be brought in tankers and unloaded in MS storage tanks (01) , with the pump Sn02 it shall be pumped to electric heater melter SN 03 where it is heated HNP/NP and this mass shall be transferred to lead lined reactor SN04 (having jacket with cooling water arrangement) , where reaction between HNP and chlorine (chlorine shall be available from PACL through pipeline) took place as follows .

$CnHn + 2Cl_2$ ----------Cn Hn Cl_2 +2HCl + heat

Chlorination of LR-2030 results Chlorinated paraffin which is used for reprocess application.

1MT of HNP +3.5 MT of chlorine +3.6 H2O= 2.5MT CP +5.4 HCl +0.8 Waste .0.08 Mt of 3.50MT of CL2 is app 2% of waste and which is source of pollution and is to be neutralized with caustic soda at Hypochlorite plant of PACL

2NaOH + H2O =- HCl +Heat

HCl fumes thus produced goes to separator buffer SN06 where vapor entrained NP/HNP is condensed and drained out for further use. Then HCl gas goes to graphite absorber which is absorbed in circulating water or dil HCl

HCl + H_2O ---- HCl + Heat

HCl produced will be 1.5 to 1.8 time of CP depending upon gravity of CP produced.

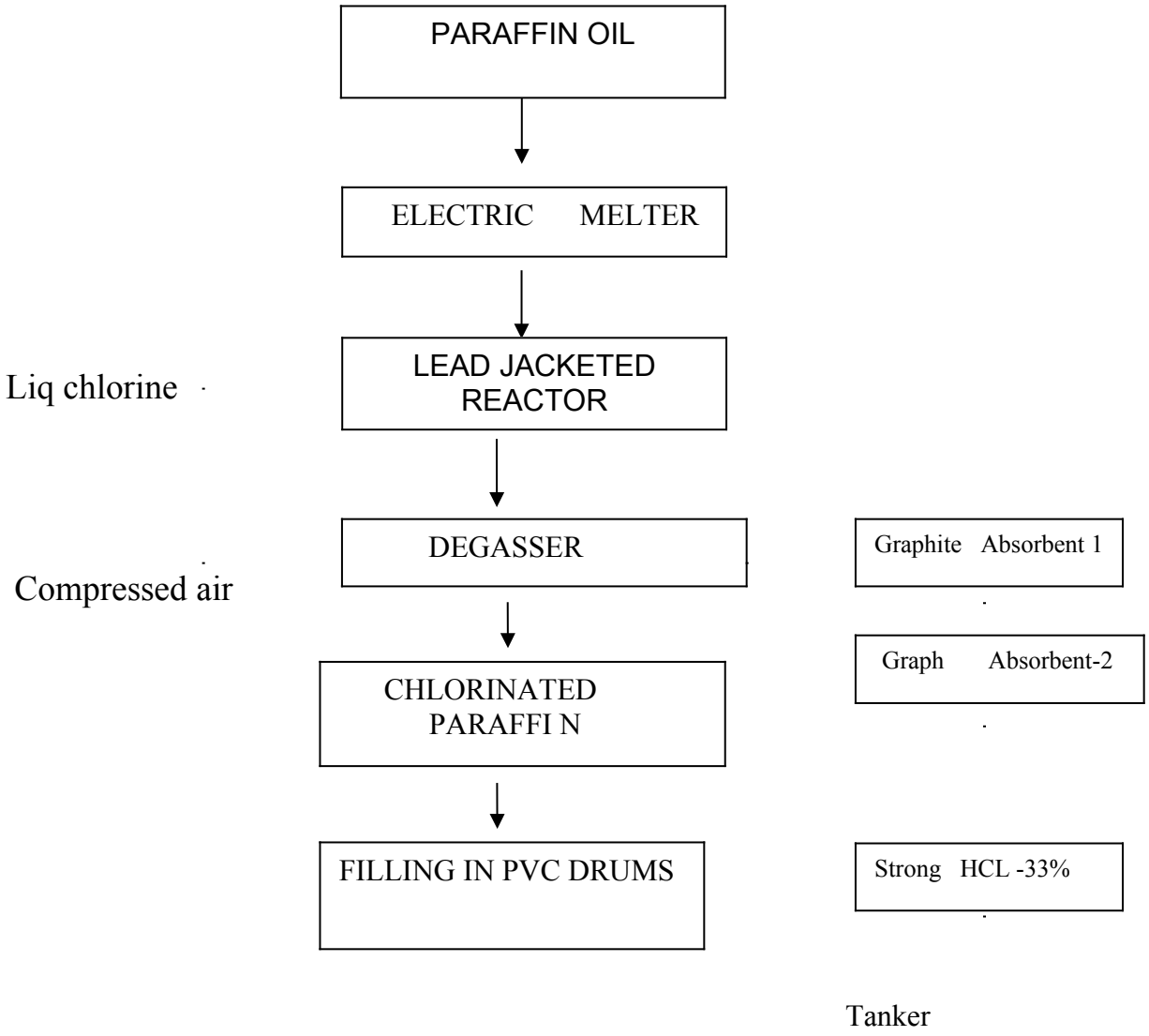
Graphite absorbers//blocks are cooled with cooling tower SN07 where water in the shell side and the hot water is sent to cooling tower Sn 07 for cooling purposes and is reused .HCl is again circulated to the circulating tank through pump. Unabsorbed gases from absorber are sent to bubbling tank for further absorption, if any unabsorbed gas is remaining it is sucked from bubbling tank for neutralization by PACL through their connected pipe line. The dilute HCl of bubbling tank is used as fresh refill of circulating tank .HCl is stored in HCl storage tank & Con HCl is sent for sale purposes.

The reaction in the reactor SN04 is exothermic and temperature is controlled by circulating the cold water from the cooling tower SN07 in the reactor. The process

temperature ranges from 60-120deg C and is gradually increased by controlling chlorine feed rate. Chlorinated Paraffin thus produced is cleaned initially in the reactor & subsequently in degasser .Air is continuously passed in the degassers. Chlorinated paraffin thus processed of 1.14 gravity is cleaned by compressed air initially in reactor SN14 and subsequently in degasser SN15

Epoxy plasticizer at the rate of 40Kg per ton of CP is added to neutralization of remaining HCl fumes. CP thus cleaned is packed in 250 kgs PVC cans//carboys.

PROCESS FLOW CHART FOR CHLORINATED PARAFFIN



B-2 : Plant activities :

Raw materials normal paraffin Oil comes through tanker and unloaded in the main raw material store go down and all safety precautions are taken during handling of chlorine and manufacturing of chlorinated paraffin. Finish product is analyzed & packed properly in carboys/ drums and send through truck as per the requirement of the market.

B-3 -PROBABLE RUNAWAY REACTION

There is no runaway reaction in the plant as most of the reaction is carried out on low temperature and normal pressure but exothermic reaction is involved in the process which is controlled by using cooling water in the reactor and all safety arrangement has been made to control the leakage of chlorine in the atmosphere.

B-4: The Company does not have pressure vessel but has the following utility& machinery equipments.

Detail of Utility & Machinery at plant

Name of Vessels	Capacity	Working pressure	Safety arrangement
Compressors	15HP	5kgs/cm^2	Safety valve & other safety arrangement existing
Diesel Generator	100 KVA	---	Safe arrangements existing
Gear Pump	5HP		Proper guarding is there
Cooling Tower	5TR	-	Proper safety arrangements are there.
HCl transferring pump	2HP	Normal	Proper safety arrangement is there

B-5 Vacuum Vessels: There is no vacuum vessel in the factory

B-6. Environmental Impact & control

Having regarded to the fact that factory is putting best effort to control & mitigate the chlorine leakage from all possible source & made fool proof arrangement so that it does not have any environment impact on the working people as well as nearby area. . Moreover company has grown more trees and developed green area around the boundary site to reduce the environment impact to the minimum and well within the permissible limit.
Efforts are being made to generate minimum effluent in the plant.

B-7 **: R&D Data :** No R& D data is available in the factory

C. PRELIMINARY HAZARDS ANALYSIS (PHA)
INFORMATIO ON THE PRELIMINARY HAZARD ANALYSIS & LIKELY DANGER/RISK

FIRE , EXPLOSION & TOXIC RISKS :-

A hazard is an inherent physical or chemical characteristic that has the potential for causing harm hazard evolution study is an organized effort to identify and analysis the significance of hazardous situation associated with a process or activity. Especially such studies are used to pin point weakness in the design and operation of facilities that could lead to accident chemical release s, fire and explosion. They help to provide organization with information to help them improve the safety and manage the risk of their operation. There exist various techniques, which can be used to identify hazards. Preliminary hazards analysis is such type of techniques.

Thus the major hazards can be eliminated, minimized or controlled from the beginning. This technique can also be used on an existing process facility when a broad based analysis of hazards and potential incident situations are desired.

Possible hazards are

1. Leakage from the chlorine Tonner/ pipeline
2. Failure of chlorine cylinder valve
3. Leakage during process
4. Large leakage of HCl from Tank

RISK ANALYSIS CRITERIA: Maximum credible loss scenarios (MCLS) considered for study

The risk due to industry as $1* 10^{-6}$ per Calendar year i.e. more than one person per (out of 10^6) persons are not expected to die within a year due to an industrial accidents.

Whenever chlorine is handed and acid is formed, potential risk is involved and serious emergency may suddenly & unexpectedly may come. Supervisors & workers have been trained to handle the emergency within shortest time and at site all safety arrangements are there.

Liquid chlorine release from tonner

Assumption :

1. The wind is either 1.5 m/s,3 m/s or 5 m/2.
2. The ambient temperature is 30º C
3 Domino effect has not been considered..
4. Surface roughness parameter is 0.7

The chlorine gas and tonners are stored and handled for manufacturing of chlorinated paraffin in the plant In this scenario it is assumed that the tonners leaks in liquid phase. In such a case first action would be to rotate the chlorine tonner to ensure that the leaks is in gas phases liquid phase chlorine leaks is 260 times more dangerous than in gaseous phase of same leaks volume. In this case overhead crane is required to lift and roll the tonner to change leak from liquid to vapour phase. The total response time for attending

the emergency is estimated to be 17 minute (2 minute to bring over head crane from one corner to another, 5 minute to wear breathing apparatus by crane operator and two person attending l the, 5 minute for isolating and rolling the tonner and 5 minute for fitting chlorine emergency kit on the valve.)
It should be noted that placing FRP hood would need further time. In the mean time, significant amount, about 400 Kg chlorine could leak into atmosphere due to tonner valve failure.

DISPERSION DISTANCE

SR. No	Concentration of chlorine in ppm	**Distance In meters**		
		F-weather	D-Weather	D-weather
		1.5 m/s	3.0 m/s	5 m/s
1	25(10 sec avg.)	1874	323	261
2	25(1800 sec avg.)	1625	287	233

Comments

1.A distance of 271 m in the downwind direction would be affected by chlorine cloud of concentration 20 ppm considering wind speed as 3 m/s , D stability.
2.An distance of 79 m down wind would be affected by a chlorine cloud of 1000 ppm concentration .1000 ppm is the fatal dose for chlorine vapour inhalation .
3. This scenario is likely to have off site implications and plan also.
4. Therefore it is recommended that leakage of the chlorine from tonner as well as pipeline should be stopped within shortest possible time to avoid the big mishap.

CONCLUSION: Hence it is very important to maintain safety arrangement up-to-date & keeps emergency preparedness all time keeping in view the risk associated, therefore company has all safety system in order to meet any emergency.

INVENTORY OF THE CHEMICAL TO BE HANDLED IN THE PLANT

SNO	Name of the material	Holding Capacity / day	Properties	Safety precaution during handling
1	Heavy normal paraffin OIL	App 26Ton in tanks	Flammable	Use gloves & goggles
2	Chlorine Gas	85ton/day	Corrosive	use gas mask, goggles

3	Chlorinated Paraffin	64Ton	Corrosive	Use hand gloves & goggle
4	Epoxy plastisizer	0.25MT	Corrosive	Use goggle, gloves
5	HCl	128Ton	Corrosive	Use goggle, gloves

C-1 : SAFETY PRECAUTION & PREVENTIVE MEASURE

a)The hazards to health & safety at various location in the plant & the precautions & preventive measure shall be adopted at various stages are described in the following Table:

S.NO	PLANT AREA/LOCATION	HAZARD	EXISTING SAFETY & PREVENTIVE MEASURE
1	Plant area	Physical , Chemical & electrical hazards exists	Shoe, Rubber hand gloves, & provision of fire extinguisher.
2	Workshop	Electrical hand tool & material handling hazard	Safety helmet, Rubber gloves to counter the mechanical & electrical hazard
3	Generator room/Sub station	Electrical & mechanical hazard while using electrical & pragmatic hand tools	Ear muff/Ear plug provided to generator operator to control noise risk.

(b)Shut down system: The Company shall have safe shutdown procedure, if any emergency like fire / toxic release is there, the in charge shall, immediately shut down the plant keeping in view the emergency.

(**c) Housekeeping**: - Since the plant shall carries lot of drums, involvement of many persons working, movement related operation (road truck, tanker, trolley, crane etc,) with its associated people, movement & storage of a large number of drums, bags etc. . It is important to maintain the housekeeping. Even a small lapse in housekeeping can result in a major accident when dealing with such materials.
(d) **Communication facilities**: Company shall be having communication facility with senior official & other related persons.

S.NO	FACILITY	REMARKS
1	Telephone facility	Exists
2	Hand operated siren	1 No.
3	Mobile Phone at the gate & other persons	Have been given to all senior persons.

D-2 Description of other Safety Features

(a) COLOUR CODE DETAIL: **-** All the lines provided for transferring the liquid and gases in the plant shall have been properly colour coded.

(b**) PERMIT TO WORK SYSTEM:-** In this category all the general routine job like operating of pipe line, repairing of small job shall have proper work permit.

1. HOT WORK PERMIT SYSTEM:- The hot work permit shall be approved by an authorized person , prior to carrying out the hot jobs involving cutting welding & grinding etc. that is likely to be generated heat of sparks are carried out only after thorough check and under close supervision. All persons are made aware of the risk involved through the permit system.

2. **WORK PERMIT FOR CONFINED SPACE AREA:**
This work permit shall be strictly issued by the production in charge after verification all the jobs like cleaning of reactor tank, detachment of ingress lines, provision of O_2 inside the reactor, tank while carrying out job and persons will remain outside for the help of inside person.

(c) SAFETY AUDIT/ INSPECTION:

Safety inspection is well-recognized tool to improve the effectiveness of safety program & loss prevention measure by carrying out system & critical appraisal of potential safety hazards involving personal, plants & equipments.

1. Fire prevention/Protective system.
2. Preparedness & training needs for the working people
3. Operating manual/ Safety operating Procedure.

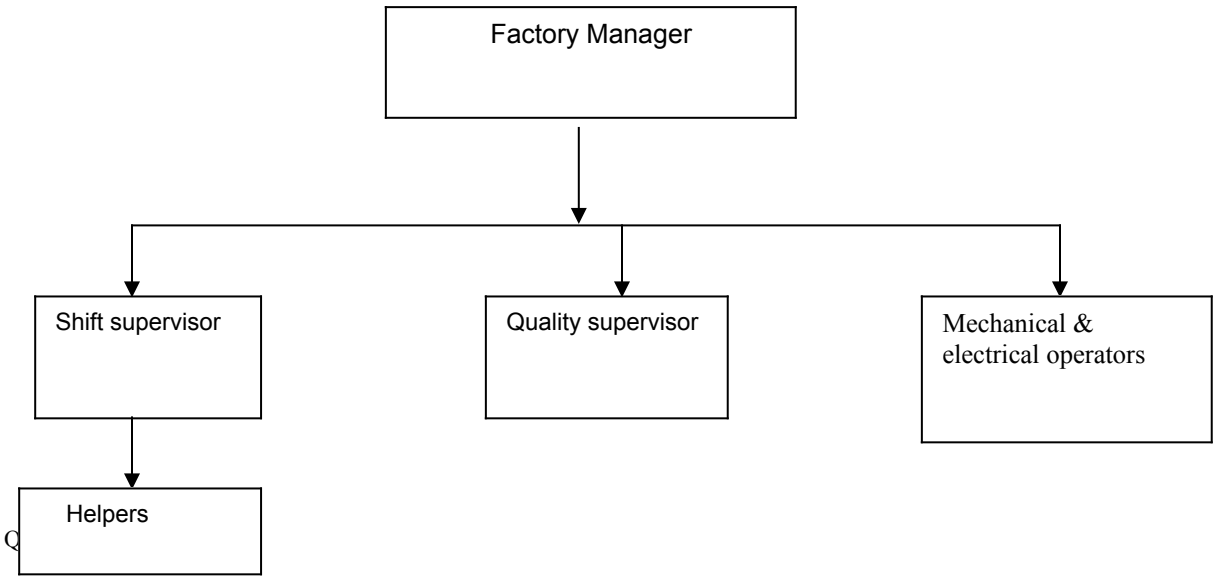
(d) PREVENTIVE MAINTENANCE:

Preventive maintenance practices shall be followed in the plant. Overhauling of machines, pumps, cooling tower, and periodical check up of reactor, tanks, pipelines and replacement of parts if required. Preventive maintenance is done more or less as per schedule recommended by the respective department. e.g. leaking mechanical seals of the pumps are replaced as soon as they develop a fault or start leaking. Chlorine purging line is checked time to time.

Testing of compressor, chain pulleys is done once a year as per the Factory Act1948 /Punjab Factory Rules 1952

D-3: Organization Set up

(a) **Factory Organization shall be as following**



b).Safety Committee:

Company shall be having safety committee it involving of supervisor /worker in discussion. Committee assembles once in three month to discuss important safety matter & take corrective measure to eliminate the hazard.

c) Preservation of Records:

Service records/other records & vital records shall be properly safeguarded in record room in the event of emergencies.

d). Electrical & Mechanical Safety in the plant.

1. All the running machines shall be having proper safety guards.

2. All the electrical installations in the plant shall be of flame proof category.

3. All the cables shall be proper rating as per BIS code.

4 All the electrical switches & push buttons shall have of good quality so that no electric spark is there.

.

E- PUBLIC AWARENESS & DISCLOSURE OF INFORMATION

a)TRAINING: As per the rule 41-B of the Factory Act and Rule 15 of the MSIHC rules, the safety measure shall be taken in the event of emergency shall be made known to the public who are likely to be affected. Flow Tech Chemicals Private Limited Nangal along with PACL shall have taken development program under which it has adopted certain person around the factory. For creating awareness on safety matter among the employees

M/S PACL Naya Nangal is a supplier of chlorine gas . They shall arrange training program for handling of chlorine gas from time to time. They give the training to our Manager, supervisors & operator for handling of chlorine gas.

TRAINING PROGRAM CONDUCTED IN THE PLANT

S.NO	TRAINING PROGRAM ACTIVITY	LEVEL OF PARTICIPATION	SUBJECT MATTER COVERED	FACULTY
1	Training program on 1.Accident Prevention 2.Fire prevention 3.Health hazards in the industry 4.Material handling 5.Use of P.P.E 6.Emergency planning preparedness	supervisors, and helpers	.Accident Prevention 2.Fire prevention 3.Health hazards in chemical industry 4.Use of P.P.E 5.Emergency planning and preparedness	Officers of PACL Nangal

b) STEP TAKEN TO CONTROL THE CHLORINE LEAKAGE

Responsibility of operator

The operator shall wear mask and work as per instruction & direction of the supervisor. He shall attend & identify the leakage and see that only gas escapes instead of liquid and take remedial measure shall be taken to stop the leakage.

1. Use valve hood assembly if leakage is from the valve.

2. Use chain and yoke arrangement and stop leakage from the body of the cylinder.

3. Neutralize or use chlorine gas in process of damaged cylinder at the site and M/S PACL has a neutralization system where in untreated chlorine gas will be sucked from 08 No CP reactors through pressure regulated valve and neutralization with caustic soda to from sodium hypochlorite.

4. If leakage from the process section, stop the plant & rectify the leakage by using gas mask.

5. Installation of chlorine sensing alarm system shall be done which will sense above 3mg/nm3 in the air . This will be early warning in the factory.

In case any person inhales chlorine gas, he shall be immediately sent to the doctor

c) FIRST AID MEASURE OF CHLORINE GAS :

1. In case of chlorine gas inhalation the patient should immediately removed to an open area where fresh air is available .Clothes area loosened and shoes are removed. If breathing has not ceased, the patient should be placed on his back with head and back elevated and kept warm. Rest is essential. If breathing has apparently ceased, artificial respiration should be given with resuscitator. Milk , butter , lime juice , cough syrup, milk of magnesia , Vicks tablets , liquid gelusil are effective in relieving the throat infection.

2. If liquid chlorine of chlorinated water has contaminated skin or clothing, emergency shower should be used immediately. Skin areas should be washed with soap & water. No attempt should be used to neutralize chlorine with chemicals, no ointment should be applied for 24 hours. Contaminated clothing should be removed immediately

3. If eyes has been affected with chlorine, or high concentration of chlorine gas . It should flushed immediately with plenty of running water for 15 minutes.. Thereafter as a first aid measure 2-3 drops of procaine or Xylocaine solution shall be put in to the eyes, then seek the advice of the doctor.

4. Swallowing of liquid chlorine is extremely dangerous. However if a person has swallowed chlorine and is conscious he should be immediately be made to drink lime water, milk of Magnesia , liquid gelusil or fresh water. The victim may be expecting to vomit. A physician shall be called immediately.

F -1- DETAIL OF MEDICAL FACILITIES PROVIDED

The company shall have proper first aid box and medicines which shall be available in the plant

a : Medical & first aid center shall be maintained as below

S.No	Facility	Department	Name of the medicines
1	First aid boxes	Gate and Production area	Betadiene Ointment ,eye drops, dettol ,bandages, cotton ,disprin, band-aid, novelgin, ,crocin ,gur silver Sulphadiazine and other medicines
2	Antidote kit	At the gate	Gelusil, cough syrup , gur and milk of magnesia

Note : The company shall make arrangement with Civil Hospital Nangal & PACL Complex dispensary where well equipped emergency treatment & facilities are available 24 hours.

b Trained Emergency team members & first aiders : Trained first aider are available

F-2 ARRANGEMENT FOR TRANSPORTATION OF PERSON

In the emergency company shall provided the car /ambulance at site & and transportation of persons shall be done through car and manual stretcher shall be available round the clock at the gate.

F-3 EVACUATION ROUTES

The main emergency management plan shall involves rescue of the victim through a safe route, ascertaining the level of injury, deciding on the extent of medical action required, rushing the patient to nearest hospital as the case may be.

F-6: EMERGENCY MEDICAL ACTION

Shift in charge/supervisor of the Shift shall be acted as emergency controller and he would be incharge of determining the presence of any victim requiring immediate evacuation from the plant.

Victim would be carried out for treatment on stretcher from the site. The role of the rescue team includes hearing of the siren rushing to the spot with stretcher and first aid box. In addition they should inform the incident controller and company doctors and request his immediate presence. Incase outside assistance from hospital is deemed essential, necessary arrangement at the hospital would be made.

CHAPTER-G SALVAGE & FIRE FIGHTING ARRANGEMENT

G-1 G: DETAIL OF PERSONAL PROTECTIVE EQUIPMENTS

As it is chemical based industry and is using chlorine & Hydrochloric Acid which are corrosive and hazardous in nature therefore company shall have adequate stock of PPEs available in the plant. The following things are available shown in the table

Detail of personal protective equipment's

S No.	Facility	Quantity available
1	Stretcher	1no
2	First aid box	2No
3	Safety Helmets	5No
4	Gas Mask (canister Type)	2NO
6	Safety Belts	2No

7	Safety goggles	10 No
8	Rubber Hand Gloves	20No
9	PVC Apron	10 NO
10	Gum boot	2NO
11	Chlorine emergency kit	1No
12	Nose mask	12No

G-2 FIRE FIGHTING ARRANGEMENT AND FACILITIES

The factory shall have flammable & combustible materials like Paraffin oil & diesel oil in the factory which can cause fire at any time which can be extinguished by stopping the source of leakage and cooling down of equipment's and surrounding area by using water & fire extinguisher.

Beside this the company shall installed sufficient no of sand buckets installed at different locations in the plant to meet the emergency.

DETAIL OF ABOUT THE FIRE CONTROL DEVICES

Type of provision	Location Ware house	Oty	No of Sand bucket stand
DCP Type	Plant	4No	2No
CO_2 type	Administration	1No	4 No
M Foam	Plant	2no	----

1. **Water for fighting**: Water tank: 5000 Liter capacity with pumping arrangement shall be there with the availability of hose pipes . In case of fire sufficient quantity of water shall be available to meet any emergency.
   Tube well is the water source for continuous supply for water.

2. **Arrangement of power failure:** The Diesel generator shall be provided in the plant, in case of emergency it shall be utilized for fighting in case of emergency

3. **Other arrangement out side the factory:**
   The management shall be having a direct contact with PACL authorities Nangal & Fire station from Ropar which is situated hardly 30 from the factory.

4. **Assembly Point:** Assembly point has been fixed in the opposite of admin block.

5. **Communication:** For communication following things shall be available in the factory.
   a) External Telephones
   b) Mobile phones
   c) Hand operated siren

G-3 : FIRE ACTION PLAN

1.In case of occurrence of fire any person who happens to be near the site of occurrence will alarm an tell "Aag, Aag " and rush to the site and inform to the shift in charge and shift Incharge shall inform to the Factory Manager .

A Responsibility of the Manager:

1. Rush to the site of emergency.

2. Make sure that personnel actually required to control the emergency situation should only present there.

3.No unwanted personnel should crowd around the affected areas.

4. Guide the Emergency crew in their action for fighting fire /combating the gas release and keep close the area.

5 .Ensure availability /supply of suitable additional, safety and fire fighting if equipment may be required.

6. He will coordinate Govt official/director of factories & other related officials.

7. Arrange for the hospitalization of affected persons.

8. Ensure security and safety of the plant personnel and property damage during the emergency.

9. Arrange to send people at safe zone.

B Responsibility of supervisor

1.In case of fire supervisor he shall handle operation of pump and with the assistance from operator and helper shall bring the hose pipe of water & put the nozzles and handle extinguisher to combat the situation.

2. In case of major fire he will ring nearest fire Brigade & police station and PACL authorities for help.

3. In case of spillage of acid he shall neutralize same with lime solution available in the plant.

4. If there is injury he will give the 1st aid & send him for treatment.

5. In case of chlorine leakage he shall act as incident controller & operate the siren/alarm.

6. He shall observe the flow of the air from the flag/wind sock installed in the factory.

7. He shall remove the helpers from the plant & gas affected area to opposite direction of air flow.

8. He shall instruct operator to wear gas mask and shall control the leakage of gas cylinder/ pipe line with emergency clamp or chain and yoke as the case may be required.

9. If leakage from the process system he shall stop the plant & rectified the defect.

C Responsibility of electrician/ maintenance person

1. Rush to the gate office and remain there.
2. They will look after all electrical functions of the factory during the time of emergency and will help to isolate power supply to the affected area if required.
3. In case of power failure at the time of emergency, he will ensure running of D.G set and will be in constant touch with maintenance supervisor

D. Essential Services & Control

1. Call medical doctor for help.
2. First aid/medical treatment to be given in case of minor cut, burnt e

CHAPTER –H
DISASTER CONTROL COORDINATION &ACTION PLAN

H-1 THE PLAN OF COORDINATION

The plan of coordination include the responsibilities like preparation of plan and its updating keeping liaison with government authorities ,mutual aid agencies and other related organizations etc explained in the subsections.

H1. – LAISON WITH EXTERNAL AUTHORITIES

The official nominated to liaison with the external authorities and the matter in which their cooperation will be sought are below authority wise and other neighbor Factories (under Mutual aid scheme)

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a. District Magistrate.

The Emergency Coordinator will keep in touch with the District magistrate to make him aware about the different accident scenario envisaged in the plan and the physical damage possible from within and outside the factory .he may also be provided with any other information required by him for preparing off site emergency plan.
District magistrate may be invited to witness the rehearsal of onsite emergency plan and conducted from time to time .He may also be persuaded to mobilize the service like District Health Services , hospitals , police ,fire department ,civil defense etc, whenever required in connection with the onsite emergency plan .

b .Police Department

The liaison with the police department official will be maintained by the Factory Manager .The police official will be kept informed about the type of assistance required from police in case of major emergencies in the plant. The role and statutory duties of police official at the time of emergencies are:

1. Traffic control
2. Assisting rescue and medical team to work without hindrance
3. Helping to evacuate the personnel
4. Preventing unauthorized entry.

c. Fire service

The liaison with the District fire officer will be maintained by the factory manager .He will be made aware about the type of fire possible in the plant, extent of their fire fighting facilities available in the plant and the additional help required from them in the event of fire and other emergencies.

d. District Medical service:

The manager will get in touch with the official of the medical service of Nangal & Roper and arrange for cooperation for making their services in case of emergency.

e. Director of Factories:

The Factory Manager or his alternate will keep the officers of Director Of Factories Punjab about the various aspects of the Onsite emergency plan .He will ensure that the provision of Factories Act 1948 and the manufacture storage & Import of Hazardous Chemical Rule 1989 (under EP Act) are fulfilled to the satisfaction of the Director Of factories.

II. Other external agencies & Organization

The Factory Manager will keep liaison with other external agencies on the matters connected with on Onsite Emergency plan.

III. Making plan in advance:

The factory manager will be responsible for making the plan in advance and keeping it up-to-date to the satisfaction of occupier of the plant and the concerned statutory body.

H.2 RESCUE AND RELIEF OPERATIONS:

Different components of the rescue and relief operation are prescribed below point wise

1 <u>COMMUNIACTION SYSTEM</u>:

Hand alarm and Fire Alarm: The occurrence of fire in any part of the factory will be communicated to the shift in charge with the help of internal telephone system by one who sees it for the first time. Important officials shall have also been provided with the mobile phones. In case it is required they will be contacted with the help of these systems. On receiving the first information about fire, the shift in charge on duty will sound the manual alarm provided on the main gate.

ii <u>Declaring the major emergency</u>:

The responsibility of declaring the major emergency lies with the chief Emergency controller. As indicated in foregoing sections there are several persons nominated to function as alternate site main controller. In addition to this, there is a provision that till site main controller does not assumes his office, the site incident controller will act as site main controller. Even otherwise as soon as he comes to know about the incident he will quickly assess the situation and report to the site main controller.

The decision of declaration of emergency should be taken after due consideration because it may involve closure of the plant and heavy losses. Under no circumstances, however the decision should be delayed. In case the site main controllers are not available due to any reason, the site incident controller will take the decisions without loss of much time. He may consult the site incident controllers and key personnel of the other shifts and general shift in deciding the matter.

III. Making the emergency known

The emergency call is made known to different categories of people as mentioned below:

<u>To those who are within the works</u>:

The sounding of hand alarm will be followed by messages by intercoms, Mobile phones indicating the declaration of emergency, nature and place of emergency and the instruction to shut down the plant and assuming the emergency duties assigned to respective employees. The persons nominated shall make the emergency known within the works .

A <u>To key personnel outside normal working hours</u>:

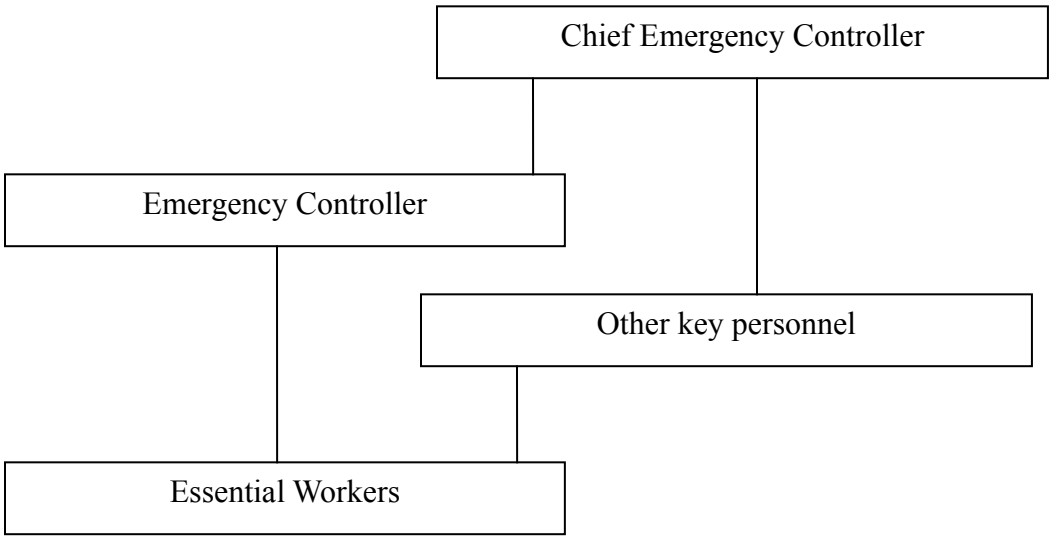
The information regarding the emergency beyond normal working hours will be passed on to the key personnel with the help of internal and/ or external telephones and mobile phones. In case the telephones are not working, the runners will be sending to the information regarding type & place of incident and other essential information is communicated within the shortest possible period. The people who will be responsible to pass on the information as indicated on the gate.

To authorities & contact persons at mutual aid scheme

The persons indicated on the gate are assigned with the responsibility of communicating the information about the emergency to district and other relevant authorities. It should be ensured that complete information is passed on within shortest possible time.

(B) <u>EMERGENCY ORGANISATION</u>:

The key persons and essential workers are responsible for managing the various tasks involved during the emergency in the organization. The following chart represents relative positions of various key personnel and essential workers.



M/S Flow Tech Chemicals Pvt Limited Nangal for its manufacturing process using various chemicals some of them are dangerous in nature .Built in safety feature shall

have been incorporated to utilizing these hazardous chemicals and all safety precautions are followed on day to day manufacturing process.

1. Basis of plan

As indicated in the chart the Chief Emergency Controller is the supreme authority of emergency organization. The incident controller is the highest technical authority who will supervise all the emergency activities for control of emergency and mitigation of effects with the help of other key personnel and essential workers.

A Emergency Controller:

Emergency Controller is the highest authority of on-site emergency organization in the absence of chief emergency controller In the event of emergency if the first named is not available in the factory or in his residence the second named person assume the charge of the position.

B. Other Key Personnel:

The other key personnel who are required to advice the Emergency controller and assist him and to Incident Controller to combat the emergency & Fire fighting. In the event of declaration of emergency they will be informed at the factory or at their residences. They will report Emergency Controller at the emergency control Centre and on his instructions carry out the tasks with the help of essential workers under their control.

C. Other trained Workers:

Some workmen and supervisors hall have been nominated for carrying out the liaison, communication and other emergency assignment already discussed. In addition to that, a large number of workers attached to the various emergency teams to function at the time of major accident. The emergency tasks for which the trained persons nominated above will be involved are :

1. Fire Fighting control of gas leak, control of spills of hazardous substances, rescue of affected persons till the fire brigade takes the charge

.

2. To help the plant fire brigade and manual aid teams if so required.

3. Shutting down the plant safely

4. Emergency engineering works e.g. isolating equipment materials, processes, providing temporary by-pass lines, safe transfer of materials, urgent repairing or replacement electrical works etc.

5. Provision of emergency power, water, lighting, instruments, equipments, material.

6. Movement of equipment, special vehicles to or from the scene of the accident on priority basis.

7. Search, evaluation & welfare. First aid and medical help.

8. Manning of assembly points and outside shelters to record the arrival of evacuated personnel and to carry out welfare activities.

9. Assistance at casualties' reception area.

10. Assistance at communication centers to help in sending or receiving the messages and to act as messengers as necessary.

11. Manning the main entrance to direct outsiders to different points.

12. Informing the surrounding factories or the public as directed by the chief emergency Controller.

13. Logging the sequence of events taking place during emergency.

v. All the employees of the plant who have not been nominated to function as key personnel trained workers in various emergency teams are termed Such employees on hearing emergency alarm will attentively listen to the announcements and get to know about the nature, place and size of emergency.

If the emergency has been declared and plant has been ordered to be shut down, then, the plant will be shut down employing the emergency shut down procedure and move to the assembly point, which is not affected by the incident. In case of toxic release, they will first move away from the line starting from the place of release and going towards the wind ward side and then turn towards the assembly point wherever it is. The safe routes for escaping have been indicated in the plan. They should ensure that they do not head towards the place of incident.

D.EMERGENCY CONTROL CENTRES (ECC):

- The Emergency control center is the place from the operation to handle the emergency & coordinated and where instruction for carrying out various activities will be issued by the Chief Emergency Controller from the control centers situated on the gate.
  The Emergency Control center shall have the following items.

- Stretcher
- Layout plan of the industry
- Telephone numbers of all the Key persons
- Safety Equipment like emergency kit , alarm
- Evacuation routes
- Location of works in relation to surrounding community.

D ACTION ON SITE:

i. EMERGENCY CONTROL:

As soon as an accident leading to major emergency is observed by any person he will inform to fire department by internal telephone or verbal and inform the Chief Emergency Controller on duty in addition to warning the nearby workers.
The Incident Controller will reach the spot of accident, judge the situation and initiate the activities for rescue and relief need get in touch with the Emergency Controller and appraise him with the situation. Both will decide about application of on site emergency plan and declare the emergency if required.
The decision will be passed on to the nominated emergency communication officer or his alternate who will raise the emergency alarm as per the pre-decided codes. The appointed person will communicate to employees the information regarding the nature, place and size of emergency.

ii. EVACUATION:

As soon as the plant level emergency is declared by the Chief emergency Controller, the operation in the plant will be shut down by the emergency shutdown procedure.

The essential workers and key personnel nominated in the plan will report to their respective reporting places and non-essential Workers and other employees will move to the assembly point which is neither affected nor is likely to be affected.
At the assembly point the nominated essential worker will record the attendance and intimate the Main Controller at emergency Control centre. Contract workers and visitors present at that time will also move to the assembly point.

At the control centre the persons came to the plant will be tallied with the person engaged in emergency operations, persons gathered at the assembly point and those who are affected by the accident. In case any person as gathered at the assembly point and those who are affected by the accident is missing, a search will be made for him by the essential workers and his where bouts will be found out
The key personnel and essential workers will report back to their reporting places after the task allocated to them is completed.

iii. Assembly point:

The company has identified as the emergency assembly point opposite to the admin office.

The assembly point shall be used as first priority. If due to any reason the point No.1 is within the affected area, then the assembly point No.2 can be used. The persons listed in the following table are nominated to take the attendance of the employees reporting at the assembly point:

PERSONS APPOINTED FOR ROLL CALLER AT ASSEMBLY POINT

SHIFT	DESIGNATION (NORMAL	Designation (Emergency)	Place of Reporting
General	Security Incharge	Assembly point roll call officer	Assembly Points
A&B	Security Guards	Assembly point roll call officer	Assembly Points

The role call officer of the assembly point will not allow any person to go away. In case of Chief Emergency Controller wants to deploy some persons out of assembled persons for some emergency duty, he will depute the wanted person with proper record.

.

(iV) <u>CONTROLLING THE SITUATION:</u>

Controlling the emergency situation is primarily the duty of the Chief Emergency Controller. For performing this task satisfactorily he will utilize the services of various key personnel & trained workers of different specialization such as maintenance, operation, fire & rescue, medical, safety etc. may also consult the expert organization if required

He should decide the plan of action to be followed keeping in view the situation on emergency. For his guidance the modalities to be adopted under different types of emergencies are indicated here:

a) As soon as the decision to shut down the plant is taken and major emergency is declared by the Chief Emergency Controller, the in charge of various plants and equipments will ensure that emergency duties. The emergency shutdown procedures for different departments are available in respective departments.

(b) <u>ASSISTANCE TO EXTERNAL AUTHORITIES:</u>

The Chief Emergency Controller will receive the external authorities and provide them all the facilities required by them for performing their parts of functions well.

(c) MEDICAL TREATMENT:

The causalities found on search in the affected areas will be given immediate treatment at the plant first aid centre.
The emergency Medical Officer advice the emergency Controller to send the affected persons to other hospitals after the first-aid if required.

(v) ACCOUNTING FOR PERSONNEL:

A) Assembly Point Reporting:

The person nominated in the record the presence of the persons reporting at assembly point as early as possible. Along with the shift schedule, nominal roll of employees present in the shift, list of contact workers present on the day, visitors who have entered the factory etc. The details of the person who have reported at the assembly point will be passed to the Chief emergency Controller at the emergency control centre.

B)Recording the entrance and exit:

The Security personnel shall make the record the entrance and exit of the persons during the emergency. The information regarding this will be passed on to Chief Emergency controller at emergency control Centre as and when demanded.

C. Record about causalities:

The name of the persons injured and died during the emergency will be recorded by the emergency medical team along with the details of the injuries and the hospitals to which they have been sent for the treatment. These details will be passed on to the Chief Emergency Controller as soon as possible:

D Overall accounting of personnel:

The emergency controller will assist Main Controller in accounting the personnel and identifying the missing persons with help of the report of assembly point, time office, plant gate medical emergency team and the list of the persons deployed in emergency activities. If there are such persons whose whereabouts are not traceable

E. Informing the relatives of affected person:

The Emergency controller will release the names of the persons affected by the incident to the police department and will arrange to pass on the information regarding the causalities to the relatives of the affected persons. The emergency Officer will respond to the calls of outsiders enquiring about the conditions of specific employees. He will release the limited information decided by Chief Emergency Controller.

F ACCESS TO THE RECORD:

The important records like residential address of employees, important drawings of the plant, operational and maintenance codes etc. will be kept in emergency control Centre

and administrative building so that these are accessible to Chief Emergency Controller on emergency.

G TERMINATION OF EMERGENCY :

After the emergency is controlled, the causalities have been sent to the hospitals and all the person have been accounted for by the Chief Emergency Controller consultation with Emergency Controllers and other personnel will decide to terminate the emergency. The alarm raiser will be informed to raise the all-clear siren. The siren will be followed by announcements to this effect by internal telephones by the respective nominated persons

Annexure-1

NAME OF THE KEY PERSONS IN CASE OF EMERGENCY

S.NO	NAME OF THE PERSON	TELEPHONE NO
1	Mr SS DAHIYA (Director)	91-11-47065960, 47049211-14,
2	Mr PANKAJ CHOUDHRY (F. Manager)	9316430999
3	SDM ROPAR	01887-220648
4	BNB HOSPITAL NANGAL	01887-223102
5	POLICE STATION NANGAL	01887-223100
7.	PACL COMPLEX NANGAL	01887-275390
8.	DIRECTOR OF FACTORIES SECTOR -17 CHANDIGARH	0172 -286230

9.	DY DIRECTOR OF FACTORY	98145-06414
10.	OFFICE OF ASSTT DIRECTOR OF FACTORIES SCO23-PHASE-1 MOHALI	0172-572620
11.	FIRE BRIGADE NAYA NANGAL	01887-220380
12	PUNJAB POLLUTION CONTROL BOARD NABHA ROAD PATIALA	0175-2222823
13.	FIRE BRIGADE UNA	01974-238699
14.	NFL HOSPITAL	01887-220622
15	BNB FIRE BRIGADE	01887-223101

Annexure-2

PHYSICAL & CHEMCIAL PROPERTIES OF CHLORINE

CHEMICAL IDENTITY		
CHEMICAL NAME	-	**CHLORINE**
SYSNONYM	-	**DICHLORIN**
CHEMICAL FAMILY	-	**INORGANIC GAS**
CAS NUMBER	-	**7782-50-5**
CHEMICAL FORMULA	-	**CL2**
HAZCHEM CODE	-	**3PE**
UN NO.	-	**1107**
PHYSICAL STATE,	-	**YELLOW GAS**
APPEARANCE	-	**YELLOW**
COLOUR	-	**PALE YELLOW GAS**
ODOUR	-	**IRRITATING ,Pungent**
VAPOUR PRESSURE(20 DEG C)	-	**8.6atm**
FLAMMABLITY RANGE		**Not flammable**
TDG		**CLASS-2,**

		NON FLAMMABLE GAS
SPECIFIC GRAVITY	-	**NA**
VAPOUR DENSITY (AIR=1)	-	**2.49**
SOLUBILITY IN WATER(20 DEG C)	-	**soluble**
SOLUBILITY IN ORGANIC SOLVENT(20 DEG C)	-	**Partial**
IS MATERIAL HYGROSCOPIC	-	**No**
VISCOSITY(25 DEG C)	-	**N.A**
TLV (ACGIH)TWA		**1 ppm (3 mg/m3) OSHA ceiling 0.5 ppm (1.5 mg/m3) OSHA TWA (vacated by 58 FR 35338,**
PERCENT OF VOLATILITY	-	**highly dangerous when exposed to heat**
CHEMICAL STABLITY		**CHEMICAL STABLE**
VENTILATION:		**Proper exhaust ventilation is required**
CONDITIONS TO AVOID:		**Avoid contact with combustible materials. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers**.