JYOTI INDUSTRIES
UNIT NO. II
Manufacturers of : STEEL INGOTS & STEEL CASTINGS

Date: 28.09.2016

To,
The Member Secretary,
Expert Appraisal Committee (Industry-I),
Ministry of Environment, Forests and Climate Change,
Government of India,
Indira Paryavaran Bhawan,
Jor Bagh, New Delhi.

Sub: Application for obtaining Environmental Clearance for expansion of steel manufacturing Unit on Plot No. B-57A, Focal Point, Ludhiana by M/s Jyoti Industries – Unit-II

Respected Sir,

Our application for obtaining Environmental Clearance of our steel manufacturing unit for expansion was considered by the Hon'ble Committee in their 11th meeting held on 29 to 31 August 2016 wherein some observations were made and asked to submit the reply of those observations. Accordingly we are submitting herewith the reply as under:-

<table>
<tr><th>S. No.</th><th>OBSERVATIONS</th><th>COMPLIANCE</th></tr>
<tr><td>1</td><td>The power requirement for the existing plant and the proposed plant should be re-estimated and submitted.</td><td>The existing & proposed power requirement has been re-estimated & details are as under:
<table>
<tr><th>EXISTING</th><th>PROPOSED</th><th>TOTAL</th></tr>
<tr><td>6500KW</td><td>2500KW</td><td>10000KW</td></tr>
</table></td></tr>
<tr><td>2</td><td>The existing capacity of the plant and the proposed plant capacity along with the units should be presented in a tabular format.</td><td>The existing & proposed capacity of the plant along with units are given below:
<table>
<tr><th>EXISTING</th><th>PROPOSED</th><th>TOTAL</th></tr>
<tr><td>29000MTA</td><td>55000MTA</td><td>84000MTA</td></tr>
</table></td></tr>
<tr><td>3</td><td>Comfort letter should be obtained from the electricity board for the supply of power for the required capacity.</td><td>Copy of comfort letter from Electricity Board attached as annexure-I</td></tr>
<tr><td>4</td><td>Revise the data presented in the EIA report with the presentation as there is mismatch in the data.</td><td>Data has been revised in EIA report with presentation. See Annexure-IV.</td></tr>
</table>

B-57-A, PHASE-VII, FOCAL POINT, LUDHIANA-141010.
PHONE : 99145-23015, 2674777, 2677404, 5053004 FAX : 5085403
E-mail : jyotiindustries2@yahoo.co.in

5	AAQM data collected during the monitoring should be compared with the SPCB data.	Details are given in **annexure-II**
6	Compliance report for CTO from SPCB should be submitted	Copy of compliance report of existing CTO certified by State Pollution Control Board is attached as **annexure-III**

In view of the above compliance we are submitting the documents for consideration & issuing Environment Clearance of the project for expansion.

Thanking you.

Yours Faithfully,

For Jyoti Industries

Authorized Signatory

B-57-A, PHASE-VII, FOCAL POINT, LUDHIANA-141010.
PHONE : 99145-23015, 2674777, 2677404, 5053004 FAX : 5085403
E-mail : jyotiindustries2@yahoo.co.in

ANNEXURE-I

COMFORT LETTER FROM PSPCL

PSPCL **Punjab State Power Corporation Limited**

(O/O Dy.CE/OP, City East Circle, PSPCL, Ludhiana.)

To

M/S Jyoti Industries,
A/C no. E-32/FP-51/00365,
Focal Point, Ludhiana

Memo no. 6046 Date 9/9/2016

Sub:- Regarding enhancement of load from 6500KVA/5922.846KW to 10000KVA/9072.846KW.

Ref:- Your letter dated 07.09.2016

On the subject cited matter it is intimated that the additional load intended to be augmented by your organization can be released subject to:-

(1) Fulfillment of requisite formalities, submission of documents/undertakings and clearances by Local Bodies/Pollution Control Board etc. and other such regulatory bodies.

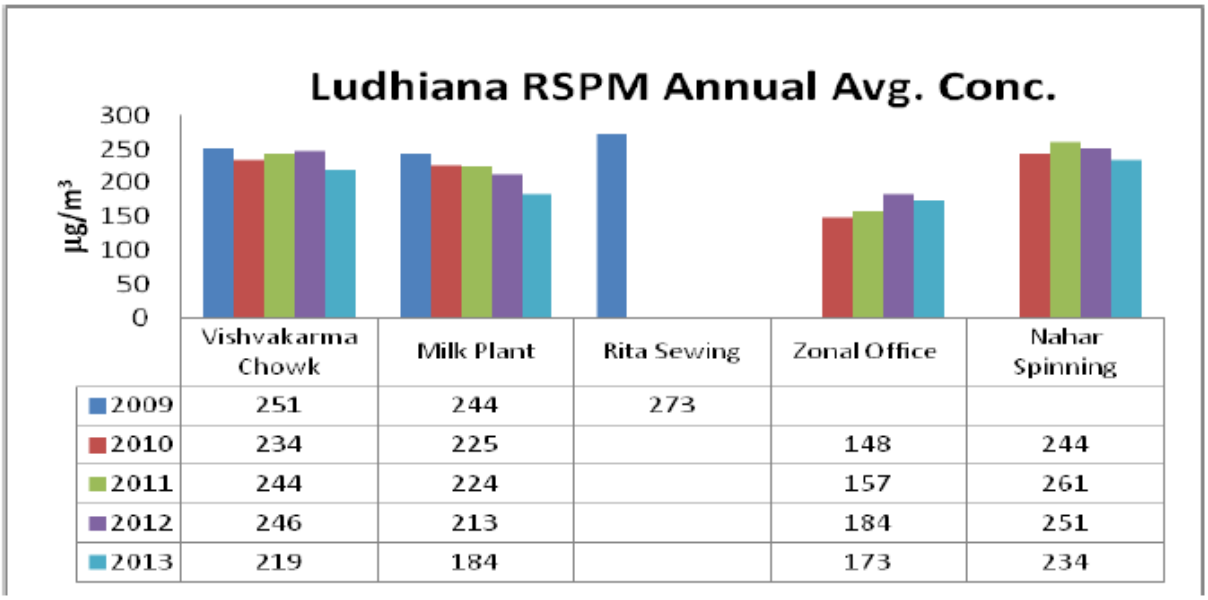
(2) Clearance through feasibility studies by the Competent Authority of the PSPCL and such conditions and limitations (technical and administrative) imposed by the Feasibility Committee/Competent Authority in this regard.

Dy.Chief Engineer/Op.,
City East Circle,
Ludhiana.

ANNEXURE-II

AAQM results from PPCB

Ludhiana District - Google Slides

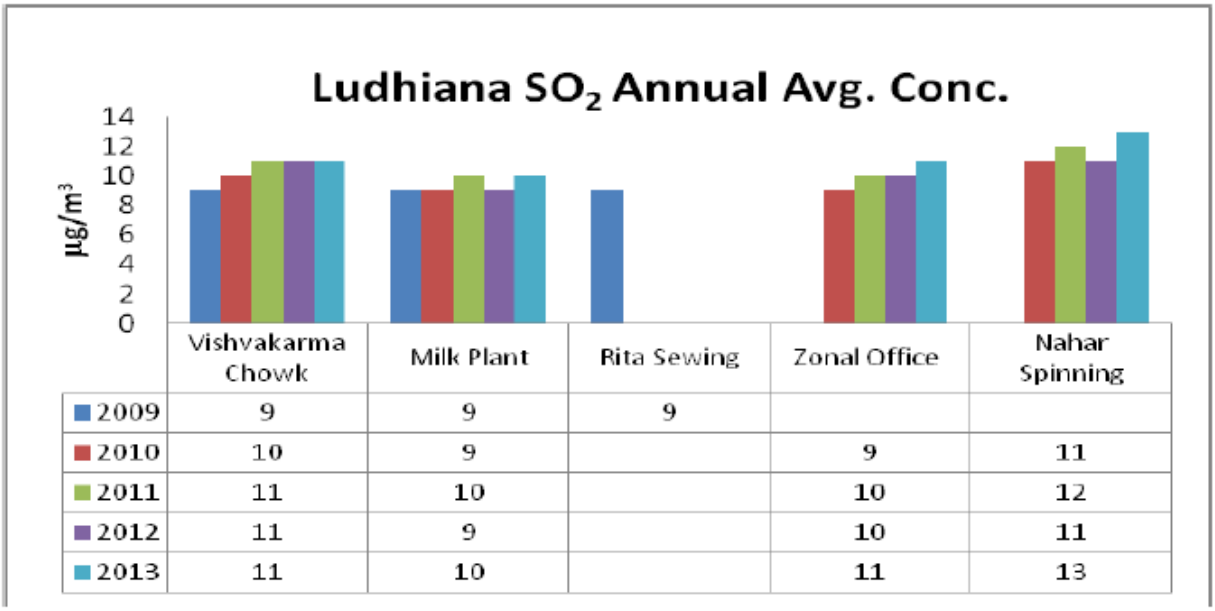


	Vishvakarma Chowk	Milk Plant	Rita Sewing	Zonal Office	Nahar Spinning
2009	251	244	273		
2010	234	225		148	244
2011	244	224		157	261
2012	246	213		184	251
2013	219	184		173	234

Permissible NAAQS Annual Limit (RSPM: 60ug/m³)

Punjab Pollution Control Board, 2013

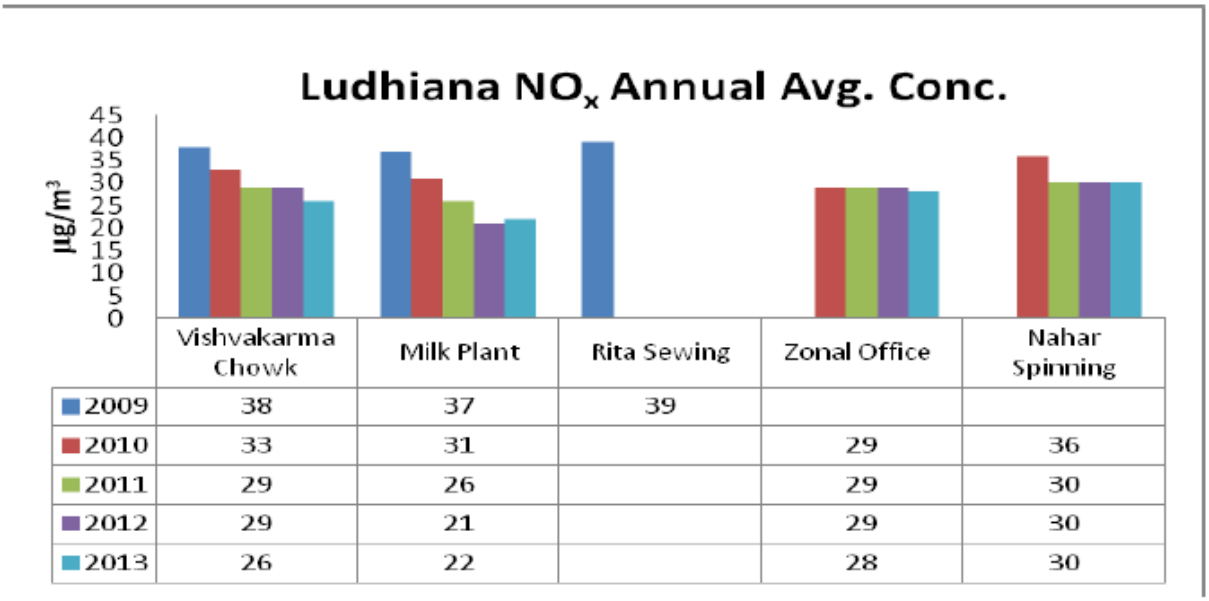
Ludhiana District - Google Slides



	Vishvakarma Chowk	Milk Plant	Rita Sewing	Zonal Office	Nahar Spinning
2009	9	9	9		
2010	10	9		9	11
2011	11	10		10	12
2012	11	9		10	11
2013	11	10		11	13

Permissible NAAQS Annual Limit (SO2 : 50ug/m³)

Punjab Pollution Control Board, 2013



Ambient Air Quality Result of the Project

PARAMETERS	PM_{10} µg/m³		$PM_{2.5}$ µg/m³		SO_2 µg/m³		NO_x µg/m³	
PERIOD	**April-June 2013**	**January 2016**	**April-June 2013**	**January 2016**	**April-June 2013**	**January 2016**	**April-June 2013**	**January 2016**
Project Site	80.93	84.90	38.62	43.3	8.48	14.5	20.03	27.4
Mangarh	70.49	77.90	36.45	37.1	8.10	11.5	19.45	25.7
Bhukri Kalan	71.7	71.60	38.11	32.7	8.06	11.8	18.15	24.0
Rawat	72.03	70.90	41.08	35.0	8.12	12.4	20.23	23.4
Dugri	70.33	83.80	39.75	42.2	8.06	12.1	18.06	24.4
Bhagwanpur	69.71	82.90	38.40	43.0	8.21	11.6	19.24	24.1
Mundian Kalan	71.40	84.30	41.47	43.1	8.71	11.8	18.96	24.3
Govindgarh	70.61	84.35	42.75	42.85	8.80	12.9	20.24	24.75
LIMITS	**100**		**60**		**80**		**80**	

ANNEXURE-III

CERTIFIED COMPLIANCE REPORT

Jyoti Industries, (unit-II)

ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਰੋਕਥਾਮ ਬੋਰਡ

PUNJAB POLLUTION CONTROL BOARD

Zonal Office-II, E-648-B, Backside CICU Office, Phase-5, Focal Point, Ludhiana.
Ph:- 0161-2670141
E-Mail: seezo2ldhppcb@yahoo.com

No. 6787

Date. 23/9/16

To

M/s Jyoti Industries, (unit-II),
B-57-A, Focal Point, Phase-7,
Ludhiana.

Sub: **Compliance of the consent granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974**

Please find herewith the compliance report of the consent granted u/s 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 duly verified by the Board.

DA/Verified compliance report

Ramphal 23/9/16

Environmental Engineer
For Senior Environmental Engineer

PUNJAB POLLUTION CONTROL BOARD

Regional Office - IV , M.C. Building Complex, 2nd floor, Gill Road, Block –C, Ludhiana.
e-mail: [illegible]

No 2324
To

Dated 15-09-2016

The Senior Environmental Engineer,
Punjab Pollution Control Board,
Zonal Office-II, Ludhiana

Sub:- **Compliance of Consent granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974-** *M/s Jyoti Industries (Unit-II), B-57-A, Phase- 7, Focal Point, Ludhiana*

Ref:- **Industry request letter dated 06.09.2016**

In reference to above it is intimated that the industry has submitted the request letterdated 06.09.2016 intimating that the industry is in process of expansion of its industry by replacing two induction furnaces and has applied for the environmental clearance. The application of the industry was considered on dated 29.08.2016 in meeting of the environmental clearance taken by the Ministry of Environment and Forests, New Delhi. Wherein, it was decided to submit the compliance report of the consent to operate granted under Water Act, 1974 and Air Act, 1981 by the Board.

The industry has already been granted consent to operate under Water Act, 1974 vide no ZO-II/LDH/RO-IV/WPC/2014/V-1171 dated 07.04.2014 and under Air Act, 1981 vide no. ZO-II/LDH/RO-IV/APC/2014/V-1024 dated 07.04.2014. Both the consents are valid upto 30.06.2018. The point wise compliance of the conditions of the consent to operate under Water Act, 1974 and Air Act, 1981 are as below:-

(a) Compliance status of conditions imposed under consent to operate under Water Act, 1974

S.no.	Conditions of consent	Compliance by the industry	Compliance Status as verified by the EE and AEE on 08.09.2016
1	The consent is issued for the discharge of effluents as per details (Trade effluent @ Nil & Domestic effluent @ 1.0 KLD) from the premises of the industry through the out-lets authorized by the Board.	Industry is discharging only Domestic effluent through the out-let into sewer.	Complied with
2	This consent is not valid for getting the power load from the P.S.P.C.L. or loan from the Financial Institutions after producing of this consent.	Noted & agreed that Industry has not obtained the power load from the P.S.P.C.L. or loan from the Financial Institutions after producing of this consent.	--
3	The effluent discharged through the authorized outlet shall conform to the standards prescribed by the Board as per Board's Notification issued from time to time for such discharges.	Industry is discharging the effluent through the authorized outlet conforms to the standards prescribed by the Board.	Domestic effluent only
4	The industry shall regularly operate & maintain the ETP to ensure that the treated effluent conforms to the standards laid down by the Board for such type of industries.	Not applicable because there is no any trade effluent.	No trade effluent is being generated by the industry at the present
5	(I) The Industry shall apply for renewal of consent at least two months before expiry of consents. (II) The issuance of this consent does not convey any property right in either	Noted & Agreed. Noted & Agreed.	----

	real or personal property or any exclusive privileges, nor it authorize any injury to private property or any invasion of personal rights nor any infringement of Central, state or Local Laws or Regulations. (III) The consent does not authorize or approve the construction of any physical structures or facilities for undertaking of any work in any natural water course. (IV) Nothing in this consent shall be deemed to preclude the institution of any legal action nor relieve the applicant from any responsibilities, liabilities or penalties to which the applicant is or may be subjected under this or any other act. (V) During the period beginning from date of issuance and the date of expiration of this consent, the applicant shall not discharge floating solids or visible foam.	Noted & Agreed. Noted & Agreed. Noted & Agreed.	
6	Any amendments/revisions made by the Board in the tolerance limits for discharges shall be applicable to the industry from date of such amendments/revisions.	Industry will compiled with all amendments/revisions made by the Board in the tolerance limits fordischarges.	Industry agree to comply
7	The authorized outlet and mode of disposal shall not be changed without the prior written permission of the Board.	Noted & Agreed	Industry agree to comply
8	Industry shall not use any unauthorized out-let(s) for discharging effluents from its premises.	Noted & Agreed	Complied
9	Industry shall not change or alter the manufacturing process so as to change the quality and/or quantity of the effluents generated without the written permission of the Board.	Industry will not change or alter the manufacturing process without the written permission of theBoard.	Complied
10	Any upset conditions in the plant/plants of the factory, which is likely to result in increased effluent and/or result in violation of the standards laid down by the Board shall be reported to the EnvironmentalEngineer, Punjab Pollution Control Board, Regional Office, Ludhiana telegraphically under intimation to the board failing which any stoppage and upset conditions that come to the notice of the board/its officers, will be deemed to be intentional violation of the conditions of consent.	Industry will inform the department accordingly.	Industry agree to comply
11	All underground water retaining structures shall be lined with an impervious layer so as to avoid seepage and contamination of sub soil/water.	Noted & Agreed.	Complied with
12	Industry shall provide terminal manhole(s) at the end of collection system and a manhole upstream of final outlet(s) out of the industry for measurement of flow and for taking	Industry has provided the manhole at the end of collection of samples.	Complied with

	samples.		
13	The premises of the industry for measurement of flow and for taking sample.	Noted & Agreed.	Complied
14	The industry shall for the purpose of measuring and recording the quantity of water consumed and effluent discharged, affix meters of such standards and at such places as approved by the Environmental Engineer, Punjab Pollution Control Board, Regional Office-IV, Ludhiana.	Water meter has been installed by the industry.	Industry agree to comply
15	The diversion or bye pass of any discharge from facilities utilized by the applicant to maintain compliance with the terms and conditions of this consent is prohibited except. (I) where unavoidable to prevent loss of life or some property damage or (II) where excessive storm drainage or run off would damage facilities Necessary for compliance with terms and conditions of this consent. The applicant shall immediately notify the consent issuing authority of each such diversion or bye pass in accordance with the procedure specified above for.	Noted for compliance.	Industry agree to comply
16	Solids, sludge, filter backwash or other pollutant removed from or resulting from treatment or control of waste water shall be disposed of in such a manner as to prevent from any pollutant from such material from entering natural water.	Noted & Agreed.	Industry agree to comply
17	The Industry shall ensure that no water pollution problem is created in the area due discharge of effluents from its industrial premises.	Complied with.	Complied
18	The industry shall make proper disposal of the effluent so as to ensure that no stagnation occurs inside Land out side the industrial premises during rainy season and no demand period.	No stagnation is there.	Complied
19	The industry shall plant minimum of three suitable varieties of tree at the density of not less than 1000 trees per hectare all along the boundary of the industrial premises.	The industry has provided the three suitable verities of tree.	Plantation provided along with front boundary walls only
20	The industry shall re-circulate the entire cooling water and shall also re-circulate maximum possible treated effluent in processes within premises	Note & agreed.	Complied
21	The industry shall make necessary and adequate arrangements to hold back the effluent in case of failure of re-circulation system/Effluent Treatment Plant.	Holding tanks provided	Complied
22	The Industry shall make necessary arrangements for the monitoring of effluent being discharge by the industry at least once in a year.	There is not any Trade effluent is being discharged by the Industry.	Not applicable only Domestic Effluent

23	The industry will submit the monthly reading of the separate energy meter for running effluent treatment plant/recirculation system to the Board by the fifth of the following month.	Record is being maintained.	Complied
24	The industry shall maintain such record w.r.t. operation if ETP system along with records of chemicals and energy utilized for treatment and sludge generated for treatment of waste water so as to satisfy the Board regarding regular and proper operation of pollution control arrangement.	Not applicable because there is no any trade effluent.	Complied
25	The industry shall not discharge any trade effluent. Only domestic effluent shall be discharge on to land for plantation after treatment in septic tank.	Note & agreed.	Complied
26	The industry shall develop adequate land for the disposal of its treated domestic effluent.	Note & agreed.	Complied
27	The industry shall obtain the authorization under the HWM rules, 1989 as amended.	The industry has obtained the authorization under the HWM rules, 1989.	Complied
28	The industry shall put up display board indicating Environment data at the at the main entrance gate.	The industry has provided the display board.	Complied
29	The industry shall provide rain water harvesting system in its premises of carry roof too rain water into Under ground strata.	Note & agreed.	Not provided
30	No surface run off or any other rain water flowing in lawns/garden be allowed to enter into the rain water harvesting system.	Note & agreed.	Not Applicable
31	All the pipes provided for the recharging system should be visible and properly coloured with light blue colour	Note & agreed.	Not Applicable
32	The Board reserves its right to revoke the consent granted to the industry at any time in case the industry is found violating the provisions of Water (Prevention & Control of Pollution) Act 1974 as amended from time to time.	Note & agreed.	Industry Agrees for Compliance.

(b) Compliance status of conditions imposed under consent to operate under Air Act, 1981

S.no.	Conditions of consent issued by ppcb	Compliance by the industry	Compliance Status as verified by the EE and AEE on 08.09.2016
1	This consent is not valid forgetting power load form the P.S.C.P.L. or for getting loan from the financial Institutions.	Industry has not obtained the power load form the P.S.C.P.L. or loan from the financial Institutions after producing the consent.	----
2.	The industry shall discharge all gases through a stack of minimum height as specified in standards laid down by the Board. For Industrial furnaces and kilns . the criteria for selection for selection of height would be based on the fuel	The industry will discharge all the gases through a stack of minimum height.	Complied

	used for the corresponding steam generation. Stack Height for Diesel generating sets : - 0-50 KVA: h + 1.5 mt. 50-100 KVA: h + 2.00 mt. 100-150 KVA: h + 2.50 mt. 150-200 KVA: h + 3.00 mt. 200-250 KVA: h + 3.50 mt. 250-300 KVA: h + 3.50 mt. For higher KVA rating stack height H (in meter) shall be worked out according to formula: $H = h + 2.0 (KVA)^{0.5}$ Where h = height of the building in meters where the generator set is installed		
3.	Industry shall not consume any fuel except F.O. for furnace and diesel for D.G. Set for burning purpose without the prior written permission of the Board.	Industry is consuming only diesel for D.G. Set for burning purpose.	Only electricity is being used as fuel in Induction Furnaces
4.	The industry shall ensure that at any time the emission do not exceed the emissions standards laid down by the Board from time to time.	Agreed & Noted	Complied and Results are with in prescribed Limits
5	The Industry shall apply for renewal/further extension in validity of consent at least two months before expiry of consents.	Complied with.	-----
6	The industry shall comply with any other conditions laid down or directions issued in due course by the Board under the provisions of the Air (Prevention & Control of pollution) Act, 1981.	The industry will comply with any other conditions laid down or directions issued in due course by the Board under the provisions of the Air (Prevention & Control of pollution) Act, 1981.	------
7	The industry shall provide port-holes, platforms and/or other necessary facilities as may be required for collecting the samples of emissions from any chimney, flue or duct or any other outlets.	The industry will provide port-holes, platforms and/or other necessary acilities as may be required for collecting the samples.	Complied
8	Specification of the of the port holes shall be as under :- 1) The sampling port shall be provided at atleast 8 times chimney diameter down streamand 2 times up stream from the flow disturbance. For rectangular cross section the equivalent diameters (De) shall be calculated from the following equation to determine upstream , downstream distance :- $De = 2LW/(L+W)$ Where the length in meters W = Width in meters 2) The sampling port shall be 7 – 10 cm in diameters.	--	Complied
9	The industry shall make necessary arrangements for the monitoring of stack emissions & shall get its emission at least once for small scale industries in a year.	The industry will make necessary arrangements for the monitoring of stack emissions and will monitor its emission.	Complied
10	The industry shall comply with any	Noted &	

	other conditions laid down or directions issued in due course by the Board under the provisions of Air ((Prevention & Control of pollution) Act, 1981.		comply
11	Nothing in this consent shall be deemed to preclude the institution of any legal action nor relieve the applicant from any responsibilities, liabilities or penalties to which the applicant is or may be subjected tounder this or any other act.	Noted & Agreed.	Industry agree to comply
12.	The industry shall plant minimum of three suitable varieties of trees at the density of not less than 1000 trees per hectare all along the boundary of the industrial premises.	The industry will provide the three suitable verities of tree (1000 approx).	Plantation made along with the boundary walls
13	Any amendments/revisions made by the Board in the emission/stack height standards shall be applicable to the industry from the date of such amendments/revisions.	Industry will complied with all amendments/revisions made by the Board in the emission/stack height standards shall be applicable to the industry from the date of such amendments/revisions.	Industry agree to comply
14	The industry shall dispose off its solid wastes generated by the burning of fuel in a proper manner and to the satisfaction of the Board to avoid nuisance and air pollution problem.	Noted & Agreed.	Complied
15	The existing control equipment shall be alter or replaced in accordance with the direction of Board and no control equipment or chimney shall be altered or as the case may be erected or re-erected except with the pervious approval of the Board.	The industry will inform to the board accordingly.	Industry agree to comply
16	The industry shall not discharge any fugitive emissions. All gases shall be emitted through a stack of suitable height, as per the norms fixed by the Board from time to time.	Noted & Agreed	Complied
17	The industry shall provided adequate arrangements for fighting the accidental leakages/discharge of any air pollutant/gas/liquids from the vessel, mechanical equipment etc. which are likely to cause environmental pollution.	The industry has provided adequate arrangements for fighting the accidental leakages/discharge of any air pollutant/gas/liquids.	Complied
18	The industry shall ensure that no air pollution problem or public nuisance is created in the area due to discharge of emissions from the industry.	The industry shall ensure that no air pollution problem or public nuisance is created in the area due to discharge of emissions from the industry.	Industry has agree to comply
19	The industry will install the separate energy meter for running pollution control device and shall maintain record with respect to operation of air pollution control devices so as to the satisfy the Board regarding the regular operation of air pollution control devices and monthly reading may be sent to the Board by the fifth of the	The industry will mention the record as required & will submit monthly report.	Complied

	following month.		
20	The industry shall obtain the authorization under the HWM rules, 1989 as amended.	The industry has obtained the Authorization under the HWM rules, 1989	Complied
21	The industry shall comply with the Environmental & Forest, Govt. Of India notification issued vide No. GSR 371(E) dated 17.05.2002 as amended from time to time and as per the system and procedure/guidelines prescribed by CPCB in 2008 with respect to providing of acoustic arrangement /enclosure/canopy to its D.G. sets.	Noted & agreed	Industry agree to comply
22	The industry shall put up display board indicating Environment data at the at the main entrance gate.	The industry has provided the display board.	Complied
23	The Board reserves its right to revoke the consent granted to the industry at any time in case the industry is found violating the provisions of Air (Prevention & Control of Pollution) Act 1981 as amended from time to time.	Noted & agreed	Industry agree to Comply

The status report is added for information and necessary action, please.

Environmental Engineer

15/7/16

M/S JYOTI INDUSTRIES (UNIT NO. II)

FINAL ENVIRONMENT IMPACT ASSESSMENT REPORT

Expansion of Steel Manufacturing Plant

At: Plot No B-57A, Focal Point,

Phase-VII, Ludhiana, Punjab.

Prepared by

Shivalik Solid Waste Management Limited
(UPL Enviro Infrastructure Group Co.), Vill. Majra, P.O. Dabhota, The. Nalagarh Distt. Solan (H.P.)

C P T L - E I A
E-126, Phase- VII, Industrial Area, Mohali, Punjab- 160055
E-mail: cptleia@gmail.com

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PROJECT AT A GLANCE

Name of Project	:	M/S Jyoti Industries
Location	:	Unit No. II, Plot No B-57A, Focal Point, Phase-VII, Ludhiana, Punjab.
Product / Capacity	:	**Existing:** - Steel Ingots/Billets : 29,000 MTA **Proposed:** - Steel Ingots/Billets : 55,000 MTA **Total:** -Steel Ingots/Billets : 84,000 MTA **Area** : 7620 Sq. mt.
Type of Project	:	Scrap melting by Induction Furnace & molding plus Rolling Billets into round bars & flats etc.
Cost of the Project	:	Rs. 2.78 Cr. (After Expansion)
Power Requirement	:	7000 KW
Source of power	:	From Punjab State Power Corporation Limited
Source of Water Supply	:	Own Tube-well
Quantity of Water	:	Existing Proposed Total
Domestic (KLD)	:	03 02 05
Cooling (KLD)	:	09 06 15
Effluent Quantity	:	Domestic : 04 KLD Cooling : Re-circulated
Effluent treatment	:	Domestic - Treated through septic tank used for plantation within the premises
Alternate source of power	:	DG sets of 350 KVA
Air Pollution Control	:	Bag Filters, Cyclone Chimney of adequate height
Solid Waste	:	Slag from furnace & will be given to cement plant.
Hazardous	:	Solid from APCD. To be disposed off at designated TSDF site

TOR Letter

29/01/16

F. No. J-11011/408/2012-IA.II(I)
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj,
New Delhi - 110003
E-mail: satish.garkoti@nic.in
Tele: 011: 24695316

Dated: 8th January, 2016

To

M/s Jyoti Inustries
Unit No.-II, B-51-A, Phase-VII,
Focal Point, Ludhiana-14

Fax no- 0124-4147-698

Subject: Expansion of Steel Manufacturing Unit (from 29000 MTA to 84,000 MTA) by M/s Jyoti Industries (Unit-II) at B-57A, Phase-VII, Focal Point, Ludhiana, Punjab -prescribing of ToRs regarding.

Sir

This has reference to your letter dated 4th May, 2015 and subsequent letter dated 4th November, 2015 submitting the copy of Gazette Notification dated 12th March, 1982 indicating location of above project in the industrial area.

2.0 It is noted that M/s Jyoti Industries is a Steel manufacturing unit located at Plot No B-57A, Phase-VII, Focal Point, Ludhiana District- Ludhiana, Punjab. The existing capacity of the unit is 29,000 MTA of special steel Ingots. It has been proposed to enhance the capacity of the existing unit by adding Two Induction Furnace of 10 TPH capacity each. After expansion capacity of the unit will be 84,000 MTA of special steel Ingots. The Unit falls in Category B as per schedule; but being situated in the 'Critically Polluted Area' of Ludhiana (Item No. ii of GC), the proposal is appraised at the central level.

3.0 The proposal was earlier considered during the 6th meeting of Expert Appraisal Committee held on 05.03.2013, when the Committee had recommended the ToRs for the project and exempted the proposal for conduct of Public Hearing. The Committee; however, advised project proponent to submit authentic document in support of location of project in the 'Notified Industrial Area'. The project proponent vide letter No 'Nil' dated 04.05.2015 submitted the requisite documents after the lapse of approximately 2 years.

4.0 The above proposal was considered by the Reconstituted Expert Appraisal Committee (Industry) during its 1st meeting held on 18th to 20th November, 2015. The Committee verified and approved the information submitted by the project proponent regarding exemption of PH.

5.0 Based on the information furnished and presentation made by the project proponent, the Committee is of the view that since the requisite documents has been submitted after the lapse of approximately 2 years, the proponent should be prescribed with following specific TOR for undertaking detailed EIA and EMP study in addition to the generic TOR enclosed at **Annexure I read with additional TORs at Annexure-2.**

1

i. One month monitoring should be conducted and the data so generated should be compared with the earlier data and submitted to the Ministry.

6.0 The undersigned is directed to inform that the Ministry of Environment, Forest and Climate Change (MoEFCC) after accepting the recommendation of the EAC (Industry), hereby decided to accord ToRs for the above project.

7.0 It is requested that the draft EIA Report may be prepared in accordance with the above mentioned specific TORs and enclosed generic TORs and additional TORs for obtaining Environment Clearance in accordance with the procedure prescribed under the EIA Notification, 2006 as amended.

8.0 The TORs are valid for a period of three years from today i.e 8.01.2016 and will expire on 7.01.2019. However, this period could be further extended by a maximum period of one year provided an application is made by the project proponent at least three months before the expiry of the validity period, together with updated Form-I, based on proper justification.

08/01/2016

(Dr. Satish C. Garkoti)
Scientist 'F'

Copy to:-

1. The Secretary, Department of Environment, Govt. of Punjab.
2. The Additional Principal Chief Conservator of Forests (C) Ministry of Environment, Forest & Climate Change, Regional Office (NZ) Bays No. 24-25, Sector-31 A, Dakshin Marg, Chandigarh-160030.

(Dr. Satish C. Garkoti)
Scientist 'F'

ANNEXURE –I

GENERIC TERMS OF REFERENCE (TOR) IN RESPECT OF INDUSTRY SECTOR

1. Executive Summary
2. Introduction
   - i. Details of the EIA Consultant including NABET accreditation
   - ii. Information about the project proponent
   - iii. Importance and benefits of the project

3. Project Description
   - i. Cost of project and time of completion.
   - ii. Products with capacities for the proposed project.
   - iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
   - iv. List of raw materials required and their source along with mode of transportation.
   - v. Other chemicals and materials required with quantities and storage capacities
   - vi. Details of Emission, effluents, hazardous waste generation and their management.
   - vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
   - viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
   - ix. Hazard identification and details of proposed safety systems.
   - x. Expansion/modernization proposals:
     - a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing /existing operation of the project from SPCB shall be attached with the EIA-EMP report.
     - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4. Site Details
   - i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
   - ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
   - iii. Co-ordinates (lat-long) of all four corners of the site.

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iv. Google map-Earth downloaded of the project site.

v. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.

vi. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.

vii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)

viii. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area

ix. Geological features and Geo-hydrological status of the study area shall be included.

x. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)

xi. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.

xii. R&R details in respect of land in line with state Government policy

5. **Forest and wildlife related issues (if applicable):**

i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)

ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha)*

iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.

iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon .

v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area.

vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife .

6. **Environmental Status**

i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.

ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO2, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.

iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with – min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.

iv. Surface water quality of nearby River (60m upstream and downstream) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.

v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC.

vi. Ground water monitoring at minimum at 8 locations shall be included.

vii. Noise levels monitoring at 8 locations within the study area.

viii. Soil Characteristic as per CPCB guidelines.

ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.

x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.

xi. Socio-economic status of the study area.

7. Impact Assessment and Environment Management Plan

i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the model used and the input data used for modeling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

ii. Water Quality modelling – in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.

iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.

iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.

v. Details of stack emission and action plan for control of emissions to meet standards.

vi. Measures for fugitive emission control

vii. Details of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.

ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.

x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.

xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.

xii. Action plan for post-project environmental monitoring shall be submitted.

xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8. Occupational health

i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of abovementioned parameters as per age, sex, duration of exposure and department wise.

iii. Annual report of heath status of workers with special reference to Occupational Health and Safety.

iv. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.

9. Corporate Environment Policy

i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.

ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.

iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.

iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or

shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report

10. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.
11. Enterprise Social Commitment (ESC)

    i. Adequate funds (atleast 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

12. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.

13. 'A tabular chart with index for point wise compliance of above TORs.

14. The TORs prescribed shall be valid for a period of three years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).

The following general points shall be noted:

i. All documents shall be properly indexed, page numbered.
ii. Period/date of data collection shall be clearly indicated.
iii. Authenticated English translation of all material in Regional languages shall be provided.
iv. The letter/application for environmental clearance shall quote the MOEF file No. and also attach a copy of the letter.
v. The copy of the letter received from the Ministry shall be also attached as an annexure to the final EIA-EMP Report.
vi. The index of the final EIA-EMP report must indicate the specific chapter and page no. of the EIA-EMP Report
vii. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MOEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry shall also be followed.
viii. The consultants involved in the preparation of EIA-EMP report after accreditation with Quality Council of India (QCI) /National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA-EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. Name of the Consultant and the Accreditation details shall be posted on the EIA-EMP Report as well as on the cover of the Hard Copy of the Presentation material for EC presentation.
ix. TORs' prescribed by the Expert Appraisal Committee (Industry) shall be considered for preparation of EIA-EMP report for the project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Where the documents provided are in a language other

than English, an English translation shall be provided. The draft EIA-EMP report shall be submitted to the State Pollution Control Board of the concerned State for conduct of Public Hearing. The SPCB shall conduct the Public Hearing/public consultation, district-wise, as per the provisions of EIA notification, 2006. The Public Hearing shall be chaired by an Officer not below the rank of Additional District Magistrate. The issues raised in the Public Hearing and during the consultation process and the commitments made by the project proponent on the same shall be included separately in EIA-EMP Report in a separate chapter and summarised in a tabular chart with financial budget (capital and revenue) along with time-schedule of implementation for complying with the commitments made. The final EIA report shall be submitted to the Ministry for obtaining environmental clearance.

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ANNEXURE-2

ADDITIONAL TORS FOR INTEGRATED STEEL PLANT

1. Iron ore/coal linkage documents along with the status of environmental clearance of iron ore and coal mines
2. Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact
3. For Large ISPs, a 3-D view i.e. DEM (Digital Elevation Model) for the area in 10 km radius from the proposal site. MRL details of project site and RL of nearby sources of water shall be indicated.
4. Recent land-use map based on satellite imagery. High-resolution satellite image data having 1m-5m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc. for the 10 Km radius area from proposed site. The same shall be used for land used/land-cover mapping of the area.
5. PM(PM_{10} and $P_{2.5}$) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM_{10} to be carried over.
6. All stock piles will have to be on top of a stable liner to avoid leaching of materials to ground water.
7. Plan for the implementation of the recommendations made for the steel plants in the CREP guidelines.
8. Plan for slag utilization
9. Plan for utilization of energy in off gases (coke oven, blast furnace)
10. System of coke quenching adopted with justification.
11. Trace metals Mercury, arsenic and fluoride emissions in the raw material.
12. Trace metals in waste material especially slag.
13. Trace metals in water

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Format for Executive Summary

Executive summary of the report in about 8-10 pages incorporating the following:

i. Project name and location (Village, Dist, State, Industrial Estate (if applicable)
ii. Products and capacities. If expansion proposal then existing products with capacities and reference to earlier EC.
iii. Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
iv. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
v. Measures for mitigating the impact on the environment and mode of discharge or disposal.
vi. Capital cost of the project, estimated time of completion
vii. Site selected for the project – Nature of land – Agricultural (single/double crop), barren, Govt/private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note – in case of industrial estate this information may not be necessary)
viii. Baseline environmental data – air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
ix. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
x. Likely impact of the project on air, water, land, flora-fauna and nearby population
xi. Emergency preparedness plan in case of natural or in plant emergencies
xii. Issues raised during public hearing (if applicable) and response given
xiii. CSR plan with proposed expenditure.
xiv. Occupational Health Measures
xv. Post project monitoring plan

COMPLIANCE OF TORs

TORs for Jyoti Industries
Plot No.- B-57A, Focal Point, Ludhiana, Punjab

Sr. No.	Item Description	Remarks/ Compliance
1.	**Executive Summary**	
2.	**Introduction** : i. Details of the EIA Consultant including NABET accreditation ii. Information about the project proponent iii. Importance and benefits of the project	i. M/s Shivalik Solid Waste Management Limited (UPL Enviro Infrastructure Group Co.), Vill. Majra, P.O. Dabhota, The. Nalagarh Distt. Solan (H.P.) ii. M/s Jyoti industries is a partnership firm. The partners of the firm are as under:- 1. Sh. Avtar singh 2. Sh. Pritpal singh 3. Sh. Ekjot singh Chawla iii. (a) Boosting up of economy of the area. (b) To provide employment for local people by expansion. (c) Change in life style of locale people.
3.	**Project Description :**	
	i. Cost of project and time of completion.	Cost of project: Rs. 2.78 Cr. Time of completion: two year after granting EC.
	ii. Products with capacities for the proposed project.	Steel Ingots/Billets : 55, 000 MTA (proposed)
	iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.	Existing Product:- Steel Ingots/Billets : 29, 000 MTA Sufficient land is available- 7620 Sq. mt. (within the premises) Earlier EC is not available, as it is established in the year of 1996.
	iv. List of raw materials required and their source along with mode of transportation.	Raw Materials: MS/CI Scrap, Sponge/Pig Iron, Ferro Alloys. Mode of Transportation: Truck
	v. Other chemicals and materials required with quantities and storage capacities.	No other chemicals and materials are required.
	vi. Details of Emission, effluents, hazardous waste generation and their management.	**Emission:** Main source is furnace. Main emissions are particulate matters etc. which contains oxides of iron,

		chrome, manganese etc. **Effluents:** Domestic effluent quantity will be 4 m^3/day, which will be treated through septic tank, no effluent generation from process. **Hazardous Waste :** i. Solids from APCD. To be disposed off at designated TSDF site. ii. Used DG Set oils- sold to authorized recyclers.
	vii. Requirement of water, power with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)	Water requirement- 20 KLD Water supply source-Own tube well and supply of PSIDC, Ludhiana, Power- 7,000 KW, Water balance diagram- fig. 2.3, page no. 21. Man power requirement- 100
	viii. Process description along with major equipments and machineries, process flow sheet (quantitative) from raw material to products to be provided.	Machinery- Induction Furnace, Magnetic Transfer System, Over Head Cranes, Slag Processing & Metal Recovering Plant, Cooling Tower, Weigh Bridge. Manufacturing process - Fig. 2.2, page no. 17
	ix. Hazard identification and details of proposed safety systems.	Provided on page no.89
	x. Expansion/ modernization proposals : a. Copy of all the Environmental Clearance (s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing/ existing operation of the project from SPCB shall be attached with the EIA-EMP report. b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/ or EIA Notification 2006 shall be provided. Copies of Consent to Establish/ No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of F.Y. 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the	NOC from PPCB is attached as Annexure. VIII at Page. 114 Not applicable

	SPCB shall be submitted.	
4.	**Site Details** i. Location of the project site covering village, Taluka/ Tehsil, District and State, Justification for selecting the site, whether other sites were considered.	Village / Plot no.-B57A, Focal Point, District- Ludhiana, Tehsil- Ludhiana, State- Punjab The proposed project is expansion project and situated in an approved Industrial area, so there is no alternative site considered.
	ii. A Toposheet of the study area of radius of 10 km. and site location on 1:50,000/ 1: 25,000 scale on an A3/A2 sheet (including all eco-sensitive areas and environmentally sensitive places).	Given on fig. 3.4, page no. 32
	iii. Co-ordinates (lat-long) of all four corners of the site.	30º52'56 North, $75^0$55'36 East
	iv. Google map-Earth downloaded of the project site.	Refer Fig. 3.2, page no. 30
	v. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial Area/ Estate/ Complex, layout of Industrial Area indicating location of unit within the Industrial Area/ Estate.	Given on fig. 3.3, page no. 31
	vi. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/ greenbelt, in particular.	Provided as Annexure-I on page no. -94
	vii. Land-use break-up of total land of the project site (identified and acquired), government / private – agricultural, forest, wasteland, water bodies, settlements, etc. Shall be included. (Not required for industrial area).	Not applicable. As project site is in Industrial Focal point of Ludhiana
	viii. A list of major industries with name and type within study area (10 Km. radius) shall be incorporated. Land use details of the study area.	Provided on page no. 130 The project comes under the focal point so the land use pattern of the area is industrial.
	ix. Geological features and Geo-hydrological status of the study area shall be included.	The area is generally plain and has good slope from North-East to South-West The ground water is polluted due to industrial effluents
	x. Details of Drainage of the project upto 5 km radius of study area. If the site is within 1 km. radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and	It is an existing land in Industrial Focal Point with proper drainage facilities. The area is not flood prone and no river exists within 1 km radius.

	maximum Flood Level of the river shall also be provided. (Mega green field projects).	
	xi. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.	Expansion is in existing land. No fresh land acquisition is required.
	xii. R & R details in respect of land in line with State Government policy.	It is an existing land in Industrial Focal Point, so R &R details are not applicable.
5.	**Forest and wildlife related issues (if applicable) :** i) Permission and approval for the use of forest land (forestry clearance), if any and recommendations of the State Forest Department (if applicable).	Not Required
	ii) Land-use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land more than 40 ha).	Not required
	iii. Status of Application submitted for obtaining the stage 1 forestry clearance along with latest status shall be submitted.	Not required
	iv.) The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon.	No such notified area exist within 10Km of project site.
	v.) Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule 1 fauna, if any exists in the study area.	No such notified area exist within 10Km of project site.
	vi) Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972 to the Standing Committee of the National Board for Wildlife.	
6.	**Environmental Status :** **i.** Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.	Determination of atmospheric inversion level is provided on Page. 102. Micro-meteorological data is provided on page no. 35-39.
	ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO2, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.	Provided on page no. 51-52.

	iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov., 2009 along with – min. max. average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an Annexure to the EIA Report.	Provided in page no.51-52
	iv. Surface water quality of nearby River (60 m upstream and downstream) and other surface drains at eight locations as per CPCB/MOEF & CC guidelines.	Provided on page no. 52-64
	v. Whether the site falls near to polluted stretch of river identified by the CPCB/MOEF&CC.	No
	vi. Ground water monitoring at minimum at 8 locations shall b e included.	Provided on page no. 53-63
	vii. Noise levels monitoring at 8 locations within the study area.	Provided on page no. 64
	viii. Soil Characteristic as per CPCB guidelines.	Provided on page no. 67
	ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.	In all about 8-10 trucks shall be required for transportation of Raw material and finished product.
	x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.	Flora and fauna provided on page no. 42
	xi. Socio-economic status of the study area.	Demography and socio-economic scenario- page no. 42-44
7.	**Impact Assessment and Environment Management Plan** i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modeling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the model used and the input data used for modeling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.	Air Modeling is provided as Annexure-II from page no. 95
	ii. Water Quality modeling – in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modeling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.	Not applicable. As Treated domestic water will be disposed off in public sewer.

	iii. Impact of the transport of the raw materials and end products on the surrounding environment, shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.	In all about 8-10 trucks shall be required for transportation of Raw material and finished product. Since the existing road is sufficient to cater to this meager increase in transportation, therefore there will be negligible impact.
	iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E (P) Rules.	There is no use of water in industrial process. Domestic wastewater will be treated through septic tank.
	v. Details of stack emission and action plan for control of emissions to meet standards.	APCD dust containing metallic contaminations shall be generated from stack which will be affectively controlled to prescribed standards by bag filters.
	vi. Measures for fugitive emission control.	Collection through hood & vented to the atmosphere through bag filters.
	vii. Details of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste shall also be included. EMP shall include the concept of waste-minimization, recycle/ reuse/ recover techniques, Energy conservation and natural resource conservation.	-APCD dust to be reused in the process & rest to the TSDF, -Used oil from D.G. set to authorized recyclers.
	viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.	No utilization of fly ash ensured as per fly ash notification.
	ix. Action plan for the green belt development plan in 33% area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.	Refer page no. 84-86 Plant species:- Neem, Silver oak & Jamun
	x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.	Rainwater harvesting- page no. 87
	xi. Total capital cost and recurring cost/ annum for environmental pollution control measures shall be included.	Capital cost—64 lacs Recurring cost—8.5 lacs
	xii. Action plan for post-project environmental monitoring shall be submitted.	Details are given on page no. 71.

	xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.	All are provided as separate Risk assessment document.
8.	**Occupational Health :** i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL, so that health of the workers can be preserved.	Occupational Hazards details provided on page no. 88-92
	ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays. Audiometry, Spirometry. Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analyzed data of abovementioned parameters as per age, sex, duration of exposure and department wise.	Routine health checkup- page no. 90
	iii. Annual report of health status of workers with special reference to Occupational Health and Safety.	Routine health checkup- page no. 90
	iv Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.	Plan to ensure the occupational health & safety is provided from Page-88 Fund allocation is provided on Page- 84.
9.	**Corporate Environment Policy** i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.	Environment Policy is provided as Annexure-XII on Page- 134.
	ii. Does the Environment Policy prescribe for standard operating process/ procedures to bring into focus any infringement/ deviation/ violation of the environmental or forest norms/ conditions? If so, it may be detailed in the EIA.	Environment Management Cell will be responsible for all Environment related activities.
	iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.	Environment Management Cell will be responsible for all Environment related activities.
	iv. Does the company have system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the Company and/ or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.	Environment Management Cell will be responsible for all Environment related activities.
10.	Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.	Restroom, Drinking water, Toilet facilities @1 toilet for 20 workers shall be provided.
11.	**Enterprise Social Commitment (ESC)**	

	i. Adequate funds (at least 2.5% of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.	Provided in the report.
12.	Any litigation pending against the project and/ or any direction/ order passed by any Court of Law against the project. If so, details thereof shall also be included. Has the unit received any notice under the Section-5 of Environment (Protection) Act, 1986 or relevant sections of Air and Water Acts ? If so, details thereof and compliance / ATR to the notice (s) and present status of the case.	Not Applicable
13.	A tabular chart with index for point wise compliance of above TORs.	Complied
14.	EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).	Public Hearing was exempted

EXECUTIVE SUMMARY

1.0 INTRODUCTION

M/s Jyoti Industries unit-II is already manufacturing Steel Ingots, at Plot No B-57A, Phase-VII, Focal Point, Ludhiana, Punjab. They now want to enhance the capacity of their unit by adding two Induction Furnace of 10 TPH capacities each. The existing capacity of the unit is 29, 000 MTA and after expansion capacity of the unit will be 84,000 MTA. Accordingly they have to get Environmental Clearance as per G.O.I Notification No. 1533 dated 14-09-2006.

Although the units falls in **Category B** as per the schedule but since the unit lies within the "Critically Polluted Areas" of Ludhiana as notified by the Central Pollution Control Board, the Environmental Clearance is to be given by **MOEF**, Govt. of India, New Delhi. In view of this, reference was made to them. The proposal was considered by the EAC- MoEF in their 6th Expert Appraisal Committee (Industry) meeting held on 05-03-2013 when TORs were issued by them for the preparation of Final EIA Report.

2.0 PROJECT DESCRIPTION

2.1 Finished Product

The units will manufactures following Product:

1. **MS Ingots (MTA):**

Existing	Additional	Total
29000	55000	84000

2.2 Installed Capacity

The installed capacity of the project will be 84000 MTA.

The unit after commissioning is expected to operate for an effective period of 300 days in a year on 24 hours per day basis.

2.3 Raw Materials

The raw materials used in the manufacturing of special steel Ingots are as under:

MS/CI Scrap, Sponge / Pig Iron, Ferro Alloys

Will be sourced from Domestic as well as International Market

2.4 Manufacturing Process

MS Scrap is put into the induction furnace pot through magnetic conveying system, where it is heated to 1800 ^{0}C. Scrap is melted and is heated for about 100 minutes. In the molten steel some Ferro alloys are added according to the carbon contents in the scrap. The molten steel is then put into the moulds with the help of hydraulic system where, after cooling, the product is taken out from the moulds and the same is ready for further use.

2.5 Facilities at the Plant

The firm has acquired 7620 sq mt of land where factory building, boundary wall and some other ancillary structures are proposed to be constructed.
It provides adequate space for the following areas of working:

1. Storage for raw material and finished goods.
2. Plant and Machinery Sheds
3. Storage and handling of slag
4. DG set room
5. Offices
6. Toilets
7. Water and storage tanks
8. Septic Tank

Open space will be landscaped and trees will be planted in due course of time.

2.6 Machinery

Following Machinery will be in position in the unit:

S.No.	Machinery	Existing	Proposed
1.	Induction Furnace	02No. (4 TPH each will be replaced)	02No. (10 TPH each)
2.	Magnetic Transfer System	2 No.	1 No.
3.	Over Head Cranes	3 No	1 No.
4.	Slag Processing & Metal Recovering Plant	1 No.	1 No.
5.	Cooling Tower	2 No.	2 No.
6.	Weigh Bridge	1 No.	---

2.7 Power

The existing power of the unit is 7000 KW. No additional power is required for expansion.

2.8 Water Supply

The existing water requirement is 12 KLD, which include about 9 KLD makeup water for cooling purpose and 3 KLD for domestic purposes. After expansion water requirement for domestic purpose will be 5 KLD & makeup water for cooling will be 15 KLD. The total consumption of water will be 20 KLD would be met from ground water through a tube-well already existing within the premises and water supply of PSIDC, Ludhiana, Punjab.

2.9 Manpower

In all there will be about 100 persons out of which no persons will stay in the factory except watchman.

2.10 Waste Handling

i.) Liquid waste

There will be no generation of waste from manufacturing process. The domestic effluent shall be treated through septic tank. The domestic treated water will be discharged into Public Sewer.

ii) Solid waste

Solid wastes in the unit are from the following sources.

i.)Solids from APCD

ii.) Slag from the furnace

Solids from APCD will be disposed off at designated land filling site. Slag from furnace will be sent to cement plant for further use.

iii) Hazardous waste

The Hazardous wastes generated from the unit is used DG Set oils. The used oil from D.G. Set shall be sold to recyclers. There are no other hazardous wastes.

3.0 Description of Environment

3.1 Present Environment

Various Environmental factors as existing in the study area which are liable to be affected by the activities have been assessed both quantitatively and qualitatively. Baseline environmental data generation of study area was carried out during the period April –June, 2013 and one month study was carried out in the month of January, 2016.

3.2 Ambient Air Quality

The $PM_{2.5}$, PM_{10}, SO_2, NO_2 and other pollutant levels were monitored at eight locations in the study area. The observed mean levels of criteria pollutants are as follows; $PM_{2.5}$ 20.1 to 48.9 μg/m^3, PM_{10} 60.5 to 89.16 μg/m^3, SO_2 7.1 to 15.4 μg/m^3 and NO_2 17.0 to 29.1 μg/m^3. The baseline air quality levels are within the National Ambient Air Quality Standards prescribed for residential and industrial area (Standards are 60, 100, 80 and 80μg/m^3 for $PM_{2.5}$, PM_{10}, SO_2 and NO_2).

3.3 Water Quality:

Eight surface water samples and eight groundwater samples were collected from the study area for chemical and biological analysis. The surface water quality and groundwater quality of the study area are satisfactory. The groundwater quality is fit for potable use. No metallic or bacterial contamination was found in the water quality.

3.4 Noise Environment

Ambient noise levels were monitored at 8 locations in the study area. The observed L_{eq} levels for day range from 36 dB (A) to 47 dB (A) and night time ranges from 27 to 37 dB (A). The baseline noise levels are well within the National Standards.

3.5 Soil Quality:

Two soil samples were collected from the study area and analyzed. The texture of soil is sandy loam. The organic matter, nitrogen, potassium and phosphorus content of the soil are moderate. The pH of all the soil samples is within the acceptable range.

3.6 Ecology Quality:

The tree species mainly dominated by are kikar, Neem, Peepal and Bargad etc are the dominant plant species of the study area. Mongoose, porcupine, jungle cat, cobra, krait,

snakes, hare, pigeon and variety of birds are the common animals of the study area. No endangered species of plants and animals are found in the study area.

3.7 Sensitive Ecosystem:

Within 10 km distance of the project site, no plant or animal species were found to be on the endangered list. No ecologically sensitive area like biosphere reserve, tiger reserve, elephant reserve, migratory corridors of wild elephant, wetland, national park and wildlife sanctuary are present within 10 km distance of the project site. Reserve and Protected Forests surrounds the project site in all directions.

Agriculture and industrial workers dominate the occupation structure of the study area. Several induction furnaces, rolling mills, ferroalloy plants, brick kilns, and other small units are present in the study area.

4.0 ENVIRONMENT MANAGEMENT PLAN

4.1 General

Environment Management Plan (E.M.P) in a project is prepared to mitigate the possible adverse effect of various activities on the existing environmental factors, during construction as well as in operational stages, to avoid their deterioration, if any. It is desirable that necessary steps are taken right from the beginning of the project to be more effective. As a social and moral obligation on the part of everybody it becomes our bounden duty to leave our environment to the next generation in a state at least what we inherited from our ancestors, if not in a better condition. E.M.P. for this project has been prepared keeping in view the existing conditions and likely changes which may occur due to the proposed project. The implementation and monitoring of different control measures have also been covered. These are discussed as under:-

4.2 Air Environment

During construction water will be sprinkled on the soil to avoid dust generation if any. The debris and unused construction malbas shall be removed immediately for recycling, if any, or for land fill.

Bag filters & Cyclone shall be provided to arrest SPM from flue gases to keep it within permissible limits. All vehicles for service activities at the project site shall be

checked for vehicular emission. The agencies will be asked to keep them within prescribed limits. They will also be asked to maintain them properly.

After the project comes under operation, a chimney of suitable height shall be provided for the D.G. Set to control the G.L.C. of S.P.M., SO_2, & NO_x levels. Extensive tree plantation shall be resorted to for further improving the air environment in general and minimize noise levels.

4.3 Water Environment:

Water shall be drawn from a tube-well installed in the factory area and distributed through an Over Head Service Reservoir. This will all be a closed system. During construction existing toilet facilities shall be used by the labour. Finally waste water from the toilets shall be taken to Septic tank through underground delivery system and treated up to tertiary level. Treated water will be discharged into Public Sewer. It will not be thrown outside either on land or in any water body. Roof top Rain Water shall be harvested and used for ground water recharge to minimize effect of withdrawal of water from the underground.

4.4 Land Environment:

No additional land will be required for expansion. The requirements of sand and aggregates for the construction works like foundation etc will be supplied by venders. The land use is thus so planned that there is minimum adverse impact.

4.5 Solid Waste

The other solid wastes from the bag filters shall be stored in a dumping pit of R.C.C. Construction and disposed off in the designated land fill places. Slag from the furnace received from the manufacturing process shall be given to cement plant for further use or use for making roads.

4.6 Green Belt:

The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. The green belt helps to capture the fugitive emission and to attenuate the noise generated, apart from improving the aesthetics. Development of green belt and other forms of greenery shall also prevent soil erosion and washing away of topsoil besides helping in stabilizing the functional ecosystem

and further, to make the climate more conducive and to restore water balance. It is planned that the selected plants will be grown as per normal horticultural (or forestry) practice and authorities responsible for plantation will also make sure that adequate provision for watering and protection of the saplings exists at site.

5.0 ENVIROMENT MONITORING PLAN

Regular monitoring of all significant environmental parameters is essential to check the compliance status vis-à-vis the environmental laws and regulation. The frequency of the monitoring will be as follows:

- The ambient Air quality shall be monitored at project site and two upward and downstream locations once every quarter for $PM_{2.5}$, PM_{10}, NO_x & SO_2, and CO levels during the Construction Phase and Operational Phase.
- The Ambient Noise Levels shall also be monitored once every six months.

6.0 EXPENDITURE ON ENVIRONMENTAL MEASURES

S.No	Title	Capital Cost Rs. Lacs	Recurring Cost Rs. Lacs (Annum)
1	Air Pollution Control	48.0	5.0
2.	Water Pollution Control/ sewage Treatment Plant	2.0	1.0
3.	Noise Pollution Control (Including cost of Landscaping, Green Belt)	5.0	1.0
4.	Solid Waste Management	1.0	---
5.	Environment Monitoring and Management (Including Establishment of Laboratory)	2.0	0.5
6.	RWH	3.0	--
7.	Miscellaneous (Appointment of Consultants, Management of Environment Cell, Consent fees and monitoring)	3.0	1.0
	Total	**64.0**	**8.5**

7.0 RAIN WATER HARVESTING

Recharge Potential

To compensate the withdrawal of underground water to some extent. Rain Water harvesting has been provided. The recharge is proposed to be done from the roof top of the building only. The recharge potential thus available is as below:-

Area of the catchment (Roof Top)	A	=	3800 m^2
Average annual rainfall	R	=	1.0 m.
Runoff coefficient	C	=	0.8

About 80% of rainfall that falls on the roof (Roofs with tiles) is available for use.

Annual Roof Top Rain Water Harvesting Potential = A X R X C

= 3040 m^3

FINAL ENVIRONMENT IMPACT ASSESSMENT REPORT

CHAPTER 1.0
INTRODUCTION

1.1 PURPOSE OF THE REPORT

M/s Jyoti Industries unit-II is already manufacturing Steel Ingots, at Plot No B-57A,Phase-VII, Focal Point, Ludhiana District- Ludhiana, Punjab. They now want to enhance the capacity of their unit by adding Two Induction Furnace of 10 TPH capacity each. The existing capacity of the unit is 29000 MTA and after expansion capacity of the unit will be 84000 MTA. Accordingly they have to get Environmental Clearance as per G.O.I Notification No. 1533 dated 14-09-2006.

Although the unit falls in Category B as per schedule but since the unit falls within 10 km of the "Critically Polluted Areas" of Ludhiana as notified by the Central Pollution Control Board, the Environmental Clearance is to be given by MOEF, Govt. of India, New Delhi. In view of this reference was made to them. The proposal was considered by the EAC- MoEF in their 6th Expert Appraisal Committee (Industry) meeting held on 05-03-2013 when TORs were issued by them for the preparation of Final EIA Report.

This final report has, therefore, been prepared as per the TOR issued to assess the likely impact of the proposed project on various factors which may be affected with the implementation of the program, if any, and to suggest remedial/ precautionary measures, for the same.

1.2 STUDY CONCEPTS

1.2.1 SCOPE

This study contains various information on the Environmental factors viz-a-viz contribution of pollution by the proposed unit. These factors include air, water, noise, health, socio economic, land use and agricultural pattern etc. It discusses the predicted impact of the proposed plant activities on these factors. Broadly under the scope it is envisaged:

- To assess the present status of air, water, land, noise, biological & socio economic components of environment.
- To identify, quantify & evaluate positive or negative impacts of various operations on different environmental components.
- To evaluate proposed pollution control measures and to suggest additional control strategies, if any, to mitigate the adverse effects.
- To identify risk factors & suggest their mitigation including occupational health of the workers.
- To prepare Environmental Management Plan for utilization and adoption of safety measures.
- To delineate future Environmental quality monitoring programme.
- To identify the needs of the study area and suggest supportive measures under Corporate Social Responsibility.

1.2.2 METHODOLOGY

Various steps involved in Environmental Impact Assessment study of the proposed project are divided into the following phases:

- Identification of significant environmental parameters and to study the existing status within the impact zone with respect to air, water, noise, soil and socio economic components of the environment.
- Study of various activities of the proposed project for manufacture of final product and to identify the area leading to impact/change in environmental quality.
- Identification/prediction of impacts for the identified activities and to study levels of impacts on various environmental components.

- Evaluation of final levels of various parameters after superimposing the predicted impacts over the baseline quality.
- Formulation of Environmental management plan for implementation in the proposed project.

1.3 PROFILE OF THE COMPANY AND PROMOTERS

M/s Jyoti Industries is a partnership firm. The partners of the firm are as under:

1. Sh. Avtar Singh
2. Sh. Pritpal Singh
3. Sh. Ekjot Singh Chawla

All Partners have vast experience in various industries and trades including Steel industry.

CHAPTER 2.0
PROJECT DESCRIPTION

2.1 GENERAL

This is an existing steel manufacturing unit. Now they want to increase the capacity of the unit with installing two Induction furnaces of capacity 10 TPH each for manufacturing of special Steel Ingots at Plot No. B-57A, Focal Point, Phase-VII, Ludhiana, Punjab. The unit is situated in Approved Industrial Area. It is about 14 kms from Ludhiana bus stand and about 80 km from Chandigarh. The total area of the plot is about 7620 sqm. The capacity of the unit after expansion will be 84,000 MTA special steel Ingots.

2.2 RAW MATERIALS

The raw materials used in the manufacturing of special steel Ingots are as under:

MS/CI Scrap, Sponge / Pig Iron, Ferro Alloys

Will be sourced mainly from Domestic market, sometimes from International Market if needed.

Table 2.1: Details of the raw material required

S.No.	Raw Material	Source	Mode of transport
1.	Steel scrap	Mostly from Local Market	By Truck
2.	Sponge iron		
3.	Ferro alloys		

2.3 FINISHED PRODUCTS

The unit will manufacture following Products:

- **MS Ingots (MTA):**

Existing	Additional	Total
29000	55000	84000

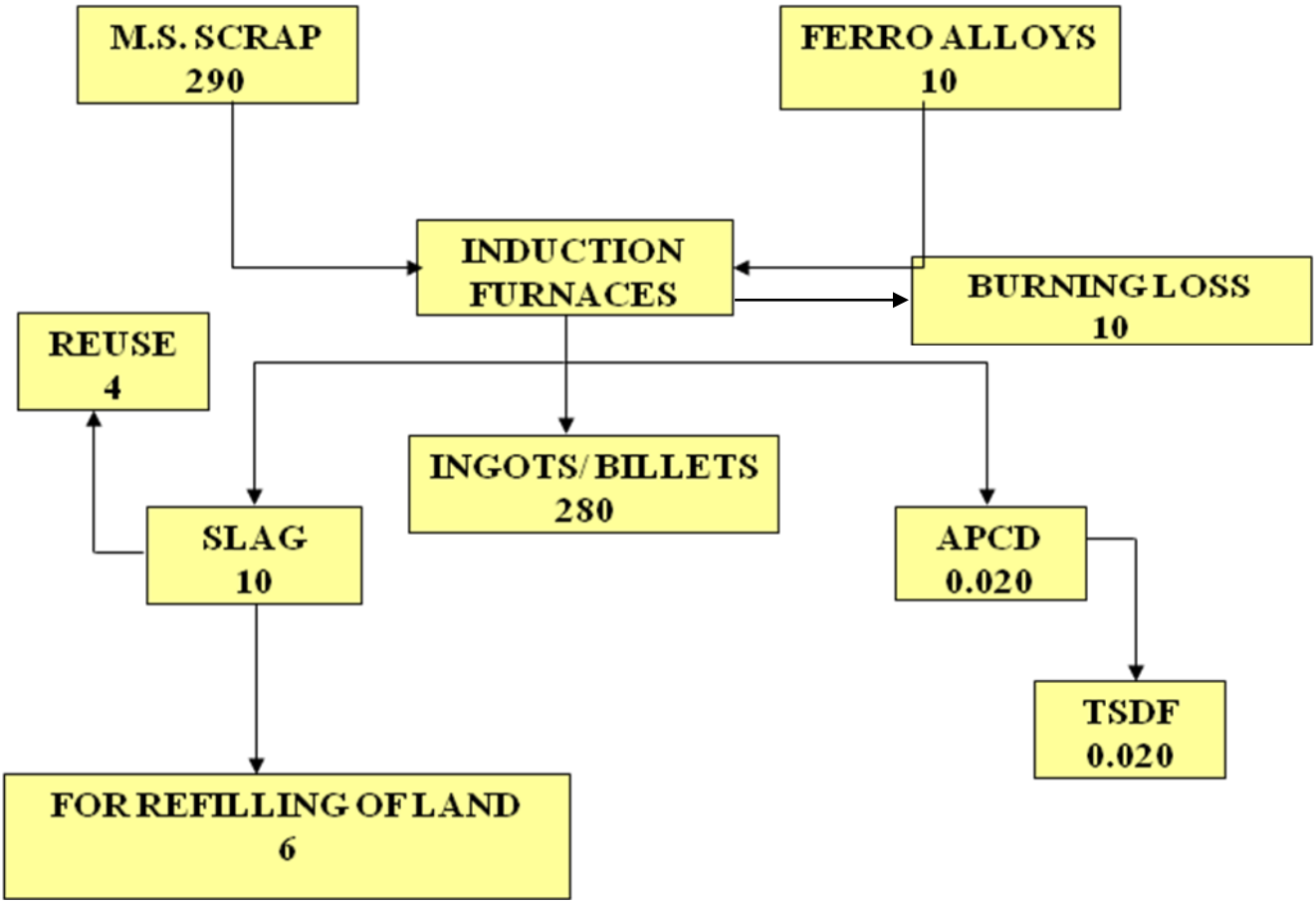
2.4 INSTALLED CAPACITY

The installed capacity of the project will be 84000 MTA.

The unit after commissioning is expected to operate for an effective period of 300 days in a year on 24 hours per day basis.

Figure-2.1

MATERIAL BALANCE (MTD)



2.5 MANUFACTURING PROCESS:

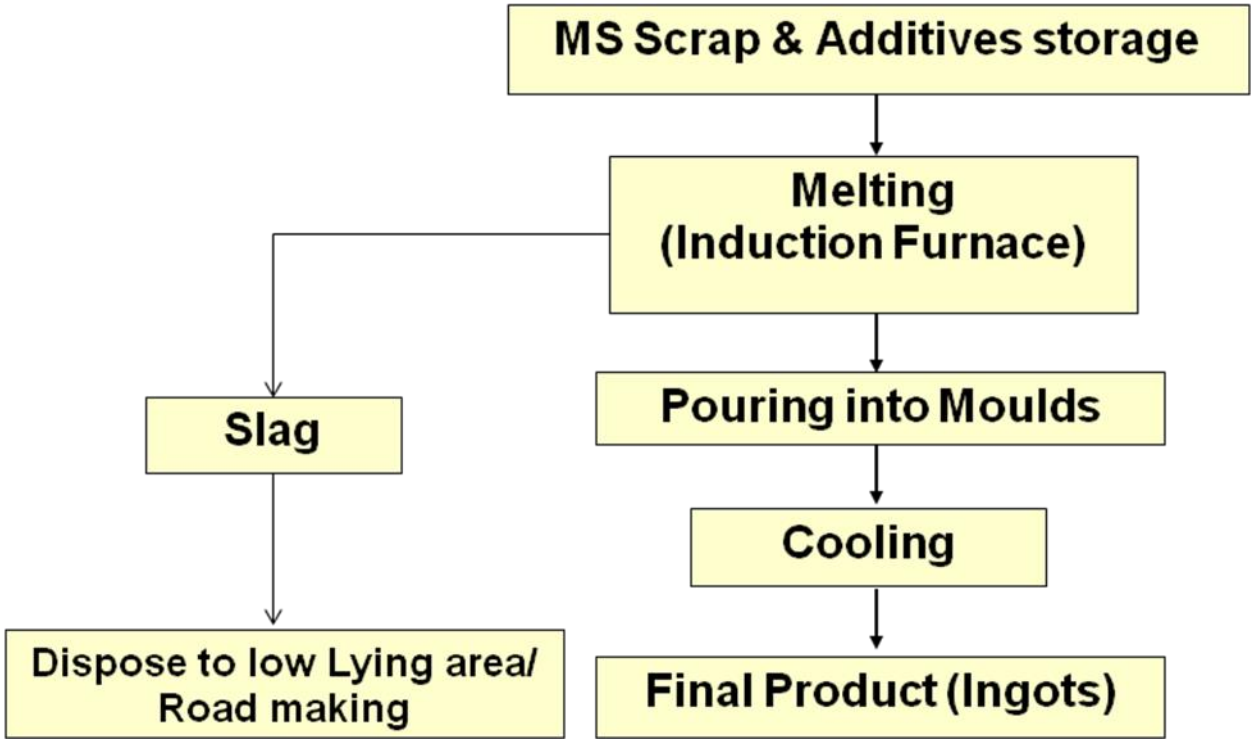
MS Scrap is put into the induction furnace pot through magnetic conveying system, where it is heated to 1800 ^{0}C. Scrap is melted and is heated for about 100 minutes. In the molten steel some ferro alloys are added according to the carbon contents in the scrap. The molten steel is then put into the moulds with the help of hydraulic system where, after cooling, the product is taken out from the moulds and the same is ready for further use.

2.6 OTHER FEATURES:

- The plant would incorporate the most modern control system using the latest microprocessor based Dust Control System.
- Cooling water circuit is close circuited, whereby ensuring no generation of waste water.
- The process, selected envisages re-cycling all the material collected in the pollution control equipment whereby ensuring no generation of solid waste.
- The plant lay out is so arranged that the major production units are laid in a straight line whereby minimizing / avoiding the various transfer points.
- Capacity of the units is planned so as to minimize the number of
- Equipment.

Figure: 2.2

MANUFACTURING PROCESS



2.7 FACILITIES AT THE PLANT

The firm has acquired 7620 sqm of land where factory building, boundary wall and some other ancillary structures are proposed to be constructed.

It provides adequate space for the following areas of working:

1. Storage for raw material and finished goods.
2. Plant and Machinery Sheds
3. Storage and handling of slag
4. DG set room
5. Offices
6. Toilets
7. Water and storage tanks
8. Septic Tank

Open space will be landscaped and trees will be planted in due course of time.

2.8 MACHINERY

Following Machinery will be in position within the unit:

Table 2.2: Machinery Details

S.No.	Machinery	Existing	Proposed
1.	Induction Furnace	02No. (4 TPH each will be replaced)	02No. (10 TPH each)
2.	Magnetic Transfer System	2 No.	1 No.
3.	Over Head Cranes	3 No	1 No.
4.	Slag Processing & Metal Recovering Plant	1 No.	1 No.
5.	Cooling Tower	2 No.	2 No.
6.	Weigh Bridge	1 No.	---

2.9 POWER

The unit now requires about 5922.846 KW of Electricity, whereas the sanctioned load is 7000 KW and was supplied by PSPCL. No additional power is required for expansion. One D.G. set of 125 KVA already exists and one more D.G. Set of capacity 225 KVA will be installed as stand by for cooling of furnaces and running of auxiliary equipment during power failure.

Detail of Energy balance is given below:

Total Load	**7000 KW**
Process Load	6930 KW
Office Lighting Load	34 KW
Street Lighting Load	46 KW

Saving	
Energy savers	346.5 KW(@5% energy saving)
Use of LED for inner lighting	24 KW **(**LED of 6 W instead of 40W tubes @70%)
Use of Solar energy for street lighting	46 KW(100% replacement)
Total Saving	416.5 KW
% saving	12.5%

2.10 WATER SUPPLY

Water consumption for the unit will be small as the requirements are only for cooling system where water will be re-circulated in a closed circuit. The existing water requirement is 12 KLD, which include about 9 KLD makeup water for cooling purpose and 3 KLD for domestic purposes. After expansion water requirement for domestic purpose will be 5 KLD & makeup water for cooling will be 15 KLD. The total consumption of water will be 20 KLD would be met from ground water through

a tube-well already existing within the premises and water supply of PSIDC Ludhiana, Punjab. Water balance of the project has been shown in **Figure 2.3.**

2.11 MANPOWER

The requirement of personnel for the proposed plant has been made keeping in view of the following:

- Technical concept of plant, including process control and instrumentation.
- Smooth and efficient operation of the plant.
- Effective co-ordination between the various departments within the plant.
- Optimum organization will well defined and judicious job distribution
- Optimum utilization of different grades of workmen and supervisory staff and Maximum capacity of the facilities.

In all there will be about 100 persons out of which no persons will stay in the factory except watchman.

2.12 WASTE HANDLING

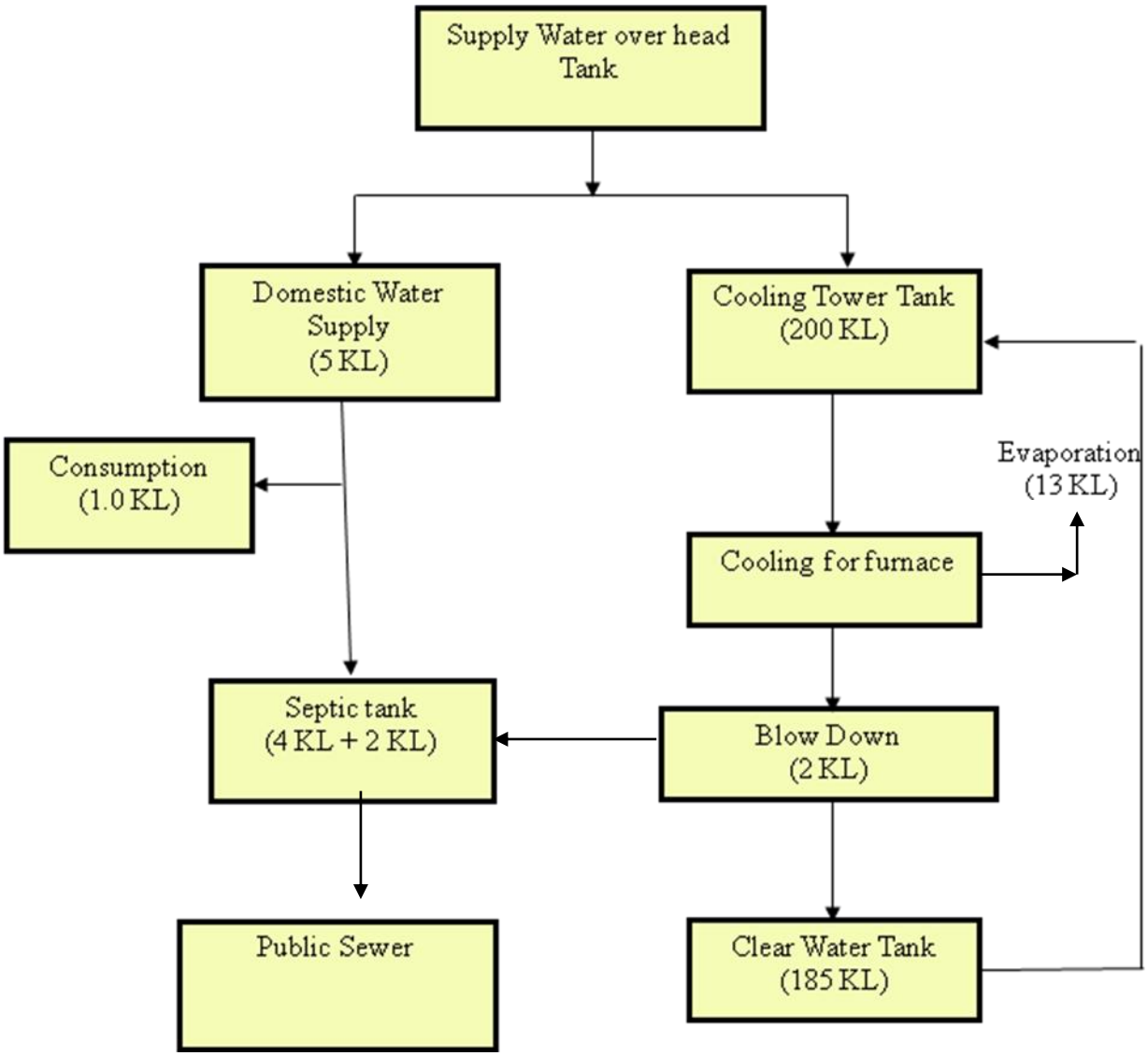
2.12.1 Liquid waste

There will be no use & discharge of water in the manufacturing process. Some waste water from the toilets in the offices is expected which will be treated through septic tank and the treated effluent will be discharged into public sewer. During rainy season this surplus treated water will be passed on to the nearest drain where ample dilution will take place. Similarly, water coming out from cooling system will be reused and only make up water shall be added.

Figure: 2.3

WATER BALANCE

(KLD)



Consumptive use of water = 5+ 15 = 20 KLD

2.12.2 Solid waste

Solid wastes in the unit are expected from the following sources.

i.) Slag from the furnaces

ii.) Solids from the Bag filters & Cyclones.

Solids from APCD i.e. Bag Filters and Cyclones contain traces of metals in addition to dust, so these will be collected separately in a dumping pit and sent to TSDF site for disposal. Slag from the furnace received from the manufacturing process shall be given to low lying area for disposal and can be used for road making.

2.12.3 Hazardous waste

No hazardous wastes are generated during the melting process. However used oil from DG set will be sold to authorized recyclers.

2.13 POLLUTION CONTROL MEASURES

The main sources of pollution from the unit are discussed as under:

2.13.1 Air Pollution

i) Exhaust from Furnaces

The major sources of gaseous emissions at the plant are furnaces. In furnace melting process, emission takes place while charging, melting and taping operations. The main emissions are particulate matter, etc. The particulate matter contains traces of metals like oxides of Iron, Chrome, and Manganese etc.

ii) Air Pollution Control Devices (APCD)

The Exhaust fumes of all furnaces are proposed to be handled & controlled by the respective centralized Air Pollution control devices such as Bag filters & Cyclone. These will be provided with the attached units for smooth operation and to get the maximum efficiency of the system. Cooling of gases is provided to avoid damage to the bags. The system consists of the following equipments.

Name of the Unit	**APCD**
Induction Furnace	Bag Filter & Cyclones

Design Parameters:

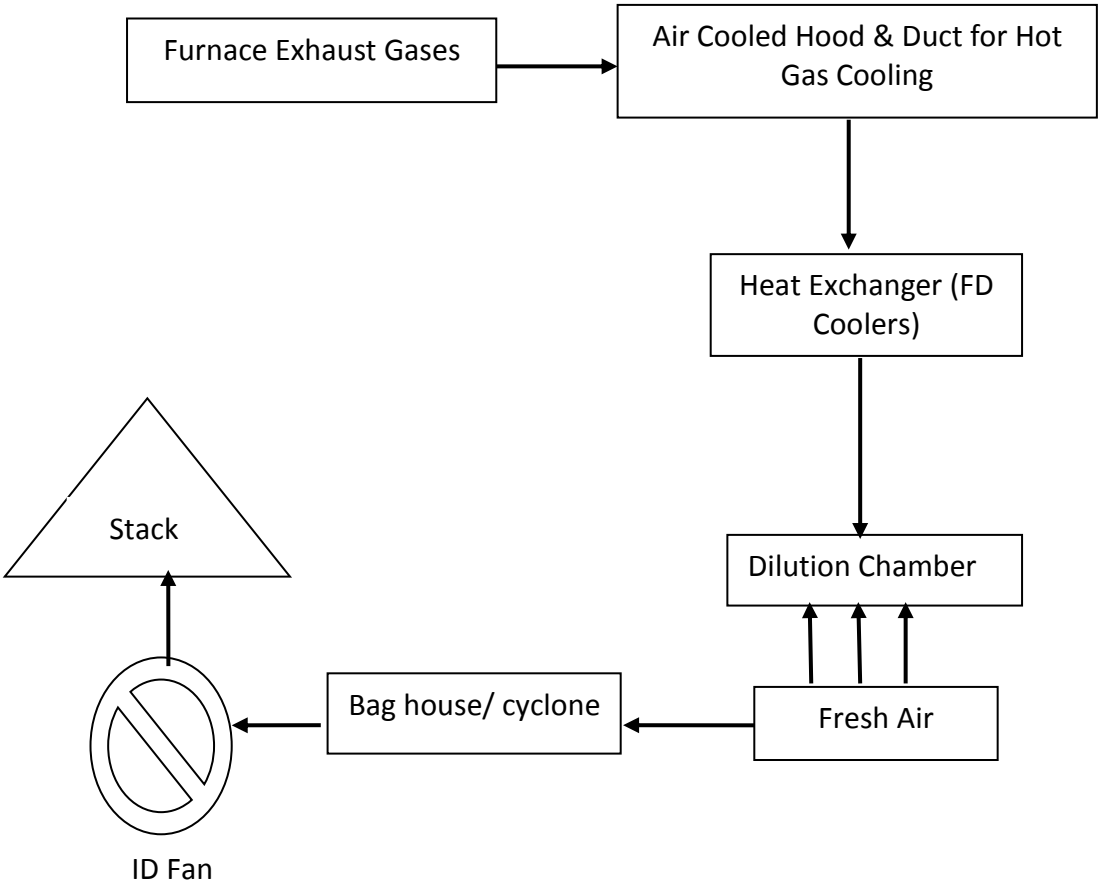
Design Capacity	: 18,000 m^3/Hr
Power Consumption	: 30 KW
Stack Gas Temp.	: 80-90 deg. C
Stack Emission	: Less than 150 mg/NM^3

iv) System Process:

Centralized dry Air Pollution Control Systems have been provided to control the exhaust dusty fumes of the Induction Furnace in which a well-designed ID fan will be installed for suction of hot gases along with dilution air with adequate suction capacity. The hot dusty gases generated during operation of the furnaces will be collected through respective air cooled furnace hood and conveyed to APCD through air cooled ducting. In the bag house the dusty gas is allowed to filter through needle felt & moisture repellent polyester bags before emitting into the environment. The clean gas is allowed to pass from the surface to inside the bags and dust is retained at outside surface of APCD & clean gas is exhausted in the air through outlet. The APCD will be cleaned periodically to remove the dust settled on the walls. The collected dust will be stored in gunny bags for further disposal at TSDF site. The emissions from stack will be much below the permissible norms at all the time. The final stack emission after expansion will have Particulate Matter less than 50 mg / Nm^3. Typical process diagram of the APCD is given in **Fig.2.4.**

Fig: 2.4

PROCESS FLOW CHART OF AIR POLLUTION CONTROL SYSTEM



2.13.2 Water Pollution

Water is not used anywhere in the manufacturing process as such there is no waste water from the process has been discharge inland. Wastes from the toilets are treated in the septic tank & shall be discharged into public sewer. The cooling water will be recycled & only makeup water will be added. Thus there is no waste water from this source also. No water pollution is expected from the above sources.

2.13.3 Noise Pollution

There are some noise producing machineries such as DG Set, ID Fan, Blowers & pump etc. All these machines are located in closed covered rooms where acoustics are being provided. Thus no noise of significant level shall be allowed to go outside the rooms

which may disturb the general noise environment. DG Set is to be used for short periods only. Even otherwise noiseless sets will be used with acoustics. Appropriate steps are being taken by the proponent to mitigate the noise effect so that general noise Environment is not disturbed appreciably and does not go beyond prescribed limit

2.13.4 Industrial Waste

i) Slag from Furnaces

Major solid waste from the unit is the slag from the furnaces which contain metals. Approximate quantity expected is about 14 Ton per day. Since its disposal on land is likely to cause contamination of soil, it will be first be stored in impervious tanks and then sent to low lying area and can be used for road making.

ii) Solids from Filter Bags

Solids from APCD will be collected separately & stored in impervious tanks. Then it will be sent to TSDF Site.

iii) Used Oil

Used oil from D.G. Set shall be sold to authorized recyclers.

2.13.5 Storm Water

The land in the unit has ample slope. The storm water during rains will flow to the natural streams through cemented drains to be provided along the roads in the premises. No treatment is envisaged as no standards have been laid by the State Pollution Control Board for storm water. Efforts shall be made to store some rain water in an impervious earthen tank of about 50 m^3 capacity and used for lawns purposes.

CHAPTER 3.0
BASELINE ENVIRONMENTAL SETTING

3.1 THE STATE

Punjab is one of the progressive States in the Northern part of India. It derives its name from five rivers which used to flow through the State before partition of the Country in 1947 viz Satluj, Beas, Ravi, Chenab, and Jhelum. After partition two of the rivers i.e. Chenab and Jhelum went to Pakistan Punjab and the other three remained in Indian Punjab. It has one of the oldest irrigation systems of the country known as Sirhind Canal with recent addition of Bhakhra Canal System. The economy of the State is dependent mainly on Agriculture. It, along with Haryana, contributes about 50% food grains to the common pool of the country. Punjab has over 2.04 lakh small and medium industries and about 600 large scale industries. It leads in the manufacture of machine and hand tools; printing and paper cutting machinery; auto parts and electrical switch gear. The State also provides more than 75% of the country's requirement for bicycles, sewing machines, hosiery and sports goods. At par with the highest quality standards in the world, these products have carved a niche for themselves in markets across the globe.

It has also made big strides towards industrialization. A number of Industrial areas have been developed by the State. Ludhiana, Jalandhar, Amritsar and Mohali are famous for Large and Medium scale industrial units. Many small Industrial areas & Focal Points have also been developed in different towns for small scale units. Focal Point at Dera Bassi is one of them.

3.2 LUDHIANA DISTRICT

Ludhiana is the most centrally located district which falls in the Malwa region of the State of Punjab. For Administrative purposes it has been placed in the Patiala Division. It lies between north Latitude 30^{o}-$34^{'}$ and 31^{o}-$01^{'}$ and east longitude 75^{o}-$18^{'}$ and 76^{o}-$20^{'}$. It is bounded on the north by River Sutlej which separates it from Jalandhar district. The River also forms its northern boundary with Hoshiarpur district. On other sides it shares common boundaries with Rupnagar district in the

East, Moga district in the West, and Sangrur & Patiala districts in the South and South east respectively.

Ludhiana city is in the head quarter of the District and located on Ambala-Amritsar section of the NH-44 and on Delhi Amritsar Railway line at a distance of about 315 km from Delhi and 135 km from Amritsar. It is the biggest Industrial town of the State and properly known as the Business Capital of the State. Major industries in the town are cycle part, hosiery, machine tools & steel manufacturing. A number of industrial areas have been developed in the city.

3.3 PROJECT SITE

The unit is situated in Approved Industrial Area. It is about 14 km from Ludhiana Bus Stand and about 80 km from Chandigarh. The total area of the plot is about 7620 sqm. Site and location details are given in **Table 3.1**. Key Plan of the site is attached as **Fig 3.1**. Layout plan of the unit is given in **Fig.3.3**. Details of the villages within study area are given in **Table3.2**

TABLE 3.1
PLANT SITE AND LOCATION

S.No	Particulars	Details
1	**Location**	
a	Village/ Town/Plot No.	B-57A,Focal Point, Ludhiana
b	Tehsil	Ludhiana, Punjab
c	District	Ludhiana
d	State	Punjab
e	Latitude	30º52’56 North
d	Longitude	75º55’36 East
2	**Elevation**	253 mts.
3	**Land use at the project site**	Industrial
4	**Climatic Conditions**	
	Temperature Rainfall Relative Humidity, % Wind speed, Kms/hour	Min: 5.8ºC, Max:41 ºC 692 mm (average) Min: 22%, Max:80% 10 Km (approx.)
5	**Nearest highway**	National Highway-44 (Delhi – Ludhiana)
6	**Nearest railhead**	Dhandari Kalan (about 3 km)
7	**Nearest airport**	Ludhiana (about 2 km)
8	**Nearest major city**	Ludhiana
9	**Nearest major settlement**	Ludhiana
10	**Features with 10 km :**	
i)	**Defence installations**	Nil
ii)	**Archaeological important places**	Nil
iii)	**Wild life sanctuaries**	Nil
iv)	**Reserved/Protected forest**	Nil
v)	**Industries**	Industrial Focal Point Ludhiana
vi)	**Rivers**	Nil
vii)	**Hill ranges**	Nil
viii)	**State Boundary**	Nil

Fig.: 3.1

KEY PLAN

Fig. 3.2

LOCATION ON GOOGLE IMAGE

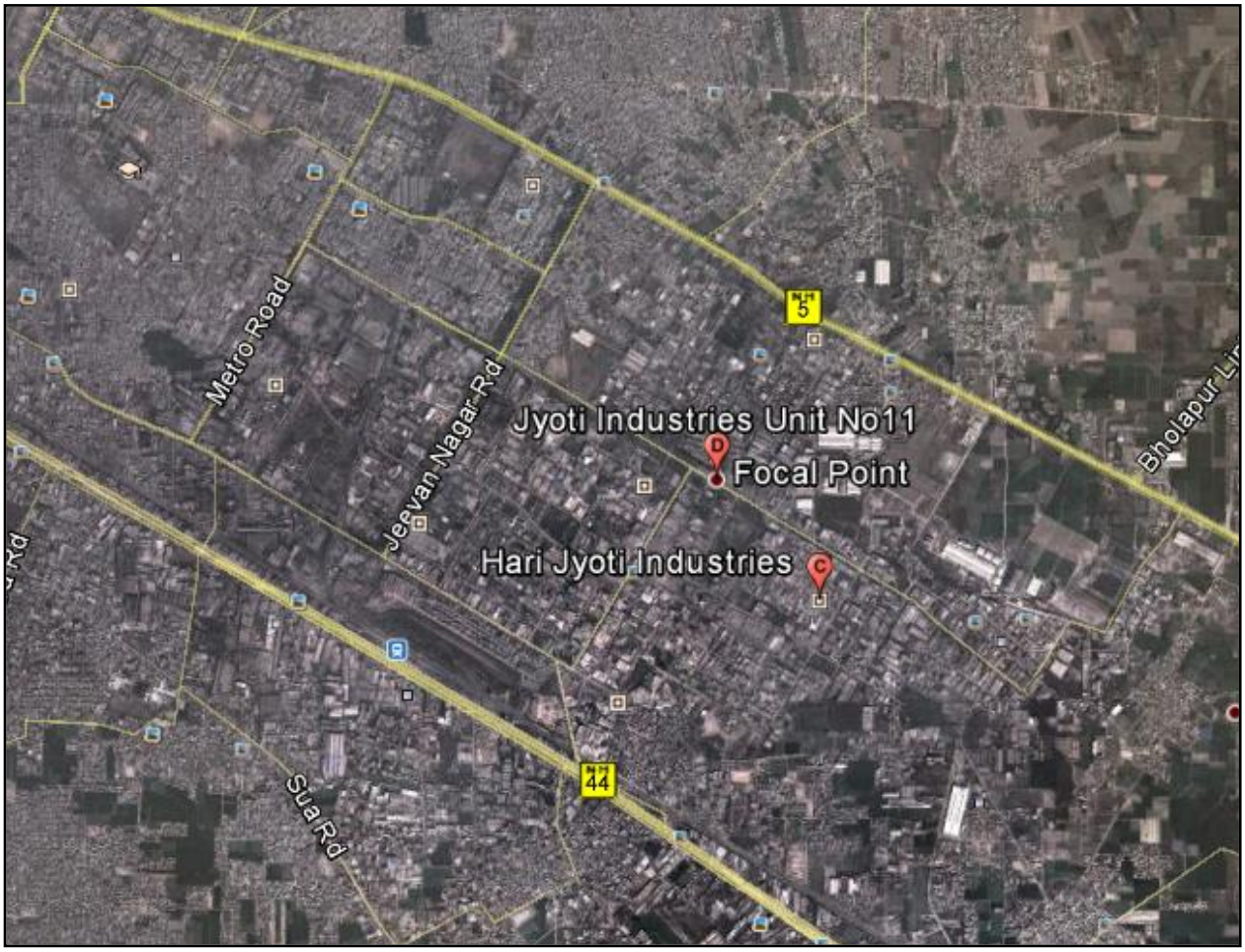
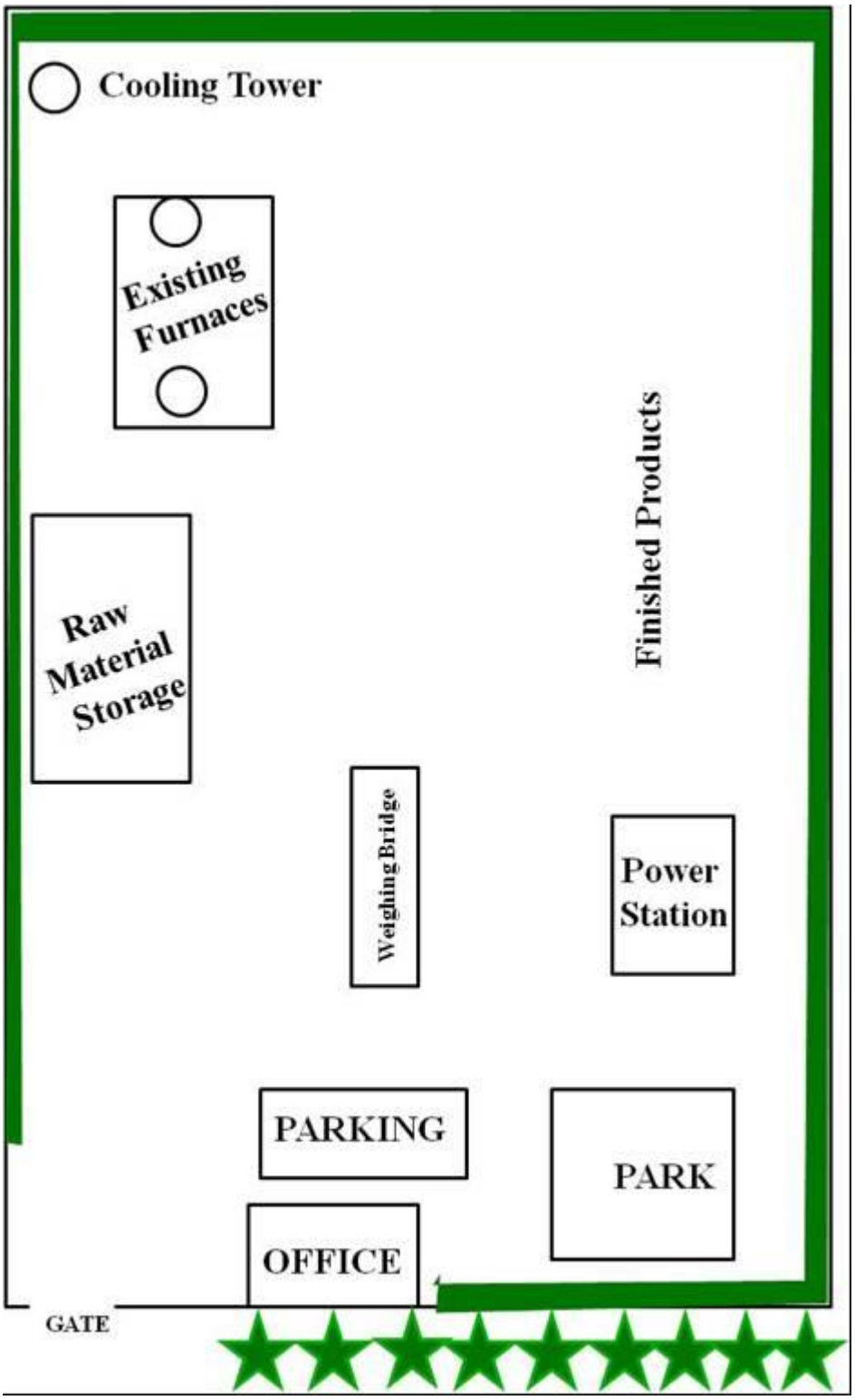


Fig. 3.3

LAYOUT PLAN



3.4 STUDY AREA

In order to establish bench mark conditions near the unit an area of 10 km around the site has been selected which is shown in **Fig. 3.4.** Detail of villages falling in the study area has been given in **Table 3.2**

Fig-3.4
Detail of Study Area
(Within 10 kms radius area)

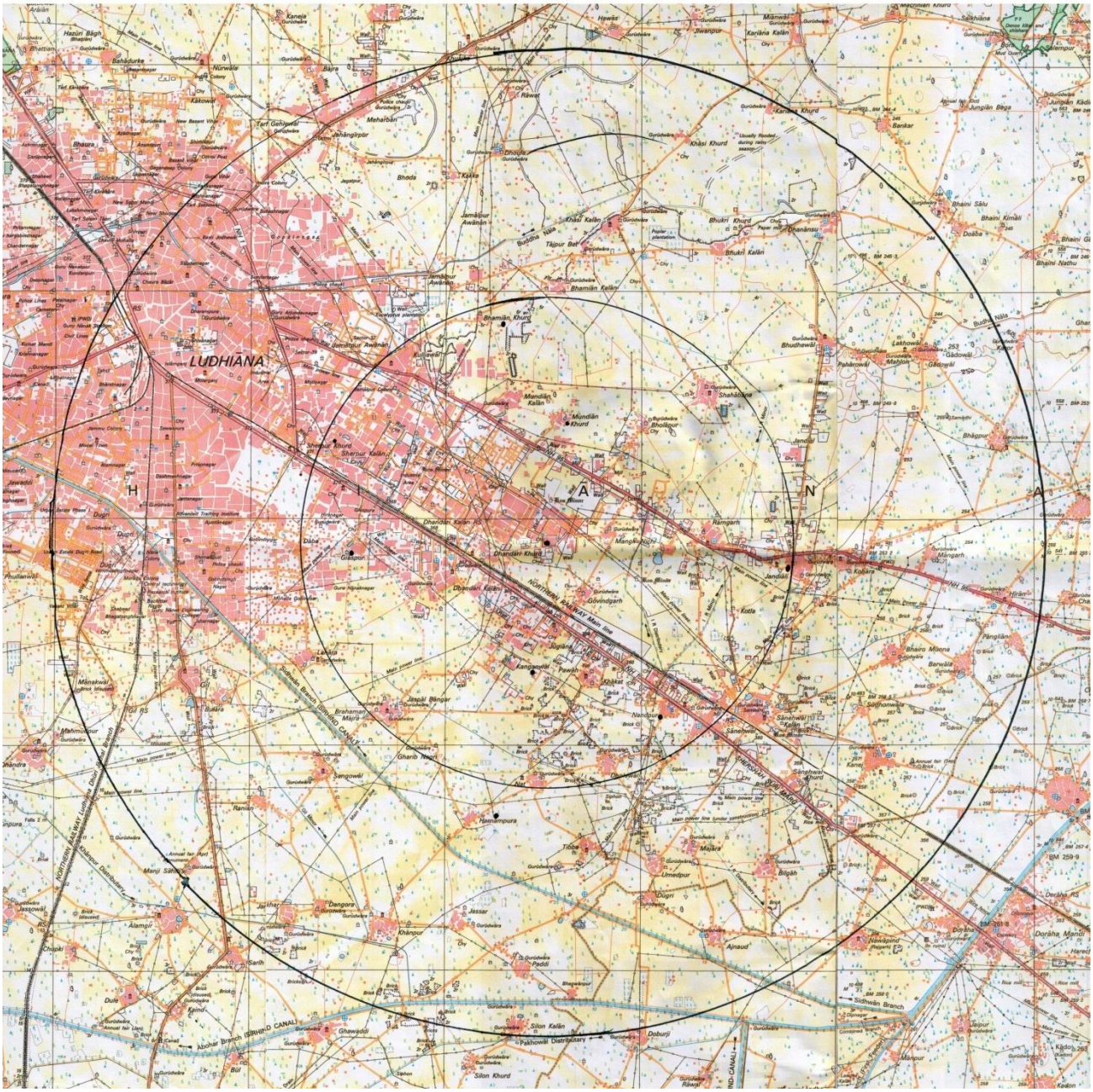


TABLE – 3.2
STUDY AREA DETAILS

(10 Km Radius Area)

S.No.	Name of Village	Direction w r t the unit	Distance (km)
1.	Bhamian Khurd	**N**	**4.5**
2.	Tajpur Bet	**N**	**5.5**
3.	Khasi Kalan	**N**	**6.2**
4.	Kakka	**N**	**7.2**
5.	Dhoula	**N**	**7.5**
6.	Rawat	**N**	**8.7**
7.	Mehraban	**N**	**8.7**
8.	Sherpur Khurd	**NW**	**4.2**
9.	Sherpur Kalan	**NW**	**3.5**
10.	Giaspur	**NW**	**4.0**
11.	Gil	**SW**	**7.2**
12.	Bulara	**SW**	**7.2**
13.	Jaspal Bangar	**SW**	**4.0**
14.	Brahaman Majra	**SW**	**5.0**
15.	Sangowal	**SW**	**6.2**
16.	Ranian	**SW**	**7.7**
17.	Manji Sahib	**SW**	**10.0**
18.	Manakwal	**SW**	**9.0**
19.	Dangora	**SW**	**8.7**
20.	Jarkhar	**SW**	**9.5**
21.	Kanganwal	**S**	**3.0**
22.	Jugiana	**S**	**1.2**
23.	Pawan	**S**	**3.2**
24.	Khakat	**S**	**3.7**
25.	Dholewal	**S**	**5.5**
26.	Umedpur	**S**	**7.7**
27.	Ajnaud	**S**	**9.5**
28.	Dugri	**W**	**8.0**
29.	Nat	**S**	**5.2**
30.	Tibba	**S**	**6.7**
31.	Harnampur	**S**	**6.0**
32.	Khanpur	**S**	**8.7**
33.	Jassar	**S**	**9.0**
34.	Paddi	**S**	**9.5**
35.	Silon Kalan	**S**	**10.0**

36.	Bhagwanpur	**S**	**9.5**
37.	Nandpur	**SE**	**4.0**
38.	Bhairo Munna	**SE**	**9.0**
39.	Barwala	**SE**	**9.5**
40.	Gobindgarh	**SE**	**2.5**
41.	Kunej	**SE**	**8.5**
42.	Sanehwal	**SE**	**6.5**
43.	Sanehwal Khurd	**SE**	**8.0**
44.	Majara	**SE**	**7.5**
45.	Bilgah	**SE**	**9.5**
46.	Mangh Nichi	**E**	**2.5**
47.	Jandiali	**E**	**5.0**
48.	Hiran	**E**	**10.0**
49.	Kohara	**E**	**7.0**
50.	Mangarh	**E**	**8.5**
51.	Ramgarh	**E**	**4.0**
52.	Bhagpur	**E**	**9.7**
53.	Jandial	**E**	**6.0**
54.	Mahlon	**E**	**8.2**
55.	Gaddowal	**E**	**9.0**
56.	Panglian	**E**	**9.5**
57.	Mundian Khurd	**NE**	**2.5**
58.	Bholapur	**NE**	**3.7**
59.	Shahabana	**NE**	**5.0**
60.	Bhudewal	**NE**	**6.7**
61.	Bhukri Kalan	**NE**	**7.5**
62.	Dhanansu	**NE**	**8.5**
63.	Bhukri Khurd	**NE**	**7.5**
64.	Kariana Khurd	**NE**	**10**
65.	Khasi Khurd	**NE**	**8.7**

3.5 CLIMATE

The climate of the district is characterized by dryness except a brief spell of monsoon season in a very hot summer and a bracing winter. The cold season is from middle of November to the early part of March. The succeeding period up-to the end of June is the hot season. July, August and half of September constitute the south west of monsoon, the period of mid September to about the middle of November may be termed as post monsoon or transitional period. June is generally the hottest month. Hot and scorching dust laden winds blow during summer season.

3.6 TEMPERATURE

Temperatures start increasing rapidly after February. May and June are the hottest months with daily average temperature going up to 41.2^{o}C and minimum average daily temperature as 24.2^{o}C. Hot scorching dust laden winds blow during the summer season and on individual day the temperature sometimes goes upto 45^{o}C to 47^{o}C. With on-set of monsoon in July there is appreciable drop in temperature but due to increased moisture in the air the weather becomes sultry and uncomfortable. After monsoon in September the night temperature drops appreciably. December and January are the coldest months when the maximum average daily temperature is around 20.2^{o}C and minimum about 5.8^{o}C. The yearly variation is from 5.0^{o}C min to 41^{o}C max. Monthly average temperatures of the area are given in **Table 3.3.**

TABLE - 3.3

MONTHLY AVERAGE TEMPERATURE

Months	Mean	
	Maximum temperature (^{0}C)	Minimum Temperature (^{0}C)
January	20	6
February	23	10
March	28	14
April	34	20
May	38	24
June	40	26
July	34	25
August	32	24
September	33	17
October	32	17
November	27	11
December	22	7

Source: IMD Ludhiana (2004-2009)

3.7 RAINFALL

The rainfall in the zone is caused by the South-West monsoon. It starts in the month of July and extends upto the end of September. During this period the monsoon rain-fall contributes about 70 to 80% of the total annual rainfall. The average annual rain fall is in the range of 660-700 mm. The annual numbers of rainy days on an average are about 51 in a year, out of which about 34 falls in the monsoon period of July to September. Monthly rainfall data for this zone is given in **Table 3.4**.

TABLE - 3.4
MONTHLY AVERAGE RAINFALL

Months	Rainfall (mm)	Avg. no. of Rainy Days
January	5	3
February	12	2.5
March	6	2
April	4	0.1
May	10	2
June	10	2
July	212	12
August	295	16
September	114	6
October	8	2
November	7	1
December	9	2
TOTAL	**692**	**51**

Source: IMD Ludhiana (2004-2009)

3.8 HUMIDITY

In summer months of April, May and June, which is the driest part of the year, the afternoon humidity comes down to 22% while the relative humidity during monsoon months goes up-to about 80%. The average monthly relative humidity in the area is given in **Table 3.5**.

TABLE - 3.5

MONTHLY AVERAGE RELATIVE HUMIDITY

Months	**Relative humidity (%)**	
Hours IST	**830***	**1730***
January	70	44
February	63	41
March	50	33
April	38	25
May	35	23
June	10	25
July	75	64
August	81	69
September	76	58
October	57	40
November	58	40
December	67	45

Source: IMD Ludhiana (2004-2009)*Hours IST

3.9 CLOUDINESS

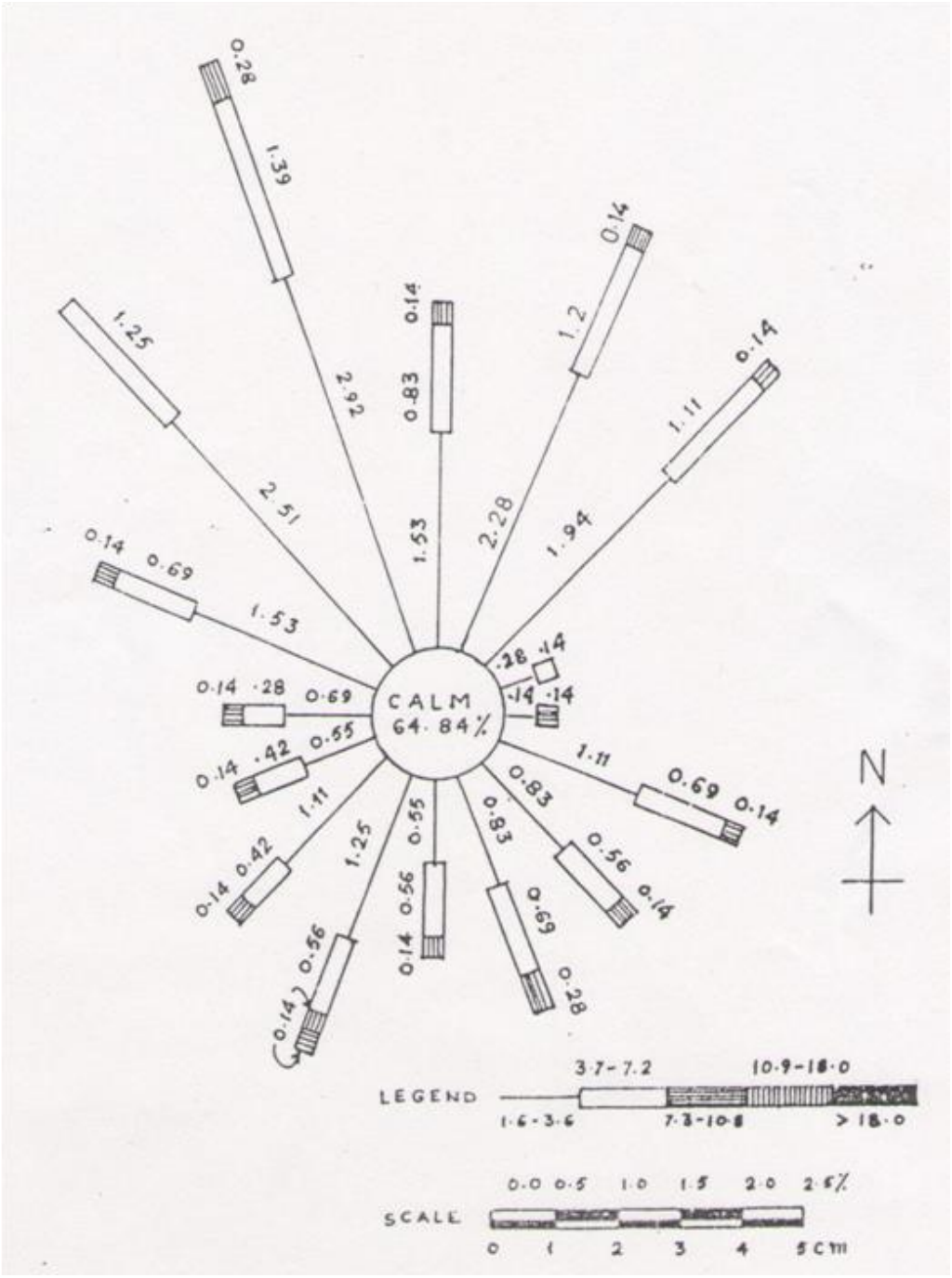
During monsoon season skies are overcast with moderate to heavy clouds. During rest of the year, the sky is mostly clear. It is lightly clouded occasionally during winter season.

3.10 WINDS

The wind direction in the area is mostly from North-West to South-East. During January to May the winds are quite strong while July to October is calm months. The general trends of various meteorological data from meteorological observatory at Ludhiana and field observations are used to draw Wind Rose Diagram. Wind rose diagram is shown in **Fig. 3.5**

Fig. 3.5

WIND ROSE DIAGRAM



Source: IMD Ludhiana

3.11 DRAINAGE

The area is generally plain and has good slope from North-East to South-West. It is well drained and takes the entire rain water flows to Buddha Nala which ultimately joins river Satluj at a distance of about 15 km downstream of the town.

3.12 LAND USE

The total area of the District is 3767 sq km. 83% is net sown area and 17% is under non-agricultural use. Agriculture is mostly dependent on canal irrigation and tube-wells. Rice and wheat are the main crops in the area.

3.13 FOREST

There are no reserved forests near the site of the project. In the entire district area under forest is hardly about 1000 Ha, i.e. 2.7% of the total area. The company also proposes to plant about 100 trees and shrubs within the project area.

3.14 ECOLOGY

Ecological system consists of varieties of interrelationship between both biotic and abiotic components. Biotic components comprise of both plant and animal communities, which interact not only within and between them but also within the abiotic physical. Animal & plant communities in their natural habitat exist in a well organized manner. The project does not disturb any natural setting and is coming up in an already existing Industrial area.

Due to small area covered under high density vegetation in the area, a few patches of thick vegetation are found. The floral species in the area are of common type and are devoid of medicinal and rare plant species.

During major part of the year, the vegetation is active and remains dormant only for a few months starting from April and extending to June. This type of vegetation is common in open waste land and cultivated fields. After the first shower of monsoon in June, the ground which is barren becomes covered by green grass. As the monsoon

advances, the ground vegetation becomes dominant and completely covered till late in December.

The climatic conditions of the study area are well suited for a moderate natural vegetation cover. The area has a very hot summer, a moderate rainy season and a dry winter. The monsoon is good annual rainfall.

3.14.1 Flora

Apart from records of Forest Deptt. field surveys were undertaken to study the vegetation and floral components in 10 km radius area.

The main species of trees found in these jungles are kikar (Acacia Arabic), Neem (Azardirachta indica), Peepal (Ficus religiosa) and Bargad (Ficus bengalensis), Among the species which have been introduced recently include Mango, Khair, Safed Siris, Kala siris, Amaltas, Jamun, Arjun Bahera and Zizyphus which are commonly grown in the area.

3.14.2 Fauna

Prolific wild life is not observed in the study area as there is no thick forest/vegetation. Lizards, snakes, hare, pigeon, mongoose and peacock are noticed in the study area.

3.15 DEMOGRAPHY AND SOCIO-ECONOMIC SCENARIO

Demography is one of the important pointers of environmental health of an area. It includes description of demography, occupational pattern, available basic amenities like housing, medical care, services, transportation, education, water supply, roads, transport, etc. Quite a good Industrial and Residential development has taken place in this area. The socio-economic profile has been studied through random sample primary surveys and secondary data as per Census 2011. The significant demographic and socio economic statistics of the district are summarized and given in **Table- 3.6**. This shows that out of a total of 3.48 lacs person male population is 53.5% and female population is 46.5% giving a sex ratio of 869/1000. The literacy rate is 82.77% in males and 73.31% in female with an overall literacy rate of 82.5%. So far as the

occupational structure is concerned the Cultivators & Agricultural labour is 11.8%. Household industry has 3.1% workers and the other 64% are in different vocations.

In order to assess the demographic status of the study area, data for the villages was abstracted from Census Records for the year 2011. As per the Census of 2011 the total number of household are 22224 for a total population of 119376 with about 5.3 persons per household. The literates constitute of 76089 persons (64%) of the total population which is quite high. Amenities prevalent in the study area have been extracted from the Census of 2011 and site visits and it has been found that:-

- About 90-95% houses are pucca.
- Almost every village is approachable with metalled road.
- Approximately 64 villages have primary schools, 40 villages have Middle, 15 villages have High schools & 6 villages have Senior Secondary schools. Almost all villages have school. All villages do not have college but the college facility in such villages exists within 5 km or above.
- Almost all villages have some medical facility. The facility is available in the form of primary Health Center, Dispensary, Child Welfare Centers and Hospitals. Some villages are, however, served by private medical practitioners.
- Drinking water is available almost in all villages. Approximately in 42 villages drinking water is available in the form of tap water supply, wells are available in 28 villages & hand pumps are available almost every in villages.
- Almost all villages in the study area have electricity.

TABLE- 3.6
SUMMARY OF KEY DEMOGRAPHIC STATISTICS

	Punjab	District Ludhiana
Particulars	2011	2011
Male Population	14,634,819	1,866,203
Female Population	13,069,417	1,621,679
Total Population	27,704,236	3,487,882
Sex Ratio	893	869
Density of Population/Km^2	550	975
Literacy Rate: Total (%)	76.68	82.50

Ref: Census of India 2011.

TABLE- 3.7

OCCUPATIONAL STRUCTURE IN THE DISTRICT

Occupation	**2011**	**Percentage in the District**
Agriculture Labour	96,396	11.8 %
Cultivators	1,36,153	22.0 %
House Hold Industry	56,467	2.3 %
Others covering: Transport and Communication Trade & commerce Govt. Services Construction Industry	8,60,622	64 %
Total	11,49,638	100%

Source: Census 2011

CHAPTER 4.0
ENVIRONEMNTAL BENCH MARK CONDITION IN THE STUDY AREA

4.1 GENERAL

The study area covering an area within 10 km radius of the project site is a mixture of Industrial and commercial areas where the different activities influence the general environment. While the vehicular traffic and emission from Industries affect the Ambient Air and Noise levels, the effluent discharge from the Industrial units can affect the surface and the ground water.

Accordingly, various environmental factors have been checked at the selected stations around the project site within the study area and the results of their quality have been documented. The monitoring locations have been identified considering metrological and other factors like wind direction, drainage pattern, habitation, crop lands and the likely area that represent the baseline conditions. These will be frequently checked after the project comes into operation and remedial measures taken, if any of the parameter goes beyond the permissible limits.

4.2 AMBIENT AIR

To have a clear picture of atmospheric conditions in the study area in terms of pollutants like PM_{10}, $PM_{2.5}$, SO_2, NOx, Ambient air monitoring was carried out at eight different stations within a radius of 10 km from the project site from April – June, 2013 and January, 2016. Sites of the monitoring stations were kept keeping in view of the dominant wind direction. Location of the monitoring stations is given in **Table 4.1** and shown in **Fig. 4.1**.

4.2.1 Methodology

Ambient Air Quality Monitoring was conducted by using Respirable Dust Samplers with required accessories for collection of particulate as well as gaseous pollutants. Sampling and analysis were done as per the standard methods. PM_{10} and $PM_{2.5}$ were collected on pre-weighted filter papers and estimated gravimetrically. Gaseous

pollutants were dissolved in the solutions and analyzed with the help of spectrophotometers. The samples were collected on 24 hour basis twice a week. Following instruments were used for conducting tests.

i) $PM_{2.5}/PM_{10}$ - RDS / HVS with filter paper.

ii) For SO_2 - Impinger and spectrophotometer.

iii) For NOx - Impinger and spectrophotometer.

The values with P98 have been abstracted in **Table 4.3(a)/ (b).**

TABLE 4.1
AMBIENT AIR MONITORING STATIONS

S.No.	Sample Code	Name of Village/ Location	Distance from site (KM)	Direction	Coordinate
1)	AA-1	Project Site	0	---	30º52'11'' N 76º01'08'' E
2)	AA-2	Mangarh	8.5	E	30º52'11'' N 76º01'08'' E
3)	AA-3	Bhukri Kalan	7.5	NE	30º55'34'' N 75º58'47'' E
4)	AA-4	Rawat	8.7	N	30º57'15'' N 75º55'12.21'' E
5)	AA-5	Dugri	8.0	W	30º51'35'' N 75º50'41.2'' E
6)	AA-6	Bhagwanpur	9.5	S	30º47'20'' N 75º56'39.32'' E
7)	AA-7	Mundian Kalan	2.5	N	30º53'48.15'' N 75º55'49.64'' E
8)	AA-8	Govindgarh	2.5	SE	30º51'32.27'' N 75º56'39.19'' E

Figure -4.1
LOCATION OF AMBIENT AIR AND GROUND/ SURFACE WATER MONITORING STATIONS

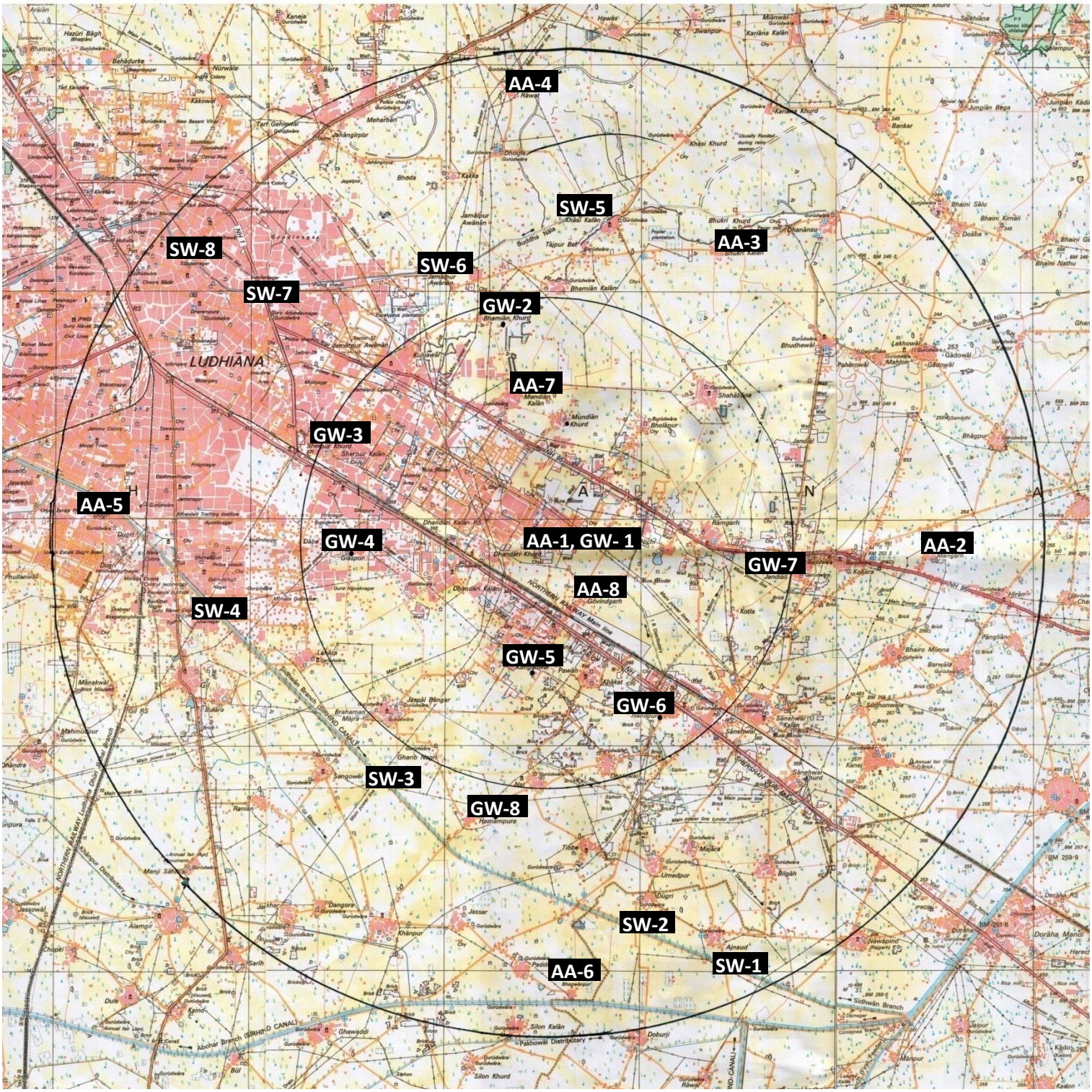


TABLE 4.2

AMBIENT AIR QUALITY (for the Month of January, 2016)

S.No.	DATE OF MONITORING	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_X ($\mu g/m^3$)	CO (mg/m^3)
1. Project Site	01.01.2016	86.4	46.2	14.2	29.1	0.60
	05.01.2016	84.2	44.6	13.8	26.2	0.62
	08.01.2016	88.6	45.5	15.4	25.8	0.7
	12.01.2016	85.4	46.8	14.9	27.4	0.59
	15.01.2016	81.2	39.8	13.8	28.6	0.61
	19.01.2016	84.6	42.4	13.6	26.8	0.65
	22.01.2016	85.2	44.2	14.1	25.6	0.68
	26.01.2016	86.4	46.4	14.2	27.5	0.70
2. Mangarh	03.01.2016	76.2	36.1	11.2	25.4	0.63
	06.01.2016	75.6	34.6	10.6	26.6	0.60
	10.01.2016	80.2	39.8	11.8	24.8	0.63
	13.01.2016	78.4	35.2	12.1	25.2	0.61
	17.01.2016	79.5	36.1	12.4	26.1	0.65
	20.01.2016	77.6	35.6	11.9	25.9	0.68
	24.01.2016	76.4	34.8	11.2	25.2	0.61
	28.01.2016	76.1	34.4	10.8	24.8	0.63
3. Bhukri Kalan	01.01.2016	72.2	31.6	12.1	23.9	0.67
	05.01.2016	73.6	32.6	10.8	22.6	0.60
	08.01.2016	69.8	31.8	11.2	23.2	0.63
	12.01.2016	68.4	30.2	11.8	23.6	0.65
	15.01.2016	71.5	29.8	12.2	24.2	0.60
	19.01.2016	70.6	35.6	12.9	25.8	0.62
	22.01.2016	72.4	34.8	11.8	23.4	0.68
	26.01.2016	71.1	34.4	11.6	22.2	0.64
	03.01.2016	70.2	35.1	12.6	23.1	0.69
	06.01.2016	71.6	35.8	12.8	23.6	0.64
	10.01.2016	68.9	34.6	12.5	23.8	0.62

4. Rawat	13.01.2016	69.6	34.9	12.1	24.1	0.65
	17.01.2016	71.4	34.2	12.3	23.5	0.67
	20.01.2016	72.2	34.5	12.5	23.1	0.64
	24.01.2016	71.8	34.6	12.7	23.4	0.61
	28.01.2016	70.9	34.8	12.6	23.2	0.62
5. Dugri	01.01.2016	83.4	42.1	12.1	24.5	0.60
	05.01.2016	84.2	41.5	12.5	23.4	0.63
	08.01.2016	84.2	42.2	11.8	24.1	0.66
	12.01.2016	84.0	42.1	12.3	23.6	0.66
	15.01.2016	83.8	43.3	12.3	25.5	0.69
	19.01.2016	83.5	42.2	12.8	24.3	0.67
	22.01.2016	83.8	41.5	12.3	23.8	0.64
	26.01.2016	84.2	42.1	12.5	24.5	0.61
6. Bhagwanpur	03.01.2016	81.6	42.5	11.8	23.4	0.60
	06.01.2016	84.2	43.3	12.0	22.7	0.62
	10.01.2016	83.8	43.1	11.1	23.1	0.65
	13.01.2016	84.5	42.7	11.6	23.5	0.61
	17.01.2016	84.1	42.2	11.5	24.1	0.63
	20.01.2016	83.1	42.6	12.2	24.8	0.67
	24.01.2016	84.4	43.2	11.1	25.2	0.69
	28.01.2016	83.6	43.8	12.1	25.6	0.66
7. Mundian Kalan	01.01.2016	83.8	44.1	12.5	24.8	0.62
	05.01.2016	85.2	44.0	12.5	24.2	0.61
	08.01.2016	84.8	43.5	11.7	24.9	0.63
	12.01.2016	84.2	41.5	12.5	23.4	0.63
	15.01.2016	84.0	42.1	12.3	23.6	0.66
	19.01.2016	84.4	43.2	11.1	25.2	0.69
	22.01.2016	83.4	42.1	12.1	24.5	0.60
	26.01.2016	83.8	44.1	12.5	24.8	0.62
8. Govindgarh	03.01.2016	83.5	42.2	12.8	24.3	0.67
	06.01.2016	84.2	43.3	12.0	22.7	0.62

	10.01.2016	83.8	43.3	12.3	25.5	0.69
	13.01.2016	85.2	44.2	14.1	25.6	0.68
	17.01.2016	84.6	42.4	13.6	26.8	0.65
	20.01.2016	84.2	44.6	13.8	26.2	0.62
	24.01.2016	83.8	41.5	12.3	23.8	0.64
	28.01.2016	84.2	42.1	12.5	24.5	0.61

TABLE 4.3(a)
AMBIENT AIR QUALITY ABSTRACT (for the month of January, 2016)

Station Code	Name of the Station	Range Average	PM_{10} $\mu g/m^3$	$PM_{2.5}$ $\mu g/m^3$	SO_2 $\mu g/m^3$	NOx $\mu g/m^3$
AA1	**Project Site**	**Range**	81.2-88.6	39.8-46.8	13.6-15.4	25.8-29.1
		Average	84.9	43.3	14.5	27.4
AA2	**Mangarh**	**Range**	75.6-80.2	34.4-39.8	10.6-12.4	24.8-26.6
		Average	77.9	37.1	11.5	25.7
AA3	**Bhukri Kalan**	**Range**	69.8-73.6	29.8-35.6	10.8-12.9	22.2-25.8
		Average	71.7	32.7	11.8	24
AA4	**Rawat**	**Range**	69.6-72.2	34.2-35.8	12.1-12.8	23.1-23.8
		Average	70.9	35	12.4	23.4
AA5	**Dugri**	**Range**	83.4-84.2	41.5-43.3	11.8-12.5	23.4-25.5
		Average	83.8	42.2	12.1	24.4
AA6	**Bhagwanpur**	**Range**	81.6-84.2	42.2-43.8	11.1-12.2	22.7-25.6
		Average	82.9	43	11.6	24.1
AA7	**Mundian Kalan**	**Range**	83.4-85.2	42.1-44.1	11.1-12.5	23.4-25.2
		Average	84.3	43.1	11.8	24.3
AA8	**Govindgarh**	**Range**	83.5-85.2	41.5-44.2	12.0-13.8	22.7-26.8
		Average	84.35	42.85	12.9	27.75
P98			86.5	43.9	14.7	28.0
Test methods			IS-5182-P-23-2006	IS-5182-P-23-2006	IS-5182-P-2-2001	IS-5182-P-6-2006

TABLE 4.3(b)

AMBIENT AIR QUALITY ABSTRACT (April –June, 2013)

Station Code	Name of the Station	Range Average	PM_{10} µg/m^3	$PM_{2.5}$ µg/m^3	SO_2 µg/m^3	NOx µg/m^3
AA1	**Project Site**	**Range**	74.9-89.1	33.3-45.1	7.5-9.4	17.8-23.0
		Average	80.93	38.62	8.48	20.03
AA2	**Mangarh**	**Range**	64.1-76.6	20.1-46.7	7.1-9.6	17.5-21.9
		Average	70.49	36.45	8.1	19.45
AA3	**Bhukri Kalan**	**Range**	60.5-78.9	32.5-44.5	7.1-9.1	17.0-19.3
		Average	71.7	38.11	8.06	18.15
AA4	**Rawat**	**Range**	66.3-79.1	33.8-46.3	7.5-9.1	18.2-21.6
		Average	72.03	41.08	8.12	20.23
AA5	**Dugri**	**Range**	61.8-77.4	33.2-44.8	7.2-9.5	17.0-19.1
		Average	70.33	39.75	8.06	18.06
AA6	**Bhagwanpur**	**Range**	65.9-74.5	32.4-44.2	7.7-9.5	17.6-21.6
		Average	69.71	38.40	8.21	19.24
AA7	**Mundian Kalan**	**Range**	65.2-77.6	33.8-47.5	7.7-9.3	17.4-21.3
		Average	71.40	41.46	8.71	18.96
AA8	**Govindgarh**	**Range**	65.2-76.4	35.7-48.9	7.8-9.6	18.2-21.9
		Average	70.61	42.75	8.8	20.24
P98			87.16	46.38	9.51	21.83
Test methods			IS-5182-P-23-2006	IS-5182-P-23-2006	IS-5182-P-2-2001	IS-5182-P-6-2006

4.2.2 Ambient Air Quality Status

4.2.2.1 Respirable Suspended Particulate Matter (PM_{10})

As is evident from the data, PM_{10} concentration observed in the study area during Jan, 2016 is minimum of 69.6µg/m^3 at Rawat and maximum of 88.6µg/m^3 at Project Site. P98 remained as 86.5µg/m^3 during this period. Previously P98 was 87.16 µg/m^3.

4.2.2.2 Respirable Suspended Particulate Matter ($PM_{2.5}$)

Table 4.2 gives the $PM_{2.5}$ levels concentration at different monitoring stations. It was minimum of 29.8µg/m^3 at village Bhukri Kalan and maximum of 46.8µg/m^3 at project site. P98 remained as 43.9µg/m^3 during this period. Previously P98 was 46.38 µg/m^3.

4.2.2.3 Sulphur Dioxide (SO_2)

The SO_2 levels at various monitoring stations ranged from 10.6µg/m^3 at Mangarh to 15.4µg/$m^3$of project site respectively. It would be seen that the SO_2 levels are quite low in the area. The 98th percentile value for SO_2 has been determined as 14.7µg/m^3 and the previous value was 9.51 µg/m^3. The situation in the study area as far as SO_2 concentration is concerned is comfortable.

4.2.2.4 Oxides of Nitrogen (NOx)

NOx concentration in the study area varied from 22.2 to 29.1µg/m^3 at Project site and Mangarh respectively. P98 remained as 28µg/m^3 during this period and previous value was 21.83.

4.2.3 CONCLUSIONS

The Ambient Air Quality Monitoring in the study area shows that:

i.) P-98 of PM_{10} and $PM_{2.5}$ respectively are well within the NAAQ standards of 100 and 60µg/m^3 respectively.

ii.) The levels of SO_2 are much below the desired limits of 80µg/m^3 P 98 is 14.7µg/m^3 and 9.51 µg/m^3.

iii.) The levels of NOx are also below the desired limits of 80µg/m^3 P 98 is 28µg/m^3 and 21.83 µg/m^3.

4.3 WATER QUALITY

4.3.1 Sources

The plant site falls in the drainage basin of Sirhind Canal which flows at a distance of about 8.0 km from the project site. Following type of sources have been considered in the study area. Locations of Surface/ Ground Water Monitoring stations are given in **Fig 4.1**.

i) Ground Water

ii) Surface Water (Sirhind Canal & Buddha Nullah)

4.3.2 Surface Water Sampling

Accordingly some samples were collected from the stream near the site and have been evaluated. The result of Surface water is given in **Table 4.5.**

Surface Water Quality

The results of Sirhind Canal shows that BOD is <10 mg/l & pH is 7.1. Other parameters like TSS, TDS, Chloride, and Sulphate are all within permissible limits.

4.3.3 Ground Water Samplings

Ground water is available in the study area at different depths. Samples have been drawn from different sites and quality evaluated. To monitor the existing quality of the ground water eight monitoring stations had been set up around the project site and samples were collected from them. The sites of these stations have been given in **Table 4.4.** Various parameters such as pH, TDS, Total Dissolved Solids, Hardness, Chlorides and Alkalinity, Calcium, Magnesium, Nitrates, Iron, Fluoride and heavy metals have been checked. Ground Water analysis results are given in **Table 4.5(a)/ 4.5(b)**.

TABLE-4.4
DETAILS OF WATER MONITORING STATIONS

S.No.	Sample Code	Name of Village/ Location	Distance from site (KM)
1.	GW-1	Project Site	0
2.	GW-2	Bhamian Khurd	4.5
3.	GW-3	Sherpur Khurd	4.2
4.	GW-4	Giaspur	4.0
5.	GW-5	Kanganwal	3.0
6.	GW-6	Nandpur	4.0
7.	GW-7	Jandiali	5.0
8.	GW-8	Harnampura	6.0
9.	SW-(1,2,3,4)	Sirhind Canal	9.5, 9.0, 5.7, 7.0
10.	SW-(5, 6, 7, 8)	Buddha Nalha	6.5, 6.0, 8.0, 9.0

TABLE – 4.5
RESULTS OF WATER SAMPLES (mg/l except pH)
Surface Water

Parameter	Sirhind Canal (SW-1) (Near Ajnaud)		Sirhind Canal (SW-2) (Near Dugri)	
PH	7.1	**7.3**	7.3	**7.2**
TSS	166	**159**	160	**162**
TDS	410	**398**	400	**406**
BOD	8	**10**	5	**12**
Chlorides	36	**32**	30	**28**
Sulphates	50	**52**	40	**42**
Iron	ND	**ND**	ND	**ND**
Lead	ND	**ND**	ND	**ND**
Total Chromium	ND	**ND**	ND	**ND**

(Bold font = current monitoring)

TABLE – 4.5
RESULTS OF WATER SAMPLES (mg/l except pH)
Surface Water

Parameter	Sirhind Canal (SW-3) (Near Gharib Nagri)		Sirhind Canal (SW-4) (Near Isharnagar)	
PH	7.2	**7.3**	7.1	**7.1**
TSS	164	**158**	162	**160**
TDS	412	**406**	408	**410**
BOD	7	**10**	6	**8**
Chlorides	37	**42**	32	**30**
Sulphates	52	**54**	44	**46**
Iron	ND	**ND**	ND	**ND**
Lead	ND	**ND**	ND	**ND**
Total Chromium	ND	**ND**	ND	**ND**

(Bold font = current monitoring)

TABLE – 4.5
RESULTS OF WATER SAMPLES (mg/l except pH)
Surface Water

Parameter	Buddha Nalha (SW-5) (Near Khasi Kalan)		Buddha Nalha (SW-6) (Near Jamalpur Awanan)	
PH	7.3	**7.1**	7.4	**7.2**
TSS	56	**48**	50	**54**
TDS	1150	**1186**	1126	**1210**
BOD	86	**82**	94	**90**
COD	172	**168**	160	**166**
Chlorides	80	**76**	84	**88**
Sulphate	42	**39**	38	**42**
Iron	1.4	**1.1**	1.6	**1.2**
Lead	ND	**ND**	ND	**ND**
Total Chromium	0.2	**0.15**	0.4	**0.38**
Phosphate	12.5	**11.4**	14.0	**12.4**
Ammonical Nitrogen	14	**12**	18	**16**
Nickel	0.1	**0.12**	0.2	**0.14**
Zinc	1.5	**1.2**	1.2	**1.3**
Copper	ND	**ND**	ND	**ND**

(Bold font = current monitoring)

TABLE – 4.5
RESULTS OF WATER SAMPLES (mg/l except pH)
Surface Water

Parameter	Buddha Nalha (SW-7) (Near NH-1, Sundarnagar)		Buddha Nalha (SW-8) (Near Sundarnagar)	
PH	7.1	**7.2**	7.5	**7.2**
TSS	64	**68**	42	**39**
TDS	1260	**1282**	1038	**1120**
BOD	92	**94**	74	**82**
COD	176	**182**	178	**184**
Chlorides	82	**86**	88	**81**
Sulphate	44	**48**	46	**42**
Iron	1.9	**1.6**	1.2	**1.16**
Lead	ND	**ND**	ND	**ND**
Total Chromium	0.4	**0.38**	0.6	**0.52**
Phosphate	14.5	**14.8**	18.2	**17.4**
Ammonical Nitrogen	16	**14.6**	22	**20.8**
Nickel	0.3	**0.24**	0.1	**0.16**
Zinc	1.8	**1.4**	1.5	**1.3**
Copper	ND	**ND**	ND	**ND**

(Bold font = current monitoring)

TABLE – 4.5 (a)
RESULTS OF WATER SAMPLES (mg/l except pH)
Ground Water

Characteristic	GW-1	GW-2	GW-3
Colour, Hazen unit.	<5	<5	<5
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity, NTU	<1	<1	<1
pH	7.11	7.2	7.1
Total Hardness (as $CaCO_3$)	240	216	208
Iron (as Fe)	0.16	0.02	0.10
Chloride (as CI)	42	34	40
Magnesium (as Mg)	19.2	18.2	20.6
Sulphate (as SO_4)	51	56	42
Calcium (as Ca)	64	54.4	46.4
Alkalinity (as $CaCO_3$)	281	251	271
Fluoride (as F)	1.1	1.8	2.2
Sodium (as Na)	27	21	19
Cadmium(as Cd)	ND	ND	ND
TDS	376	341	353
Arsenic (as As)	ND	ND	ND
Cyanide (as CN)	ND	ND	ND
Lead (as Pb)	ND	ND	ND
Chromium (as Cr)	ND	ND	ND
Mineral Oil	ND	ND	ND
Ecoli/Total Coliforms	Absent	Absent	Absent
Suspended Solids	6	7	6

TABLE – 4.5 (a) (Contd...)
RESULTS OF WATER SAMPLES (mg/l except pH)
Ground Water

Characteristic	GW-4	GW-5	GW-6
Colour, Hazen unit.	<5	< 5	<5
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity, NTU	<1	<1	<1
pH	7.2	7.4	7.6
Total Hardness (as $CaCO_3$)	314	306	290
Iron (as Fe)	0.08	0.05	0.1
Chloride (as CI)	38	44	46
Magnesium (as Mg)	31.6	34.5	31.6
Sulphate (as SO_4)	68	69	76.2
Calcium (as Ca)	72.8	65.6	63.2
Alkalinity (as $CaCO_3$)	301	291	274
Fluoride (as F)	2.0	1.8	1.4
Sodium (as Na)	20	18	14
Cadmium(as Cd)	ND	ND	ND
TDS	420	419	412
Arsenic (as As)	ND	ND	ND
Cyanide (as CN)	ND	ND	ND
Lead (as Pb)	ND	ND	ND
Chromium (as Cr)	ND	ND	ND
Mineral Oil	ND	ND	ND
Ecoli/Total Coliforms	Absent	Absent	Absent
Suspended Solids	7	8	6

TABLE – 4.5 (a) (Contd...)
RESULTS OF WATER SAMPLES (mg/l except pH)
Ground Water

Characteristic	GW-7	GW-8
Colour, Hazen unit.	<5	<5
Odour	Agreeable	Agreeable
Taste	Agreeable	Agreeable
Turbidity, NTU	<1	<1
pH	7.2	7.4
Total Hardness (as $CaCO_3$)	138	148
Iron (as Fe)	0.08	0.05
Chloride (as CI)	29	40
Magnesium (as Mg)	13.4	10.5
Sulphate (as SO_4)	44	65
Calcium (as Ca)	34	41.6
Alkalinity (as $CaCO_3$)	101	153
Fluoride (as F)	BDL	BDL
Sodium (as Na)	20	12
Cadmium(as Cd)	BDL	BDL
TDS	215	258
Arsenic (as As)	ND	ND
Cyanide (as CN)	ND	ND
Lead (as Pb)	ND	ND
Chromium (as Cr)	ND	ND
Mineral Oil	ND	ND
Ecoli/Total Coliforms	Absent	Absent
Suspended Solids	8	7

TABLE – 4.5 (b)
RESULTS OF WATER SAMPLES (mg/l except pH)
Ground Water (for January, 2016)

Characteristic	GW-1	GW-2	GW-3
Colour, Hazen unit.	<5	<5	<5
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity, NTU	<1	<1	<1
pH	7.21	7.32	7.2
Total Hardness (as $CaCO_3$)	236	212	211
Iron (as Fe)	0.14	0.08	0.09
Chloride (as CI)	44	37	42
Magnesium (as Mg)	18.6	18.8	29.4
Sulphate (as SO_4)	48	52	44
Calcium (as Ca)	58	52.8	47.8
Alkalinity (as $CaCO_3$)	287	258	281
Fluoride (as F)	1.11	1.42	1.9
Sodium (as Na)	29	24	22
Cadmium(as Cd)	ND	ND	ND
TDS	378	346	358
Arsenic (as As)	ND	ND	ND
Cyanide (as CN)	ND	ND	ND
Lead (as Pb)	ND	ND	ND
Chromium (as Cr)	ND	ND	ND
Mineral Oil	ND	ND	ND
Ecoli/Total Coliforms	Absent	Absent	Absent
Suspended Solids	8	10	9

TABLE – 4.5 (b) (Contd...)
RESULTS OF WATER SAMPLES (mg/l except pH)
Ground Water (for January, 2016)

Characteristic	GW-4	GW-5	GW-6
Colour, Hazen unit.	<5	< 5	<5
Odour	Agreeable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable
Turbidity, NTU	<1	<1	<1
pH	7.22	7.32	7.45
Total Hardness (as $CaCO_3$)	320	310	302
Iron (as Fe)	0.07	0.06	0.09
Chloride (as CI)	42	46	42
Magnesium (as Mg)	32.8	34.8	33.6
Sulphate (as SO_4)	66	70	74.4
Calcium (as Ca)	73.4	62.7	64.4
Alkalinity (as $CaCO_3$)	306	296	278
Fluoride (as F)	1.9	1.62	1.41
Sodium (as Na)	18	19	16
Cadmium(as Cd)	ND	ND	ND
TDS	422	421	415
Arsenic (as As)	ND	ND	ND
Cyanide (as CN)	ND	ND	ND
Lead (as Pb)	ND	ND	ND
Chromium (as Cr)	ND	ND	ND
Mineral Oil	ND	ND	ND
Ecoli/Total Coliforms	Absent	Absent	Absent
Suspended Solids	10	11	13

TABLE – 4.5 (b) (Contd...)
RESULTS OF WATER SAMPLES (mg/l except pH)
Ground Water (for January, 2016)

Characteristic	GW-7	GW-8
Colour, Hazen unit.	<5	<5
Odour	Agreeable	Agreeable
Taste	Agreeable	Agreeable
Turbidity, NTU	<1	<1
pH	7.18	7.36
Total Hardness (as $CaCO_3$)	136	152
Iron (as Fe)	0.07	0.06
Chloride (as CI)	32	38
Magnesium (as Mg)	13.6	10.8
Sulphate (as SO_4)	46	62
Calcium (as Ca)	38	42.4
Alkalinity (as $CaCO_3$)	108	141
Fluoride (as F)	1.4	1.5
Sodium (as Na)	20	12
Cadmium(as Cd)	ND	ND
TDS	314	358
Arsenic (as As)	ND	ND
Cyanide (as CN)	ND	ND
Lead (as Pb)	ND	ND
Chromium (as Cr)	ND	ND
Mineral Oil	ND	ND
Ecoli/Total Coliforms	Absent	Absent
Suspended Solids	7	9

4.3.4 CONCLUSION

All the above parameters at the various locations in the study area are within permissible and tolerable limits for drinking. The underground water in the area is thus potable.

In the study area since the samples have been collected from different sites at isolated places, the level of concentration and different elements vary quite considerably which may be due to small aquifers. However, the levels of the various components are within acceptable / permissible norms for drinking water.

4.4 NOISE

The acoustical environment varies dynamically in magnitude and character throughout most communities. The noise level variation can be temporal spectral and spatial. The residential noise level is that level below which the ambient noise does not seem to drop down during the given interval of time and is generally characterized by unidentified sources. Ambient noise level is characterized by significant variations above a base or a residential noise level. The maximum impact of noise is felt in urban areas which are mostly due to the commercial activities and vehicular movement during peak hours of the day.

From environment point of view, higher noise levels may affect health of human beings and disturbance to animals if they are close to the noise generating sources.

Measurement of noise levels in the study area at several locations has been carried out to determine the existing noise levels to subsequently superimpose increment in noise levels due to the setting up of proposed unit.

Noise levels recorded at each station are computed for Equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels. Location of noise monitoring station is given in **Fig. 4.2**

Details of noise monitoring stations and equivalent noise levels are shown in **Table 4.6.** Noise levels in the area vary from 40 dB (A) to 47 dB (A). The highest levels were observed at Project Site.

Figure -4.2

LOCATION OF NOISE MONITORING STATIONS

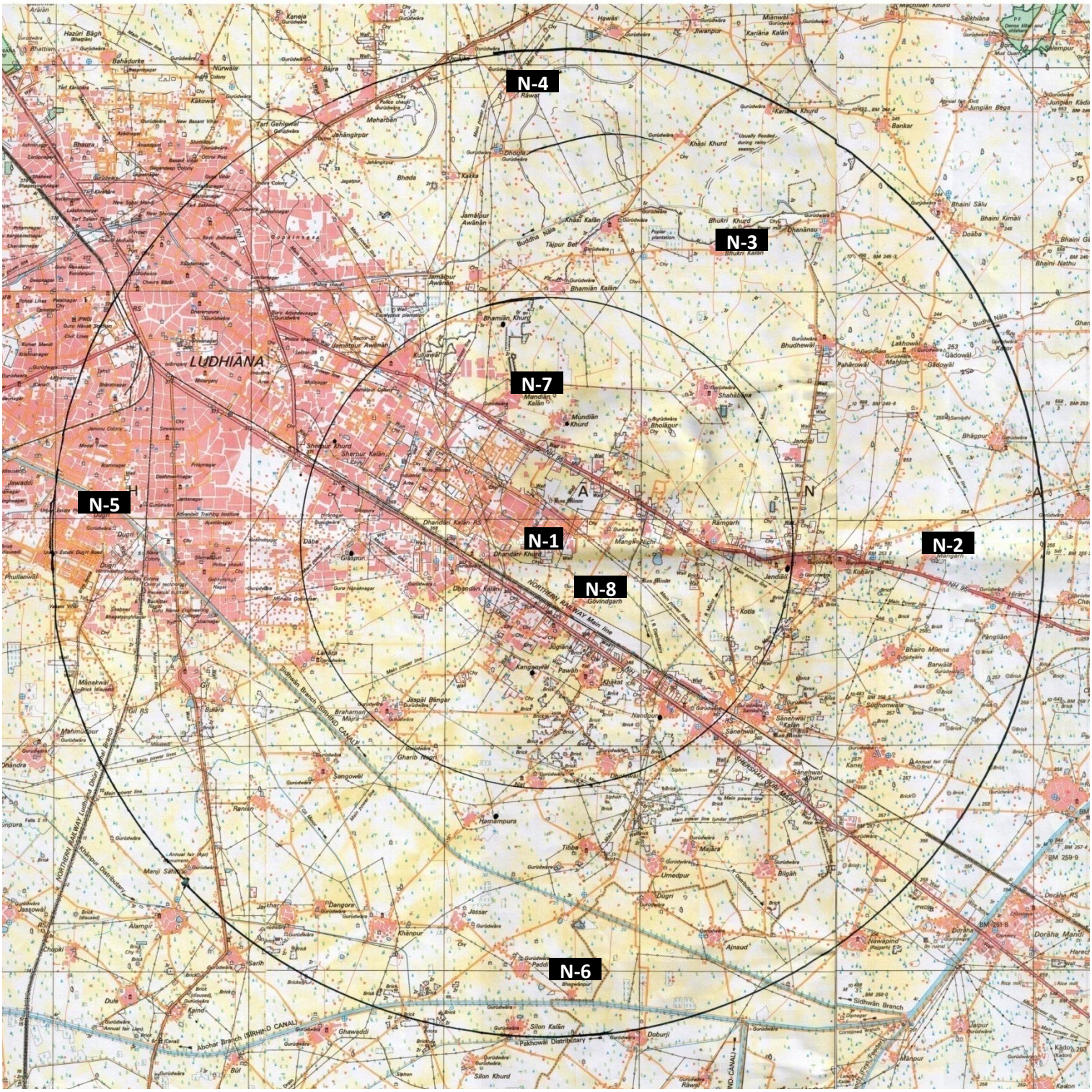


TABLE 4.6

NOISE LEVEL RESULTS LEQ DB (A) IN AND AROUND PROJECT AREA (BETWEEN 9.00 A.M. – 12.00 Noon)

SR. NO.	Location No.	Day Time (Hourly Equivalent)	Night Time (Hourly Equivalent)
1.	Project Site	47	36
2.	Mangarh	42	34
3.	Bhukri Kalan	43	33
4.	Rawat	41	31
5.	Dugri	40	32
6.	Bhagwanpur	38	28
7.	Mundian Kalan	39	27
8.	Govindgarh	45	35

TABLE 4.6 (a)

NOISE LEVEL RESULTS LEQ DB (A) IN AND AROUND PROJECT AREA

(BETWEEN 9.00 A.M. – 12.00 Noon, for January, 2016**)**

SR. NO.	Location No.	Day Time (Hourly Equivalent)	Night Time (Hourly Equivalent)
1.	Project Site	46	37
2.	Mangarh	43	32
3.	Bhukri Kalan	41	31
4.	Rawat	40	30
5.	Dugri	42	34
6.	Bhagwanpur	36	29
7.	Mundian Kalan	38	28
8.	Govindgarh	42	34

4.5 Soil

4.5.1 Physical characteristics :

Soil is generally considered as the upper layer of the earth that is dug or ploughed, especially the loose material in which plants grow. It is generally unconsolidated material composed of soil particles produced by disintegration of rocks. The void spaces between the particles may contain Air, Water or both.

Physical characteristics of soil influence its use and behavior towards plants growth. The plant support, root penetration, drainage, aeration, retention of moisture & plant nutrients is linked with the physical condition of soils. Normally following physical parameters are important for determining the quality of soil:-

(i) Texture
(ii) Porosity
(iii) Bulk density

(i)Texture:-

On the basis of texture the study area may be classified as loamy sand, sandy loam and silty loam.

(ii) Porosity:-

Volume of soil mass that is not occupied by soil particles and usually occupied by air & water are known as pore space. The plant roots grow & exist in the pore spaces. Porosity, therefore, refers to that percentage of soil volume which is occupied by pore spaces.

(iii)Bulk Density:-

The bulk density weight of a unit of volume of soil inclusive of pore spaces is called bulk density. Generally the soil with low bulk density has favorable physical conditions.

4.5.2 Chemical characteristics

Locations of soil monitoring stations are given in **Fig. 4.3.** Chemical characteristics of soil observed in the study area are given in **Table 4.7.** PH varied from 6.1 to 6.3 & is considered good for crops.

Figure -4.3

LOCATION OF SOIL MONITORING STATIONS

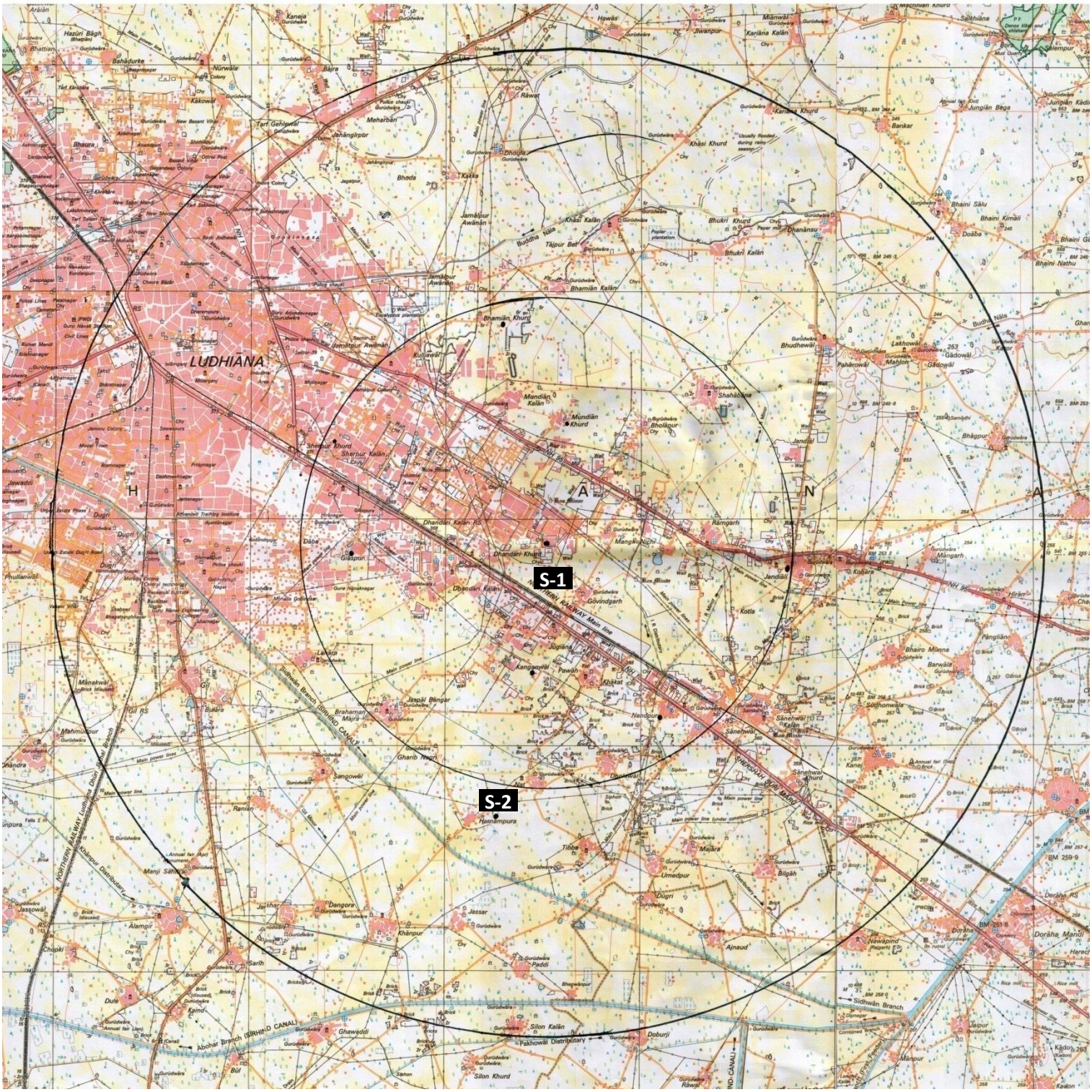


TABLE – 4.7
RESULT OF SOIL SAMPLES (% w/w except pH)

S.No.	Parameter	Monitoring Stations	
		S-1	S-2
1.	pH	6.1	6.3
2.	Chlorides	0.06	0.05
3.	Sulphates	0.04	0.08
4.	Sodium	0.8	0.5
5.	Potassium	1.4	1.6
6.	Calcium	1.7	1.4
7.	Megnesium	1.3	1.4
8.	Iron	1.8	1.5
9.	Nitrogen	0.22	0.25
10.	Phosphorus	0.03	0.06
11.	Organic matter	0.98	1.06

TABLE – 4.7 (a)
RESULT OF SOIL SAMPLES (% w/w except pH)
(For January, 2016)

S.No.	Parameter	Monitoring Stations	
		S-1	S-2
1.	pH	6.2	6.1
2.	Chlorides	0.07	0.06
3.	Sulphates	0.05	0.09
4.	Sodium	0.6	0.4
5.	Potassium	1.6	1.4
6.	Calcium	1.6	1.1
7.	Megnesium	1.1	1.2
8.	Iron	1.2	1.6
9.	Nitrogen	0.24	0.26
10.	Phosphorus	0.04	0.05
11.	Organic matter	0.92	1.02

4.5.3 Conclusion

The above observations show that in the study area soils are generally neutral & are well textured and fertile having physical & chemical characteristics which support good agricultural operations.

CHAPTER 5.0
ENVIRONMENTAL IMPACT ASSESSMENT & MITIGATION MEASURES

5.1 GENERAL

Impact of the project on various Environmental factors as existing in the project area which possibly could be affected both adversely and beneficially by the activities have been assessed & identified as under.

(i) Ambient Air

(ii) Water Quality

(iii) Noise

(iv) Land use pattern

(v) Demography and socio-economic pattern.

Mitigation measures to minimize the adverse effects to acceptable / permissible limits have also been discussed.

5.2 PROBABLE IMPACT ON ENVIRONMENT

Broadly the impacts may be classified in two categories as under:-

i) **Short term** - during construction/development stage

ii) **Long term** - during operational stage.

Both these categories have been considered while predicting and evaluating the impacts as given herein after:-

5.3 DEVELOPMENT STAGE: - (SHORT TERM)

The impacts are temporary due to construction related activities which are as under:-

i.) Air Environment

Dust will be the main pollutant affecting the ambient air quality of the area during the construction phase. Dust will be generated during excavation, back filling and hauling operations and vehicular movement of trucks, dumpers and construction machinery.

Providing suitable surface treatment to ease the traffic flow and regular sprinkling of water will reduce the dust generation.

Aggregates and sand will be stockpiled at suitable places (after stabilizing the surface), near the boundary wall so that the wall acts as windshield. The stockpiles will be aligned along the predominant wind direction, with slopes stabilized and maximum height will be maintained close to the boundary wall height. In case the height of stockpiles exceeds that of boundary wall then additional windshields of adequate height (preferably with tin sheets) will be provided. To prevent dust nuisance from the stockpiles it will be covered with plastic sheet, wherever required. Necessary water sprinkling arrangement will be provided around the stockpiles and used whenever necessary to make them moist. Cement and steel will be stocked inside covered sheds. Necessary dust suppression measures like water sprinkling using road tankers will be deployed to mitigate the dust nuisance during road making. The road construction will be done during day-time. Construction equipment having 'Pollution under Control Certificate' will be deployed during the activity to restrict the exhaust emissions. Short term, localized and reversible impact is expected due to dust emissions generated during the construction stage.

ii.) Water Environment

Requirement of water during construction (Making foundation & Platform of furnace) will be about 1.0 m^3/day and there will be no discharge as the same will be used completely. However, during monsoon some malba etc may get washed due to run off from the site. There is Public sewer near to the project which takes the entire run off from the area.

Labour during construction is not very large. Hardly about 10 persons may be working on an average that may be using water for drinking, bathing etc. Toilet facilities already exist at the site for use.

In view of this there is no likelihood of any significant impact on the general environment of water in the area.

iii.) Noise Environment

There will be noise generation from earth moving equipment and material handling traffic. Construction equipments are likely to producemaximum noise levels, between 80-90 dB (A). The construction activity will be carried out mostly during daytime. The construction equipment will undergo preventive maintenance test at routine intervals. Any machinery or equipment generating excessive noise levels (above 90 dB-A) will be taken out of service and replaced by new ones. The noise generation will be confined within the surrounding areas of construction site.

iv.) Land Environment

The land at site is fairly level as such no leveling is required. No additional land required for expansion. The possible impact on landform of the area will occur due to land grading, cutting, filling, excavation of earthworks, making roads etc. Exact volume of excavated earthworks is difficult to estimate at this preliminary stage. No earth will be brought from outside or disposed outside the premises. The excavated earth will be stored at earmarked place with proper slopes and utilized for leveling and landscaping purpose within the plant premises. The surplus earth generated during excavation will used for grading work, utilized in making approach road and landscaping activities. Excavation work will be carried out during dry season and avoided during rainfall events to prevent soil erosion and washout of excavated materials.

v.) Demography & Socio Economic Pattern

The project does not involve any displacement of population or rehabilitation of any kind within study area. Rather it will provide employment to local people in the shape of additional man power required for the units, & will boost the economy of the area. It will have some positive impact, although not to a large extent.

5.4 OPERATIONAL STAGE: - (LONG TERM)

After completion, when the unit starts production, the operational impacts on the various parameters are considered as under:-

Ambient Air Environment

There are only two sources of likely pollution:

i.) SPM Emission from the furnaces

ii.) D. G Sets

There is two number existing Induction Furnaces of capacities 4TPH each & they proposed to replace existing furnace with two new Induction furnaces of capacities 10 TPH each. There will be generation of emission containing SPM. All these processes are closed circuits as such emissions to the atmosphere will be minimum. Emission from the furnaces which emanate during melting process are passed through APCD such as cyclones and bag filters which are most effective and remove about 98% SPM generated. No other gases are emitted. Thus clean air will be passed on to the atmosphere. However, in case the bag filters are damaged there is a risk of particulate matter going above the permissible limits. For this purpose firm will always keep additional bags in store to replace the damaged ones, if any, immediately to avoid effect of such a happening.

Existing PM_{10} level in the study area varies from 69.6 to 88.6µg/m^3 & P98 is 86.5µg/m^3. Incremental impact of the unit has been assessed through AERMOD 8.2.0 model provided on page no. 123 and all are well below the permissible limit. DG sets have been provided chimneys of adequate height as per CPCB Norms. There are no process emissions as all the manufacturing processes are closed circuits. However, APCD like, Cyclones, Bag filters will be provided to arrest particulate matter. Solids from cyclone will be disposed off for landfill.

Water Environment

Total requirement of water is 20 KLD. Out of this 5 KLD will be used for domestic purposes. Quality of water in the study area has been checked & has been found to be potable. The domestic use of water will generate about 4 m^3/day of effluent, which will be treated through septic tank. There is no use of water in industrial process. Treated domestic water will be disposed off in public sewer. Thus water environment is not

likely to be affected. Further, ground water will be balanced through recharge by rain water harvesting from the roof top to the extent of about 3040 m^3/annum through recharge wells. This will have some positive effect.

Noise Environment

There will be no noise producing machinery or equipment except D.G. sets which will be placed in acoustically sound proof room causing least disturbance in the area. There is no likelihood of change in noise environment.

Land Environment

No additional land has been acquired for the unit. The machinery will be installed on the acquired land. There will be no adverse effect on the land environment with the coming up of the unit.

Socio Economic

Social aspects can be defined as the consequences to people of any proposed action that changes the way they live, work, relate to one another, organize themselves and function as individuals and members of society. This includes social-psychological changes, for example to people's values, attitudes and perceptions of themselves and their community and environment.

Sometimes impact on people can be by far the most important consideration. Adverse social impacts can reduce the intended benefits of a proposal, and can threaten its viability if they are severe enough.

Broadly social and economic aspects could be as under:-

1. **Individual Life Style** – These are ways people behave & relate to family, friends & cohorts on day to day basis.

- **Community aspects**- These are infrastructure, services, voluntary organizations, activity networks and cohesion.
- **Health aspects**- These include mental, physical and social wellbeing of the persons in general
- **Rehabilitation and Resettlement-** These include displacement of families beyond defined thresholds.

In respect of the above aspects the effect that the project will have on public and community properties, assets and infrastructure has been considered for impact assessment.

Jyoti Industries is an existing Steel manufacturing unit. The unit is situated in approved Industrial area. It does not directly or indirectly interfere in the life of the people in the study area especially with respect to the aspects mentioned above. There will not be any adverse impact on them due to this project.

The project will provide direct & indirect employment to local people in the field of running plants and maintenance of machinery, APCD & security etc. **Thus it will have positive effect on the employment potential in the area.**

5.5 CONCLUSION

It can be seen from the assessment of impacts that the proposed construction and operation of Jyoti Industries will not have any significant impact on the surrounding environment. Proper arrangements for collection and treatment of effluents and supply of water are unlikely to affect water environment adversely. Proper pollution control measures proposed for furnaces and disposal of hazardous waste would ensure that air, water, solid waste and noise environment do not have any adverse impact. **It is concluded that with the adoption of appropriate mitigation and enhancement measures, there will be improvement in the development of commercial activities, generation of direct and indirect employment opportunities and the overall quality of life in the surrounding area.**

CHAPTER - 6.0

ENVIROMENT MONITORING PLAN

No project can succeed unless it is monitored at regular intervals & results analyzed. Keeping this requirement in view an elaborate Monitoring programme has been developed for this project. Regular monitoring of all significant environmental parameters will be carried out to check the compliance status vis-à-vis the environmental laws and regulations. The objectives of the monitoring will be as follows:

- To verify the results of the Impact Assessment Study with respect to the proposed projects.
- To study the trend of concentrated values of the parameters, which have been identified as critical and then planning the mitigating measures.
- To check and assess the efficacy of pollution control equipment.
- To ensure that any additional parameters, other than those identified in the impact, do not turn critical after the commissioning of proposed project.

A comprehensive Environmental Monitoring Program that has been prepared for the purpose of implementation in the proposed Industrial unit is given below:

Table 6.1: Environmental Monitoring Plan

S.No	Item	Parameters to be checked	Frequency
1	Ambient Air	RSPM, SPM, NO_X Silica & SO_2	Every six months
2	Vehicles	PUC	Every Quarter
3	Noise Level	dB (A)	Once in a year
4	Ground water	As per IS 10500	Once in a year

All the above observations will be compiled and documented to serve the following purposes.

- Identification of any environmental problems that are occurring in the area.
- Initiating or providing solution to those problems through designated channels and verification of the implementation status.
- Controlling activities inside the project, until the environmental problem has been corrected.
- Suitably responding to emergency situations.

To implement the EMP, a structured Environment Management Cell (EMC) interwoven with the existing management system will be created. EMC will undertake regular monitoring of the environment and conduct yearly audit of the environmental performance during the construction of the project. It will also check that the stipulated measures are being satisfactorily implemented and operated. It shall also co-ordinate with local authorities to see that all environmental measures are well coordinated.

Environment Management Cell:

The Environment Management Cell shall include:

- Representative of Management (Head of Environment Cell)
- Process Incharge
- Incharge Maintenance Department
- A representative of Environmental Consultants

The cell shall be constituted immediately at the start of the project so that appropriate actions to protect the Environment are taken from the very beginning. All actions taken by the cell shall be documented.

Table 6.2

EXPENDITURE ON ENVIRONMENTALMEASURES

S.No	Title	Capital Cost Rs. Lacs	Recurring Cost Rs. Lacs (Annum)
1	Air Pollution Control	48.0	5.0
2.	Water Pollution Control/ sewage Treatment Plant	2.0	1.0
3.	Noise Pollution Control (Including cost of Landscaping, Green Belt)	5.0	1.0
4.	Solid Waste Management	1.0	---
5.	Environment Monitoring and Management (Including Establishment of Laboratory)	2.0	0.5
6.	RWH	3.0	--
7.	Miscellaneous (Appointment of Consultants, occupational health & safety measure)	3.0	1.0
	Total	**64.0**	**8.5**

CHAPTER-7.0

CORPORATE SOCIAL RESPONSIBILITY

Corporate social responsibility is the commitment of businesses to contribute to sustainable economic development by working with the employees, their families, local community & society at large to improve their lives in ways that are good for business as well as overall development. It is a voluntary activity of a company that supports social interests & environmental issues. It is a principle through which the business houses contribute to the welfare of the society & not only maximize their profits. CSR, in fact, is about business giving back to the society.

As late as 1990s even when pollution control related legislations were in place, Indian Corporate Sector used to consider any actions related to pollution control as discharge of their social responsibility. Only when Supreme Court of India pronounced "Polluter Pays Principle" & some of the courts came down heavily on Polluters for their inaction to control pollution at several locations, the Corporate Sector felt that it was their legal responsibility to abide by laws of the land. Industries have now realized that it pays to be proactive on the environmental management front including corporate social responsibility. This obligation is seen to extend beyond the statutory obligation to comply with legislation & sees organizations voluntarily taking further steps to improve the quality of life of employees, their families & society at large. Social includes economic & environmental responsibilities also. Some of the large enterprises have created some kind of institutional frame work, educational & health care programs in the form of schools, colleges, training centers, public healthcare & hospitals etc. Some business houses provide financial aid to some other agencies for specific programs or as donations to them who take up works relating to the social uplift of the society in general & for the weaker section in particular.

Some of the CSR related activities are summarized as follows:-

(i) **Sustainable livelihood creation –** Promoting micro entrepreneurship through skill development, market linkages & women's economic empowerment.

(ii) **Education –** Setting up schools, colleges, curriculum development, teacher training & community involvement.

(iii) **Health care –** Healthcare awareness camps & setting up hospitals & dispensaries in areas where these are deficient.

(iv) **Community initiative –** Need based services, project/programs for disadvantage youth, illiterate adults, socially & economically deprived sections of the society & women self help groups.

(v) **Rural development –** Water management, housing, sheds, waste land, agriculture & animal husbandry, genetic improvement & model village development with all basic amenities.

(vi) **Infrastructure developments –** Roads, drinking water & sanitation etc.

In addition sewage management & solid waste management especially in urban areas where local self-govt. have resource crunch could also be taken up under CSR which could bring a complete revolution in the country.

For CSR a corpus of about 5% of the project cost i.e. Rs. 2.78 Cr. shall be created and following activities shall be taken up from its interest during the entire life of the project.

(5% of 2.78 Crores = 0.139 Cr ≅ 14 Lacs)

Table 7.1
DETAIL OF CSR AND ITS TIME BOUND IMPLEMENTATION

S.No.	Name of the Village	Welfare action Plan	Estimated Cost (Rs Lacs)
1.	Mundian Kalan, Govindgarh,	Environmental education cum awareness campaign through audio/video in each of these villages and High schools of these villages once a year.	**2.0**
2.		Health check up camps including vision, audiometry, spirometry, respiratory disorders and free medicines whenever required once a year, also providing & running a free Dispensary in Village Dhandari Kalan.	**2.0**
3.		Sewing machines, ceiling fans and tricycles to needy poor and handicapped once in five years.	**2.0**
4.		Purified drinking water and separate toilets in the schools and their upkeep.	**2.0**
5.		Distribute uniforms, books & bags to students in the school specially from weaker section.	**1.0**
6.		Approach road will be constructed and maintained in future.	**3.0**
7.		Free medical treatment to very poor patients as recommended by Hospital	**2.0**
Total			**14.0**

CHAPTER 8.0
ENVIRONMENTAL MANAGEMENT PLAN

8.1 GENERAL

Environment Management Plan (E.M.P) in a project is prepared to mitigate the possible adverse effect of various activities on the existing environmental factors, during construction as well as in operational stages, to avoid their deterioration, if any. It is desirable that necessary steps are taken right from the beginning of the project to be more effective. As a social and moral obligation on the part of everybody it becomes our bounden duty to leave our environment to the next generation in a state at least what we inherited from our ancestors, if not in a better condition. E.M.P. for this project has been prepared keeping in view the existing conditions and likely changes which may occur due to the proposed project. The implementation and monitoring of different control measures have also been covered. These are discussed as under:-

8.2 AIR ENVIRONMENT

- During construction stage water will be sprinkled on the soil to avoid dust generation, if any. The debris and unused construction malba shall be removed immediately for recycling, if any, or for land fill.
- Bag filters shall be provided to arrest SPM from flue gases to keep it within permissible limits.
- All vehicles for service activities at the project site shall be checked for vehicular emission. The agencies will be asked to keep them within prescribed limits. They will also be asked to maintain them properly.
- After the project comes under operation, a chimney of suitable height shall be provided for the D.G. Set to control the G.L.C. of S.P.M, SO_2, & NOx levels.
- Extensive tree plantation shall be resorted to for further improving the air environment in general and minimize noise levels.

8.3 WATER ENVIRONMENT

Water shall be drawn from a tube-well installed in the factory area and distributed through an Over Head Service Reservoir. This will all be a closed system.

- During construction & operation toilets facilities @1 toilet for 20 workers shall be provided. Finally waste water from the toilets shall be taken to septic tank through underground delivery system and treated up to tertiary level. Treated water will be discharged into public sewer.
- It will not be thrown outside either on land or in any water body.
- Roof top Rain Water shall be harvested and used for ground water recharge to augment the same.

8.4 LAND ENVIRONMENT

- To avoid erosion of the top soil the development is planned in the shortest possible time and land-clearing activity shall be kept to the absolute minimum by working at the specific site where construction is to take place.
- No additional land required for expansion. The requirements of sand and aggregates for the construction works will be met through venders. The land use is thus so planned that there is minimum adverse impact.

8.5 SOLID WASTE

- The solid wastes from the bag filters shall be stored in a dumping pit of R.C.C. Construction and disposed off in the designated land fill places.
- Slag from the furnace received from the manufacturing process shall be sent to low lying area for disposal and used for road making.

8.6 NOISE POLLUTION

- During Construction stage "NO HORN" signs will be displayed at prominent places. The drivers shall be directed not to blow horn unnecessarily. Vehicle owners will be asked to maintain them in proper condition.
- During operational stage noise creating machinery such as Blower, ID Fans etc will be housed in acoustically sound proof room so as not to disturb the noise level in the area. DG sets shall be noiseless type and canopy shall be provided on them. Trees with thick foliage shall be planted within the premises especially along boundary wall to reduce the noise levels. The species will be including Neem, Silver oak & Jamun etc. shall be selected.

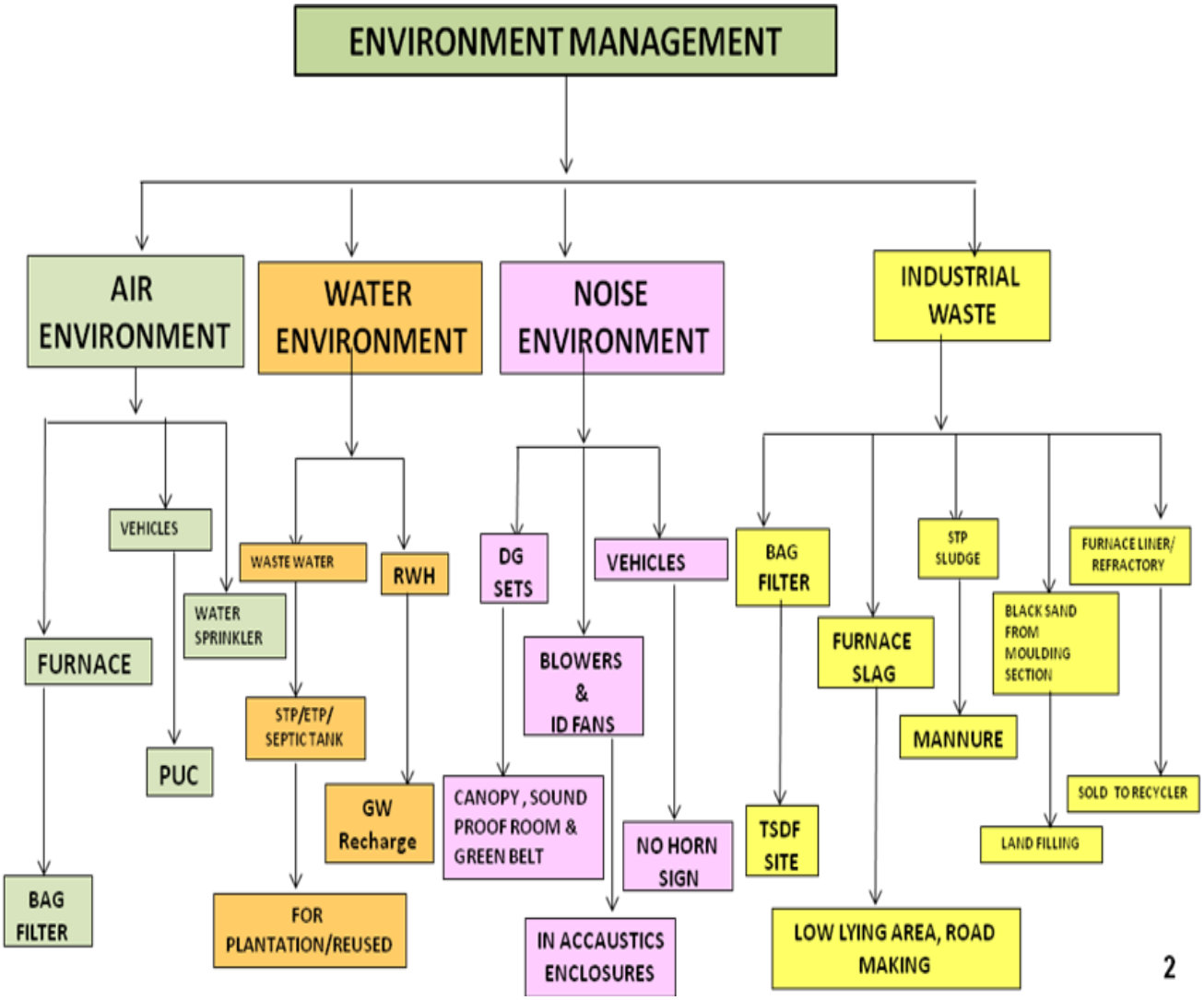
8.7 GREEN BELT

- The main objective of the green belt is to provide a barrier between the source of pollution and the surrounding areas. The green belt helps to capture the fugitive emission and to attenuate the noise generated, apart from improving the aesthetics. Development of green belt and other forms of greenery shall also prevent soil erosion and washing away of topsoil besides helping in stabilizing the functional ecosystem and further, to make the climate more conducive and to restore water balance. It is planned that the selected plants

will be grown as per normal horticultural (or forestry) practice and authorities responsible for plantation will also make sure that adequate provision for watering and protection of the saplings exists at site.

- The landscaping and green belt will be designed and trees will be planted in open areas, around boundary & along footpaths and dividers.
- Standard practice will be followed for planting of saplings in pits of substantial dimensions, 1m x 1m x 1m for big trees and almost half of these dimensions for smaller trees and shrubs. The pits shall then be filled with earth, sand, silt and manure in predetermined proportions. Saplings planted in the pits will be watered liberally. The growing plants will be cared for the first five years under favorable conditions of climate and drainage. Care will be taken for nutrient supplement (healthy growth), plant protection, absence of water stress (to maintain openness of stomata apertures and epidermal structures) and exposure to normal atmospheric conditions (free air flow). The guidelines as laid out in National Building Code of India shall be followed in the overall development of Green Belt.
- Species selected will be with thick foliage and compatible to the climate & soil of the area. Species having thick foliage like Neem, Silver oak & Jamun etc shall be selected.

Fig. 8.1: EMP FLOWCHART



8.8 RAIN WATER HARVESTING

Rain Water Harvesting is collecting and using precipitation from a catchments surface. The rainwater collected can be stored for direct use or can be recharged into the groundwater. Rain Water Harvesting is thus becoming essential as it helps to meet our demand for the water either directly as rain water is stored and put to different uses or indirectly via replenishing the ground water.

Thus, there are two main techniques of Rain Water Harvesting (RWH) depending on the end use.

-Storage of rain water on surface for direct use

-Recharge to ground water

8.8.1GENERAL ARRANGEMENTS PROPOSED

In the present case since the land available is limited and large tanks cannot be constructed it is proposed to recharge the ground water through deep bores.

8.8.2 RECHARGE POTENTIAL

The recharge is proposed to be done from the roof top of the building only. The recharge potential thus available is as below:-

Area of the catchment (Roof Top) A = 3800 m^2

Average annual rainfall R =1.0 m.

Runoff coefficient C =0.8

About 80% of rainfall that falls on the roof (Roofs with tiles) is available for use.

Annual Roof Top Rain Water Harvesting Potential = A x R X C

= 3040 m^3

CHAPTER-9.0

OCCUPATIONAL HEALTH AND SAFETY OF WORKERS

9.1 GENERAL

Occupational Health basically relates to protecting the Industrial Workers from the ill effects of various parameters at the work place or in other words, "Occupational Environment". It is synonymous with `Preventive Medicine' as both aim at prevention of diseases & physical discomfort. This in the long run increases their efficiency and ultimately results in better production. Thus, both the workers and the industrialists are gainers.

9.2 OCCUPATIONAL ENVIRONMENT

Occupational Environment includes external conditions and influences which prevail at the place of work and which have a bearing on the health of workers. These are of three types i.e.

(a) Man and physical, chemical & biological agents.

(b) Man and Machine

(c) Man & Man.

9.3 OCCUPATIONAL HAZARDS

Keeping in view the above environmental factors, the workers may be exposed to following types of hazards depending upon his occupation.

(a) *Physical hazards*, i.e. heat, light, noise, vibration.

(b) *Chemical hazards* which affect the health of workers in three ways: i) local action, ii) inhalation, iii) ingestion

(c) *Mechanical hazards*, e.g. moving parts of machinery etc.

(d) *Biological hazards*, it mainly occurs in units dealing with animals and animal products.

9.3.1 Hazards Comprising at the Industry:

Identified hazards:

- Noise induced hearing loss
- Exposure to excessive dust resulting in respiratory diseases (Silicosis, Bronchitis, etc)
- Excessive heat leading to stress and fatigue
- Burns and shocks due to electricity
- Illumination

Permissible level of exposure:

S. No.	Description of Hazard	Permissible Exposure Level (Factories Act)
1.	Dust Exposure (Amorphous as Total dust)	10 mg/m3 TWA (8 hr)
2.	Noise Hazard	90 dBA – 8 hrs 92 dBA – 6 hrs 95 dBA – 4 hrs 100 dBA – 2 hrs

9.4 Mitigation Measures:

The main aim of occupational health is the promotion & maintenance of the highest degree of physical, mental and social well being of workers in all occupations. Thus, different measures are required to control ill-effects of the various activities in the industries.

9.4.1 Safety Precautions & Suggestion:-

To protect the health of the workers in the Industry, already sufficient measures are there in the existing plant but to make it more efficient after expansion following measures shall be taken:-

i) Proper housing shall be provided to workers in large Units for comfortable & stress free living.

ii) Personal Protection Equipment (PPE) shall be provided to workers, such as Earplugs, Gloves, Eye Goggles, and Helmets & Gum Boots etc.

iii) Clean & cool drinking water shall be available to workers near work places especially near hot spots.

iv) Proper ventilation shall be provided in work place, especially where heat is generated.

v) Employees working near furnaces & other hot areas shall be rotated to minimize exposure time.

vi) Acoustics shall be provided in rooms where noise creating machines work.

vii) All moving & protruding parts of machinery shall be guarded, so that worker does not come in contact with them.

viii) Proper lighting shall be provided in the work place. Glares will be avoided.

ix) & Exhaust fans & canopy hoods shall be provided in the areas where dust other gases are expected from the operations.

x) First Aid Box shall be kept at prominent place to be used in emergent cases.

xi) All firefighting equipment shall be frequently checked to see that they are effective always.

xii) Frequent health check-up of the workers shall be done on regular basis and the results documented. Timely medical treatment shall be provided to affected person, if any.

9.4.2 Routine health check-up of workers:

Routine health check-up of workers are done. Eye examination and Audiometry of truck drivers and crane operators are done every year. Other workers working near dust prone areas are also subjected to PME. Health Records are statistically analyzed and maintained. The medical examination covers the following tests.

- General Physical Examination
- X-Ray Chest and ECG
- Sputum Examination

- Differential WBC Count
- Routine Blood and Urine Examination
- Lung Function Test
- Eye Examination
- Audiometric Test

The medical histories of all the employees will be maintained in a standard format.

Frequency of Periodical Examination:

- For employees <30 Years, once in five years
- Between 31-50 Years, once in four years
- Between 41-50 Years, once in two years
- Above >50 years once a year

9.5 Fire fighting plan

9.5.1 Introduction:

The project area lies in the Approved Industrial Area of Ludhiana. There are no Reserve forests or other sensitive sites within 10 km of the area of the unit. Residential area of Ludhiana city is quite far from the unit.

9.5.2 Management of fire & other hazards

Industrial fires and explosions cause considerable damage to lives and property besides impending productivity. This damage may extend to neighboring areas. The fundamental approach governing fire safety attempts shall be adopted to ensure that fires do not at all start in the first place and should they occur, to restrain their spread by quick detection and extinguishment.

9.5.3 Prevention of spread of fire:

Despite many precautions taken, fires do break out. Hence every factory should have established measures to detect a fire and to attack it immediately. Automatic fire detection has many advantages such as speed and reliability and is recommended for warehouses, control rooms/computer rooms and unoccupied areas with high fire hazard. Depending on the nature of the occupancy and the hazard, a variety of

detection systems are available. They are activated by one of the effects of fire such as temperature rise, smoke flame or heat and can be coupled to an alarm system which would provide visual/audible alarms at designated manned locations. They can also be designed to automatically actuate fire-extinguishing systems. The selection/installation of the detection system shall conform to the applicable National Standards.

9.5.4 Extinguishing Systems:

Equipment for firefighting shall be chosen with care and suited to the task. Fires are classified depending on the materials involved and appropriate extinguishing agents are also recommended. Different kinds of fire fighting media are available: Water, Dry Chemical Powders, Carbon Dioxide, Foam etc.

9.5.5 Fire prone areas of the industry:

i) Local scrub yard; reason: during gas cutting of raw material.

ii) Steel melting shop; reason: spillage of molten steel nearby workplace area.

iii) High tension cable wiring: reason: due to short circuit.

iv) Other places; reason: due to any manual reason.

9.5.6 Precautions:

M/S Jyoti Industries is already having some fire fighting plan in place for their existing plant. For making it more efficient after expansion following measures will be in place:

i.) First Aid

First Aid shall be readily available and at the nearest place in case of any emergency. First aid charts showing actions to be taken in a practice shall be displayed prominently. Following equipment shall be provided.

- First Aid Boxes
- Stretchers/Wheel/Chairs
- Fire Blankets
- Emergency Showers & Eye wash facilities
- Emergency lighting

Arrangement shall be made with some local Doctor or Clinic for immediate assistance in case of Emergency.

Exposure to fumes or vapours

Remove the affected person to fresh air. If needed try artificial respiration & consult Doctor immediately.

Eye Contact

Flush with water and get medical advice.

Skin Contact

Remove contaminated clothing and wash off immediately with water.

Burns

Cool down the affected area with cold water until pain subsides. Apply some antiseptic and obtain medical advice.

i) Portable fire extinguishers and hydrant systems

Portable fire extinguishers and hydrant systems are provided at strategic locations throughout the plant.

ii) Fire detection and alarm system

These will be provided to detect fire/smoke in vulnerable areas of the plant through smoke / heat detectors.

iii) Signs such as "NO SMOKING" must be prominently displayed within the premises, especially in parts where flammable materials are handled.

iv) Regular inspection and servicing of the extinguishers must be undertaken by a reputable service provider and records of such inspections maintained.

v) Electrical fittings near all potential sources of ignition shall be flame proof.

Annexure-I


JYOTI INDUSTRIES UNIT No. II
5. PROVIDENT FUND INSPECTOR :-
6. E.S.I. INSPECTOR :-

Annexure-II

AIR QUALITY PREDICTIONS THROUGH MATHEMATICAL MODELING

After expansion of the plant quantity of flue gas generation will be 4523.8932m^3/h at full load conditions. The emission characteristics and emission loads are given in Table 1. Peak incremental concentrations due to stack emissions are predicted to assess their impact on post project ambient air quality.

Prediction of impacts on air environment has been carried out employing mathematical model based on a steady state Gaussian plume dispersion model designed for point sources for short term. In the present case, AERMOD version 8.2.0 dispersion model based on steady state Gaussian plume dispersion and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from Industrial sources.

(A) Pollutants/Model Options Considered For Computations

- The model simulations deal with major pollutant SPM, SOx & NO_x emitted from the proposed expansion.

(B) Model Options Used For Computations

The options used for short-term computations are:

- The plume rise is estimated by Briggs formulae, but the final rise is always limited to that of the mixing layer;
- Stack tip down-wash is not considered;
- Calms processing routine is used by default;
- Wind profile exponents is used by default, 'Irwin';
- Flat terrain is used for computations;
- It is assumed that the pollutants do not undergo any physico-chemical transformation and that there is no pollutant removal by dry deposition;
- Washout by rain is not considered;
- Uniform polar receptor grid system has been used for computations; and
- The model computations have been done for 10 km.

(C) Model Input Data

The continuous source of emissions in the proposed expansion project will be from induction furnace. Emission from the furnace will be controlled by installation of efficient pollution control systems and stack height of 30 meters as per CPCB guidelines. Details of Stack required for model input is given in Table1.

Atmospheric Emission

- **Emission Source**: Emission loads have been worked out on the basis of induction furnace. The emission rate of SPM, SOx and NOx are calculated as below:

SPM Emission Rate

SPM concentration in the stack, mg/Nm3	=	50
Stack flow, Nm3/s	=	1.256637
Emission Load, mg/s	=	1.256637 x 50
Emission Load, g/s	=	0.06283

NOx Emission Rate

NOx concentration in the stack, mg/Nm3	=	5
Stack flow, Nm3/s	=	1.256637
Emission Load, mg/s	=	1.256637 x 5
Emission Load, g/s	=	0.006283

SOx Emission Rate

SOx concentration in the stack, mg/Nm3	=	4
Stack flow, Nm3/s	=	1.256637
Emission Load, mg/s	=	1.256637 x 4
Emission Load, g/s	=	0.00503

SOURCE CORDINATES:

X- CORDINATE: 588575.60m, Y- CORDINATE: 3416917.00 m

Table 1: STACK CHARACTERISTICS AND EMISSION LOADS

Source ID	Source type	X coordinate	Y coordinate	Height of stack (m)	Base elevation	Inside Dia of stack (m)	Flue gas temperature (k)	Flue gas velocity (m/s)	Emission rate (g/s)		
									SPM	NO_x	SO_x
Induction Furnace stack	Point	30º52'56 North 75º55'36 East		30 m	Same as stack height. MSL- 253 m	0.4 m	273+ 90= 363 k	10 m/s	50 mg/nm^3	5 mg/nm^3	4 mg/nm^3

AMBIENT AIR MONITORING STATIONS

S.No.	Sample Code	Name of Village/ Location	Distance from site (KM)	Direction	Coordinate
9)	AA-1	Project Site	0	---	30º52'56 N 75º55'36 E
10)	AA-2	Mangarh	8.5	E	30º52'11'' N 76º01'08'' E
11)	AA-3	Bhukri Kalan	7.5	NE	30º55'34'' N 75º58'47'' E
12)	AA-4	Rawat	8.7	N	30º57'15'' N 75º55'12.21'' E
13)	AA-5	Dugri	8.0	W	30º51'35'' N 75º50'41.2'' E
14)	AA-6	Bhagwanpur	9.5	S	30º47'20'' N 75º56'39.32'' E
15)	AA-7	Mundian Kalan	2.5	N	30º53'48.15'' N 75º55'49.64'' E
16)	AA-8	Govindgarh	2.5	SE	30º51'32.27'' N 75º56'39.19'' E

Mathematical Modeling

The pollutant emitted is expected to undergo some removal processes in the atmosphere (such as deposition and reaction). Since these processes of 'reduction' have not been modeled, it is expected that the simulation made in this report represent concentrations on a higher or conservative side. In this sense, the predicted concentrations should provide a very useful basis for rational assessment of air quality impacts due to emissions from the proposed expansion project. The objective of this modeling is to predict incremental additions in the concentrations due to the implementation of proposed expansion in the air shed of 10 km radius.

(A) Modeling Procedure

Prediction of ground level concentrations (GLC's) for the proposed expansion project has been made by AERMOD version 8.2.0 as per CPCB guidelines. It is US-EPA approved model to predict the air quality. The model uses rural dispersion and regulatory defaults options as per guidelines on air quality models (PROBES/70/1997-1998). For this study, uniform polar receptors on flat terrain have been assumed.

Meteorological inputs required are hourly wind speed and direction, ambient temperature, cloud cover and ceiling height. The model details are as follows.

(B) Gaussian Plume Model

The AERMOD version 8.2.0 model is based on a numerical integration over the area in the upwind and cross wind directions of Gaussian plume formula. This can be applied to the Point, Area, Line, Volume sources (& other forms of area sources) simultaneously and their resultant incremental concentration of the pollutant can be predicted.

(c) Extrapolation of Wind Speed

Wind speed at stack level is calculated by power law as given below.

Ustack = U10 (Stack height/10) p

Where U10 is the wind speed at 10 meter level and p is the power law coefficient (0.07, 0.07, 0.10, 0.15, 0.35 and 0.55 for stability classes A,B,C,D,E and F respectively) as per Irwin for rural areas (USEPA, 1987).

(C) Meteorological Data

Data recorded at the continuous weather monitoring station on wind speed, direction, and temperature at one hour interval for the monitoring period has been used as meteorological input.

Results:

In the present case model simulations have been carried using the hourly meteorological data. Short-term simulations (24hour) were carried to estimate concentrations at the receptors to obtain an optimum description of variations in concentrations over the site in 10 km radius.

The incremental concentrations are estimated for the monitoring period. For each time scale, i.e. for 24 hr the model computes the highest concentrations observed during the period over all the measurement points. Existing value has been covered in the Background Ambient Air Quality Monitoring.

Cumulative concentrations (Baseline +Incremental Concentration) for SPM, SOx and NOx is shown in Table 2 and isopleths showing 24 hourly predicted GLC's of SPM, NOx and SOx is shown in Figure 1, 2 and 3.

Table2: Cumulative concentrations (Baseline +Incremental Concentration) for SPM, SOx and NOx

	Sampling Location	Aerial distance from Plant site km	Direction from Plant Site	Background concentrations in ug/m³			Predicted incremental Maximum concentrations in ug/m³			Resultant Maximum concentrations in ug/m³		
				SPM	SOx	NOx	SPM	SOx	NOx	SPM	SOx	NOx
AA1	Project Site	-	---	80.93	8.48	20.03	0.04	0.004	0.04	80.97	8.484	20.07
AA2	Mangarh	8.5	E	70.49	8.1	19.45	0.01572	0.00126	0.00157	70.50572	8.10126	19.45157
AA3	Bhukri Kalan	7.5	NE	71.7	8.06	18.15	0.02672	0.00214	0.00267	71.72672	8.06214	18.15267
AA4	Rawat	8.7	N	72.03	8.12	20.23	0.0197	0.00154	0.00197	72.04 97	8.12154	20.23197
AA5	Dugri	8.0	W	70.33	8.06	18.06	0.03346	0.00268	0.00335	70.36346	8.06268	18.06335
AA6	Bhagwanpur	9.5	S	69.71	8.21	19.24	0.030608	0.00246	0.00307	69.740608	8.21246	19.24307
AA7	Mundian Kalan	2.5	N	71.40	8.71	18.96	0.0367	0.00294	0.00367	71.4367	8.71294	18.96367
AA8	Govindgarh	2.5	SE	70.61	8.8	20.24	0.08041	0.00644	0.00804	70.69041	8.80644	20.24804

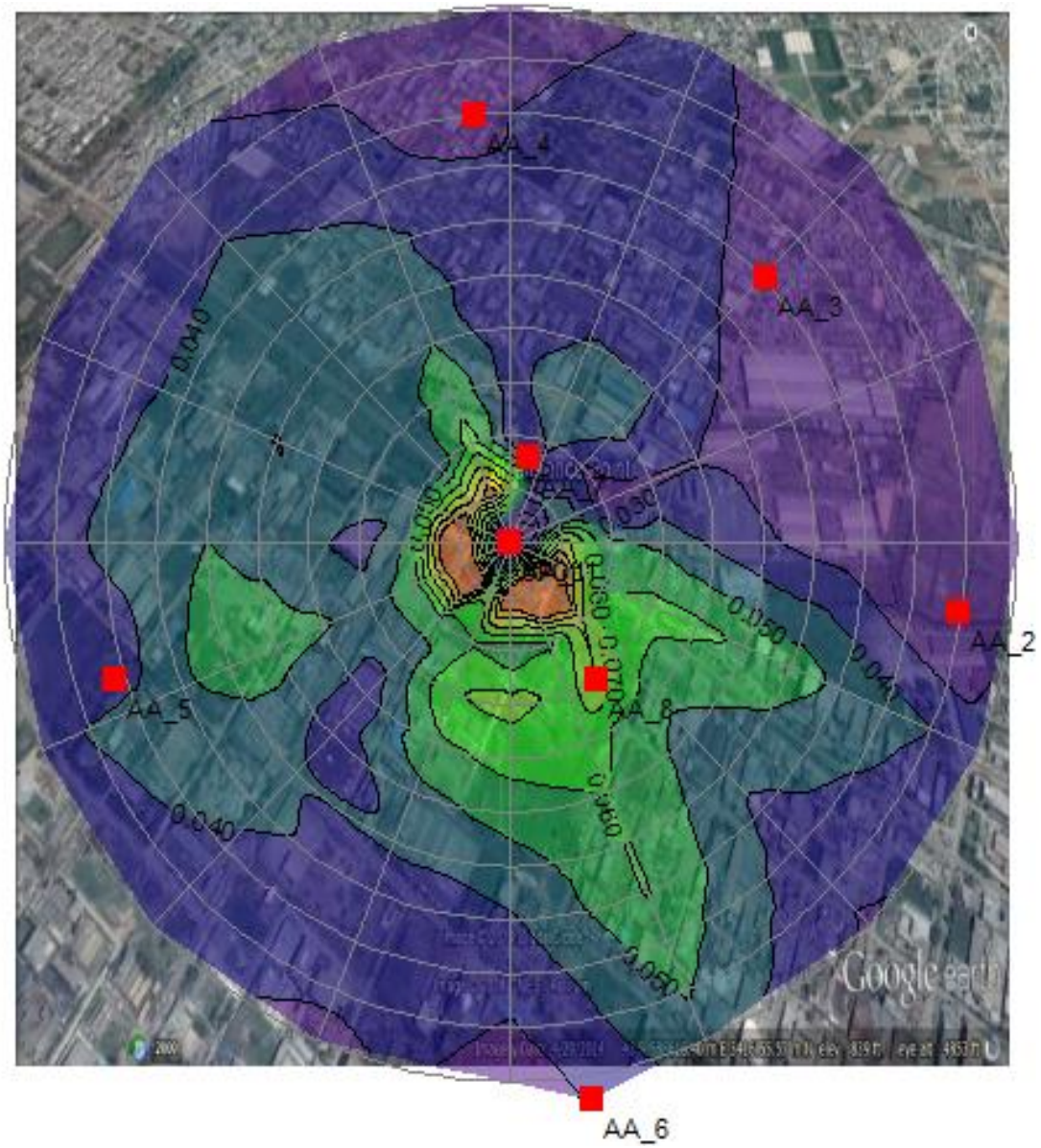


Fig1: Isopleths showing 24hourly predicted GLC's of SPM

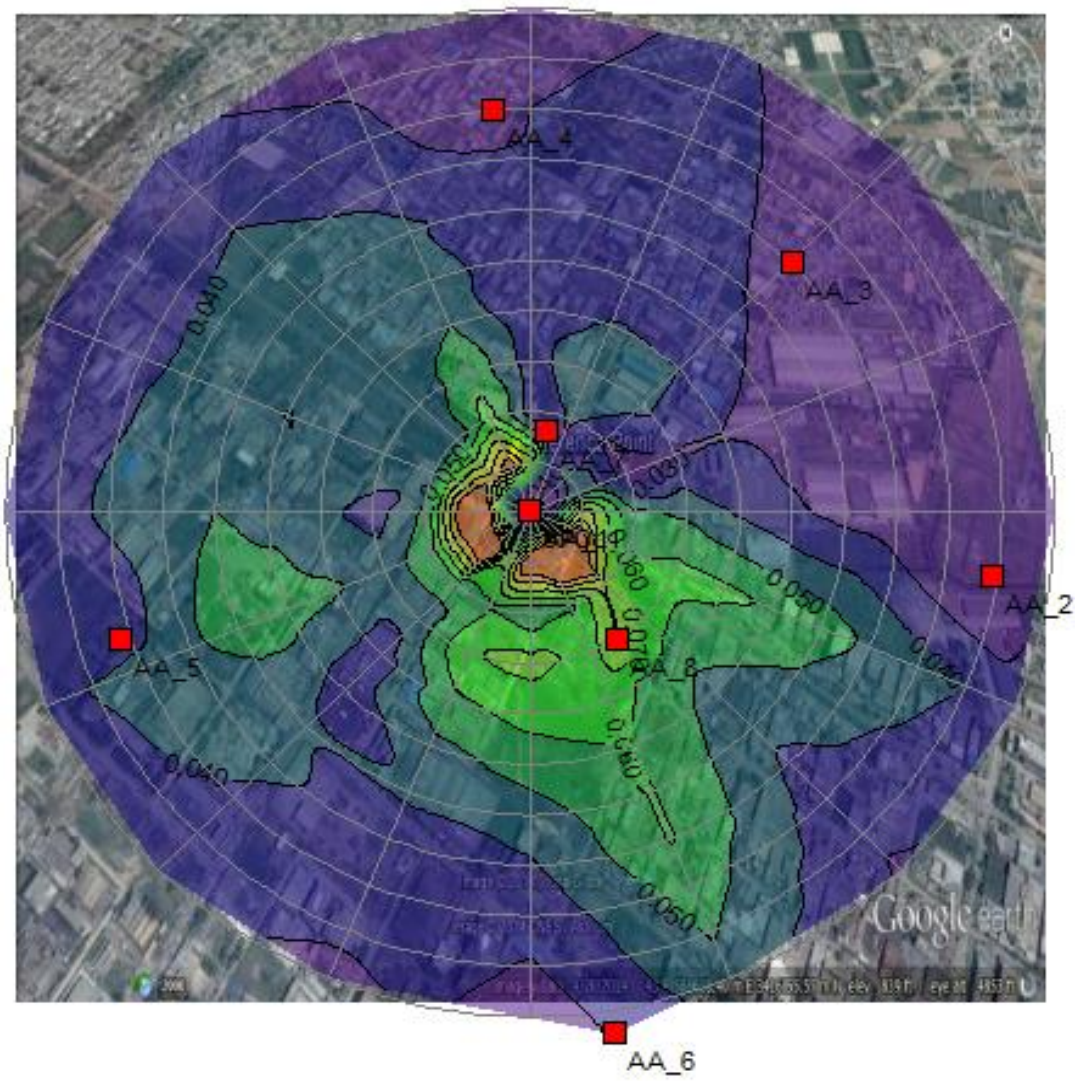


Fig2: Isopleths showing 24hourly predicted GLC's of NOx

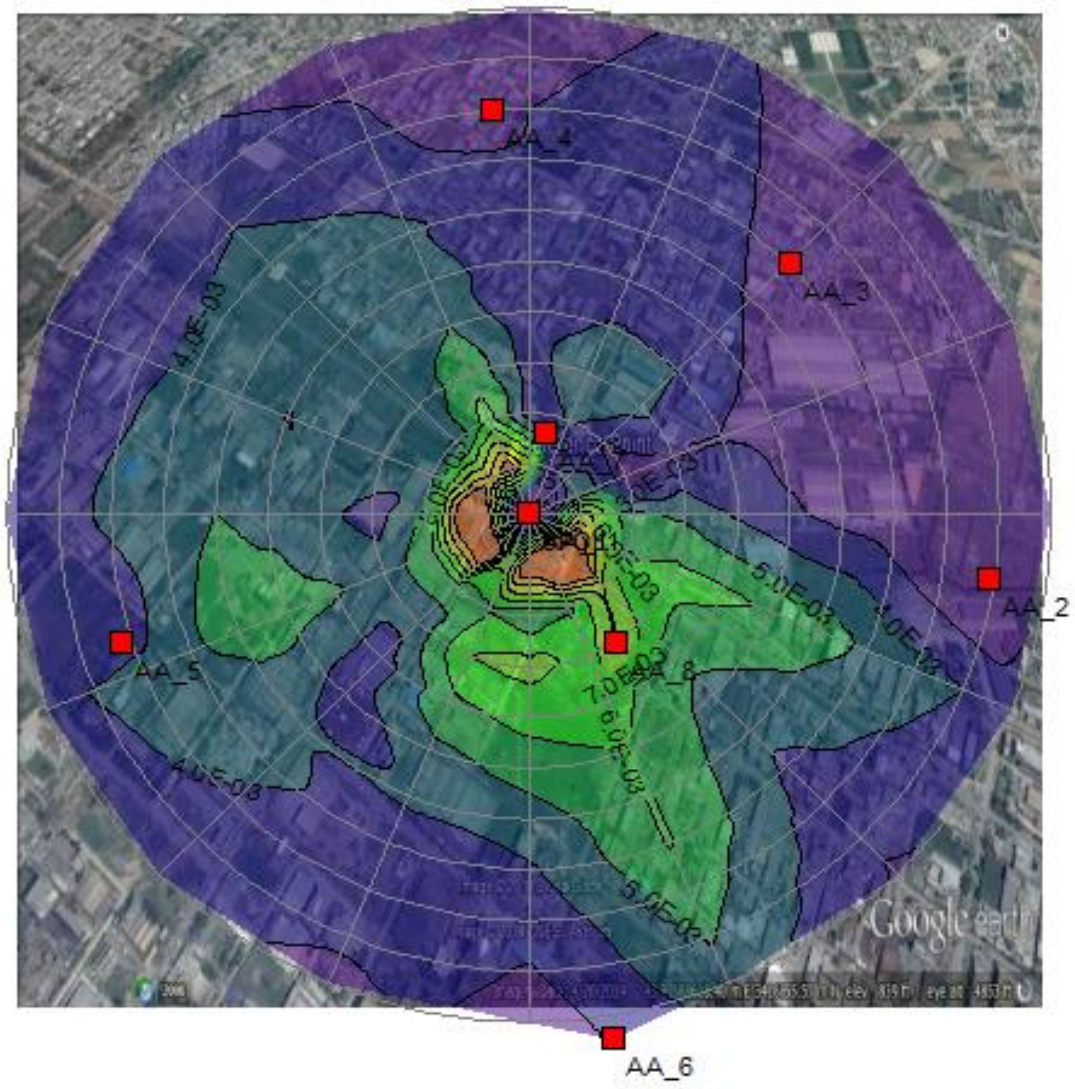


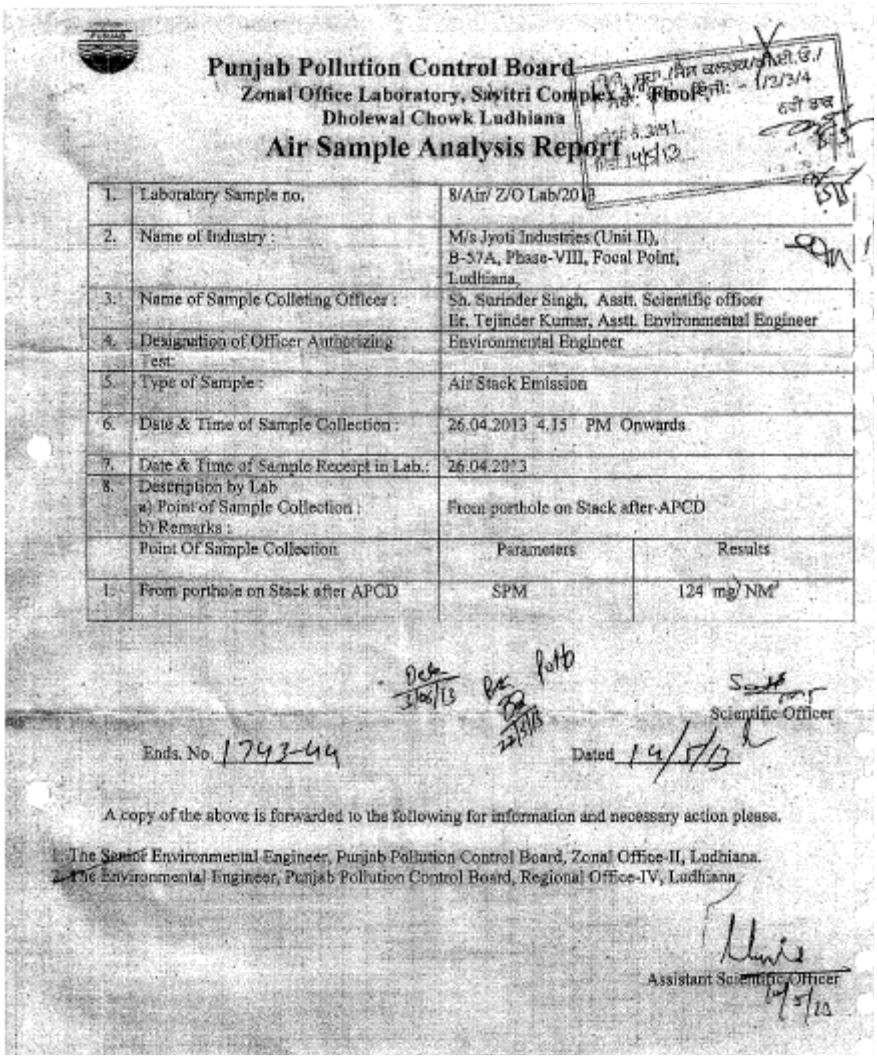
Fig 3: Isopleths showing 24hourly predicted GLC's of SOx

Summary of Prediction on Ambient Air Quality

The maximum incremental GLCs of SPM, SOx and NOx due to the proposed expansion project are superimposed on the maximum background concentrations recorded at the monitoring locations during the study period. The resultant cumulative concentrations after implementation of the proposed expansion project are very much likely to be within the prescribed NAAQ standards.

Annexure-III

Air Sample Analysis Report by PPCB



Punjab Pollution Control Board
Zonal Office Laboratory, Savitri Complex, 3rd Floor,
Dholewal Chowk Ludhiana

Air Sample Analysis Report

1.	Laboratory Sample no.	8/Air/ Z/O Lab/2013	
2.	Name of Industry :	M/s Jyoti Industries (Unit II), B-57A, Phase-VIII, Focal Point, Ludhiana.	
3.	Name of Sample Collecting Officer :	Sh. Surinder Singh, Asstt. Scientific officer Er. Tejinder Kumar, Asstt. Environmental Engineer	
4.	Designation of Officer Authorizing Test:	Environmental Engineer	
5.	Type of Sample :	Air Stack Emission	
6.	Date & Time of Sample Collection :	26.04.2013 4.15 PM Onwards	
7.	Date & Time of Sample Receipt in Lab.:	26.04.2013	
8.	Description by Lab a) Point of Sample Collection : b) Remarks :	From porthole on Stack after-APCD	
	Point Of Sample Collection	Parameters	Results
1.	From porthole on Stack after APCD	SPM	124 mg/ NM³

Scientific Officer

Endst. No. 1743-44 Dated 14/5/13

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

1. The Senior Environmental Engineer, Punjab Pollution Control Board, Zonal Office-II, Ludhiana.
2. The Environmental Engineer, Punjab Pollution Control Board, Regional Office-IV, Ludhiana.

Assistant Scientific Officer

Annexure-IV

PSIECL Certificate

Punjab Small Industries & Export Corporation Ltd.
Regd. Office : [illegible] Building, Sector 17-D, Post Box No. 11, Chandigarh.

No. PSIEC/[illegible]/Allot/17237 Dated 17-[illegible]
19/06/98

REGISTERED

M/s [illegible] (P) Ltd.
[illegible] Road, [illegible]
Bombay - 400018

Subject:- Allotment of industrial plot at [illegible] under [illegible] Category.

Dear Sir(s),

Please refer to your application dated 16-5-98 for the allotment of an industrial plot at Focal Point [illegible] — and this office/GM, DIC [illegible] letter No. [illegible] dated [illegible]

2. Plot No. B-37-A — measuring 8339.50 sq. yds/metrs. at Industrial Focal Point [illegible] is hereby allotted to you for the manufacture of [illegible] on 99 years lease-hold basis (renewable for another 99 years) on the following terms and conditions :—

(i) The tentative price of the plot has been calculated at the rate of Rs. 125/- per sq. yd/mtr. which works out to Rs. [illegible]. A sum of Rs. [illegible] has already been paid by you as 10% earnest money alongwith application. A-part from this, you are now required to make payment of Rs. [illegible] being 30% of the above tentative cost of the plot (in foreign currency for NRI) in the form of a Bank draft in favour of "The Punjab Small Industries & Export Corporation Ltd." payable at any scheduled bank at Chandigarh within 30 days from the date of issue of this letter.

(ii) The Plot has been allotted on lease-hold basis for 99 years in the first instance, as such you shall also pay annual lease rent Rs. 1/- per 1000 sq. yds in advance for 99 years at the time of execution of lease deed agreement.

(iii) The above price of the plot is subject to variation with reference to the actual measurement of the plot and cost of acquisition of land. In case of enhancement of compensation on account of acquisition of Land of this focal point by the Court or otherwise you shall have to pay the additional price of the plot, if any, as may be determined by the Corporation within 30 days from the date of demand.

(iv) Balance 60% of the total tentative price shall be payable either in lumpsum within 60 days from the date of issue of this letter without interest or in six half-yearly equated instalments together with normal interest at the rate of 16% per annum which shall be compounded on half-yearly basis. Interest shall be charged from the date of issue of this letter. First instalment shall be payable on completion of six months from the date of this letter.

In case lumpsum payment of the balance 60% is made by you within the stipulated period of 60 days, you shall be entitled for a rebate of 10% thereon.

(v) The schedule of payment of six half-yearly equated instalment as well as interest thereon and due dates of payment shall be as under :-

Instalment number	Due date by which payment is to be deposited	Amount of half-yearly equated instalment payable. Principal	Interest	Total
1st instalment.	17-4-91	1,04118/-	499773/-	1,545895/-
2nd instalment.	17-10-91	1,04118/-	480477/-	1,485595/-
3rd instalment.	17-4-92	1,04118/-	333318/-	1,374436/-
4th instalment.	17-10-92	1,04118/-	249988/-	1,291068/-
5th instalment.	17-4-93	1,04118/-	166659/-	1,207739/-
6th instalment.	17-10-93	1,04133/-	83333/-	1,124666/-

In the event of non-payment or delayed payment of any of the instalment(s) by the due date(s) as per the given schedule, you shall be required to pay penal interest @ 4% in addition to the normal interest of 14% with corresponding effect on the defaulted amount for the defaulted period.

(vi) The payment of lease rent and additional liabilities arising out of variation of cost, enhancement of compensation, if any, and each instalment shall be remitted to the Punjab Small Industries & Export Corporation Ltd., in the form of a Bank draft payable at Chandigarh as specified in para 2 (i) (f) (iii) and (iv) read with (v) above and every such remittance shall be accompanied by a letter (proforma enclosed as annexure A) showing full particulars of the plot to which payment pertains and a Malcolm giving reference number and date of the allotment letter.

(vii) You shall take possession from our SDE [illegible] on production of receipt for having deposited [illegible] and a copy of the letter of allotment within 90 days of the issue of this letter. You shall also arrange to have the lease deed executed and registered, original delivered to the Corporation within a period of 120 days from the date of allotment. The Stamp and registration charges shall have to be borne by you. A copy of the lease deed proforma is enclosed herewith as annexure B.

(viii) After taking over possession of plot as indicated above, you shall get the building plan prepared from a registered Architect approved by the Architecture Council of India, Strictly conforming to the Zonal plan and Building Bye-laws of the Corporation. A copy of the plan so prepared, duly signed by you and approved architect will be sent to the Chief Engineer, Punjab Small Industries & Export Corpn. Ltd. Chandigarh for scrutiny and record before undertaking any Construction. In case any additions/alteration over the construction of building is needed subsequently, drawings for the same conforming to Zonal plan and Building Bye-laws of the Corporation shall also be prepared from the registered architect referred to above and submitted to the Chief Engineer, PSIEC duly signed by you & the approved architect for scrutiny and record before undertaking the required additional/alteration over the construction of building in the allotted plot.

In case any deviation from the Zonal plan/Building Bye-laws of the Corporation is noted in the plan or at site, the offending portion(s) of the building(s) shall be demolished under the orders of the Chief Engineer, PSIEC and demolition charges as may be incurred shall be recovered from you. A copy each of the Zonal plan and Building Bye-laws of the Corporation are enclosed as annexures 'C' & 'D' respectively.

(ix) You shall start construction of factory building as per plans in terms of clause 2 (viii) above within one year of the issue of this letter and complete the factory building and start production within a period of two years from the date of issue of this letter. You shall be required to produce permanent registration with the Directorate of Industries, Punjab, as a proof of having brought the unit into production within the stipulated period.

(x) You will enjoy the right of possession so long as you continue paying instalments and interest on the aforesaid plots by other terms and conditions of allotment.

(xi) You shall have to accept and abide by the rules and orders made or issued by the competent authority from time to time.

(xii) Ordinarily you shall not be allowed to transfer your rights in the plot for a period of 10 years from the date of allotment. Transfer may, however, be permitted in exceptional circumstances on payment of transfer fee as prescribed by the Corporation under its transfer policy from time to time.

(xiii) You shall not carry on without the written consent of the Corporation any trade to be carried on in the plot or use the same or permit the same to be used for any purpose other than that for which it has been allotted to you. You shall also not do or allow to be done anything whatsoever which in the opinion of the Corporation may be nuisance, annoyance or disturbance to the neighbourhood.

(xiv) As the land is to be given on lease-hold basis, the ownership will vest in the Punjab Small Industries & Export Corporation Limited.

(xv) You shall not deviate in any manner from the layout plan or alter the plot whether by Sub-division, amalgamation or otherwise.

(xvi) You may take water for the factory and other area of the plot from the Govt./Corporation water supply scheme on the charges to be fixed by the Govt./Corporation.

(xvii) You shall from time to time and at all time pay and discharge all rates, taxes, charges and assessments of every description which may at any time hereafter be assessed/charged or imposed upon the plot. You shall be liable to pay maintenance charges of the front patri as may be fixed by the Corporation from time to time after 3 years from the date of allotment.

(xviii) You shall at all reasonable time grant access to the plot to the officials of the Corporation for satisfying that conditions herein have been and are being complied with properly.

(xix) The Corporation shall have the first and paramount charge on the plot and without prior consent of the Corporation you shall have no right to transfer your lease right, by way of sale or otherwise of the plot or any right, title or interest.

(xx) In the event of allotment being cancelled, you shall have to remove the structure at your own expense within such reasonable time not exceeding one month or as may be prescribed by the competent authority of the Corporation and restore the position of the plot in the condition in which you took the possession, otherwise the structure will become the property of the Corporation.

(xxi) No effluent or industrial waste shall be permitted to be discharged into public/Corporation drain or disposal of the same into a stream, well or into land unless consent of the Punjab State Sewerage Board for the prevention and Control of water pollution is obtained by you in regard to treatment works prescribed by the Board.

(xxii) You shall be responsible to obtain various clearances permits and licences etc. from various Government Departments/Corporations/Local Bodies etc. required, if any, to set up your unit. The Corporation will not in any way be responsible or shall accept any delay either in payment of dues or in the implementation of Schedule of Construction/production of the unit on any account whatsoever.

(xxiii) Change in Constitution of firm and the partnership shall be allowed only on the specific condition that the original allottee of the plot retains at least 51% of the share at all times in the newly constituted firm/partnership.

(xxiv) PSIEC will retain the first charge on the plot till you clear all the dues and obtain no dues certificate. However, second charge shall be allowed to the financial institutions/banks till all the dues are cleared.

(xxv) In the event of breach of any terms and conditions of the allotment, the Corporation [illegible] have the right to cancel the allotment of [illegible] take back the possession of [illegible] building and also forfeit the entire amount paid by that time.

(xxvi) The cancellation/resumption of the allotted plot shall be made after giving [illegible] notice of 30 days on account of the following grounds of default :—

1. Non-payment of 30% payment of tentative price within 30 days from the date of allotment.
2. Non-receipt of additional cost if any payable within 30 days.
3. Non-payment of instalment(s) and/or interest thereon by due dates.
4. Failure to take possession within 90 days from the issue of this letter.
5. Non-execution of lease deed within [illegible] days from the issue of this letter.
6. Violation of Zonal plan and/or building bye-laws or deviation from the plans.
7. Failure to commence construction with one year from the issue of this letter and bringing the unit into production after completion of construction within 2 years from the issue of this letter.
8. Failure to comply with any of the terms and conditions of allotment.

(xxvii) In the event of any difference or dispute arising between you and Corporation in connection with or concerning the observance of the terms and conditions or interpretation [illegible] same shall be referred to the sole arbitration of the Managing Director, Punjab Small Industries & Export Corporation Ltd., who may decide the dispute himself or nominate some other officer to do so. The decision of the Arbitrator or his nominee for the purpose shall be final and binding on both the parties.

NOTE :

1. The area dimensions as given in the respective layout are subject to variation at the time of actual possession.
2. The Corporation shall not be responsible for levelling the uneven sites.
3. You shall have to pay separately for any construction material, trees, structures and compound wall existing at site for which compensation has been assessed and paid by the Government/Corporation, if you want to make use of the same.
4. The collection charges, if any, charged by the Bank on drafts will be payable by you.

Yours faithfully,

ESTATE OFFICER
for Managing Director
Punjab Small Industries &
Export Corporation Limited.

Endst. No. PSIEC/EW/EO/Allot/

Dated :

A copy is forwarded to the following for information & necessary action please :—

1. Director of Industries, Punjab
   Chandigarh.
2. General Manager,
   District Industries Centre,
   Ludhiana
3. Executive Engineer PSIEC Ltd. Chandigarh

ESTATE OFFICER
for Managing Director,
Punjab Small Industries &
Export Corporation Limited.

Annexure-V

Approved Industrial Focal Point- letter by PSIECL

Punjab Small Industries & Export Corporation Ltd.
(A State Government Undertaking)
An ISO 9002 Company
Regd. Office: 18, Himalya Marg, Udyog Bhawan, Sector 17-A, Chandigarh- 160 017
0172 Phones: 702301-05, Fax: 91-0172-702039, Gram: INDCROP
E-mail: psiec@glide.net.in Web Site: http://www.psiec.com

No. PSIEC/GM(Planning/ 1277.
Dated: 27/2/14.

To,

The Director,
Department of Envioronment and Forests,
(I.A. Division), Government of India,
Paryavaran Bhawan, New Delhi.

Subjtct: **Expansion of steel manufacturing units (from 29000 MTPA to 84000 MTPA at plot No. B -57 A , Focal Point , Phase-7, Ludhiana, Punjab by M/s Jyoti Industries.**

Please refer to your letter No. F No. J-11011/408/2012-IA II (I) dated 13th September 2013, on the subject cited above.

In this regard it is to inform you that Plot No. B -57 A , Focal Point , Phase-7, Ludhiana, Punjab falls in Industrial Focal Point, approved by the Govt. of Punjab.

(J.S. Randhawa)
GM (Planning)

Annexure-VI

Approved Industrial Land Notification by DOI

[Extract from Punjab Government Gazette (Extra.), dated the 12th March, 1982]

GOVERNMENT OF PUNJAB

DEPARTMENT OF INDUSTRIES

Notification

The 12th March, 1982

No. 8/159/78-4IBI-82/1972.—Whereas the Governor of Punjab is satisfied that land specified below is needed by Government, at public expense, for a public purpose, namely, for the expansion of Industrial Focal Point at Dhandari Kalan, tehsil and district Ludhiana, it is hereby declared that the land described in the specification below is needed by the Government for the aforesaid purpose.

This declaration is made under the provisions of section 6 of the Land Acquisition Act, 1894, to all whom it may concern and under the provisions of section 7 of the said Act, the Collector, Land Acquisition, Industries Department, Punjab, Chandigarh, is hereby directed to take orders for the acquisition of the said land.

Plans of the land may be inspected in the office of the Director of Industries, Punjab, Sector 17, Chandigarh.

SPECIFICATION

District	Tehsil	Village	R.B. No.	Rect. No.	Khasra No.	Area K. M.
Ludhiana	Ludhiana	Dhandari Kalan	241	50R	1/2 min	3 10
					2 min	4 0
					3 min	3 8
					4 min	1 17
					26	1 5
				51R	4 min	0 6
					5 min	1 0
						15 6
						(or 1.91 Acre)
Do	Do	Dhandari Khurd	282	10R	1	7 6
					2	6 1
					3/1	3 2
					3/2 min	4 1
					8 min	5 14
					9	7 9
					10/1	1 16
					10/2	5 3
					11/1	2 2
					11/2	5 10
					12	7 17
					13/1 min	1 4
					13/2 min	0 11
					19/1 min	1 16
					19/2 min	1 10
					20/1/1	0 9
					20/1/2	5 18
					20/2	1 5
					21	6 17
					22 min	2 11
					26 min	1 0
					27	1 7
					28 min	0 8

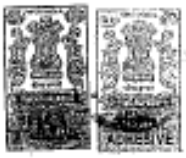
District	Tehsil	Village	H. B. No.	Rect. No.	Khasra No.	Area K. M.
Ludhiana	Ludhiana	Dhandari Khurd	242—consld	10R	1	8 0
					2	8 0
					3	8 0
					4/1	7 11
					4/2	0 9
					5	8 0
					6/1	5 9
					6/2	1 18
					7	8 16
					8/1	6 4
					8/2	1 16
					9	8 0
					10	8 0
					11/1	4 0
					11/2	4
					12	7 9
					13/1	4 2
					13/2	4 3
					14	6 11
					15/1	2 4
					15/2	5 16
					16/1	6 15
					16/2	1 7
					17	8 0
					18	1 0
					19 min	7 5
					20/1 min	2 15
					20/2 min	1 3
					22 min	0 13
					23 min	4 14
					24	7 11
					25	1 11
				12R	5/1	4 12
					5/2 min	3 19
					6/1	0 3
					7 min	1 16
				14R	4/1 min	0 12
					4/2 min	0 1
					5/1	0 4
					5/2 min	4 6
				15R	1 min	5 16
					2/1 min	0 4
					55 min	2 10
						241 2
						(or 35.14 Acres)
					(Grand Total :	37.05 Acres)

T. R. A. NAIR,
Secretary to Government, Punjab,
Department of Industries, Chandigarh.

039 CS (P)—Govt. Press, Chd.

Annexure-VII

Partnership Deed



PARTNERSHIP DEED

THIS DEED OF PARTNERSHIP :- executed on this 1st day of April, 2008 (First day of April Christian year of Two Thousand & Eight) amongst:-

1. S. Avtar Singh S/o S. Gian Singh R/o 26-A Sant Fateh Singh Nagar, Dugri Road, Ludhiana (here in after called the party of the 1st part).
2. S. Pritpal Singh S/o S. Kirpal Singh R/o 285 Shaheed Udham Singh Nagar, Jalandhar (here in after called the party of 2nd part)

AND

3. Sh. Ekjot Singh Chawla S/o S. Amarjit Singh Chawla, R/o 249, Shaheed Udham Singh Nagar, Jalandhar (here-in after called the party of the 3rd Part).

WHEREAS party of the 1st part, 2nd part had been carrying on business of Manufacturing/Trading in all types of Steel Ingots, Scrap & Steel Products etc along with S. Amarjit Singh Chawla & Sh. Raminder Pal Singh under the name and Style of M/s Jyoti Industries: Unit No II, B-57A, Phase VII, Focal Point, Dhandari Kalan, Ludhiana vide Partnership deed dated 01.04.2004. And Whereas S. Amarjit Singh Chawla & Raminder Pal Singh retired from the partnership firm w.e.f. Closing Hours of Business on 31.03.2008 at their own will under a deed of Retirement Dt. 01.04.2008 And Whereas Party of the 1st, & 2nd Part is approached by party of the 3rd Part showing his intention to join them as partner & both have decided to join hands and to Continue Partnership Business under the same Name & Style of M/s Jyoti Industries Unit No : II w.e.f. 01.04.2008 under the new terms & Conditions.

WHEREAS it is deemed desirable and necessary to redeem the terms & Conditions of this Partnership Deed in writing to avoid any doubt, misunderstanding or any litigation as may arise later on.

NOW THIS DEED WITNESSTH AS UNDER :-

1. That the name of partnership firm shall be continued to be M/S Jyoti Industries : Unit No : II, Phase VII, Focal Point, Dhandari Kalan, Ludhiana or any other name as may be decided by the partners mutually.
2. That the business of the partnership firm shall continued to be that of Manufacturing /Trading in All types of Steel Ingots, Scrap & Other Steel Products., but the partners may with their mutual consent add any other line of activity or item.
3. That the main place of the business of partnership firm shall be continued to be at B-57A, Phase VII, Focal Point, Ludhiana or any other place to suit further expansion / Modernisation activities as the said partners shall from time to time mutually agree upon.
4. That this new Partnership Firm Shall be deemed to have come in to existence w.e.f. 01.04.2008.

Contd...2...

5. That the partnership firm may have branch or branches at the place or places as decided by the partners mutually.

6. That the capital of the partnership firm shall be contributed by the partners. The capital of the firm shall be the amount as standing in the respective ledger account of the each partner's in the books of account of the firm. The capital of the firm may be increased or decreased according to the needs of the firm and with the mutual consent of the partners.

7. That the regular and necessary account books shall be maintained in the due course of business and shall be opened for inspection of all the partners who shall be at liberty to take copy or make extracts there from.

8. That the account books shall be closed on 31st March of every year and the profit & loss shall be determined.

9. That the profit & loss of the partnership firm shall be divided and born by the partners in the following ratio :-

I)	S. Avtar Singh	:	50%
II)	S. Pritpal Singh	:	35%
III)	S. Ekjot Singh Chawla	:	15%

10. The firm shall pay interest at the rate of 12% P.A. to the partners on the amount of capital contributed or loan advanced by each of them respectively and the profits & losses of the business of the firm, shall be arrived at after accounting for the interest so payable as a business expenditure of the firm. The Interest at lower rate may also be allowed if agreed to between the partners and also depending on the available profits of the firm for that year.

11. That Sh. Ekjot Singh Chawla shall be working partner of the firm to carry on day to day affairs of the business and he will be paid Rs. 25000/- p.m. as remuneration for services rendered by him. This amount may be credited to his respective account and partner is at liberty to draw the amount either monthly or as desired from this account. Incase of inadequacy of Profits the working partner may opt for lower remuneration at his own & with the consent of other partners but can't increase the Remuneration as specified above. This over all Remuneration payable to Partner shall be governed as per the provisions of Sec 40 (b) of I. Tax Act.

12. That all the partners shall be faithful to each other in all their dealings and transactions, whatsoever, in the said partnership business.

Contd..3....

NOTARY GOVT OF INDIA

13. None of the partners shall without the consent of the other partners sell, assigns or otherwise part with his share or interest in the said partnership business.

14. That the partners shall carry on the business of the partnership firm honestly, diligently and to the greatest common advantage and every partner shall indemnify to the firm any losses caused to it with his willful neglect in the conduct of the partnership business.

15. That the bank account already opened or to be opened in any Scheduled or Non-Scheduled Bank in the name of the firm shall be operated by all the partners or as decided by them mutually.

16. That the partnership shall be at will.

17. That any partner may retire from the partnership business by serving the remaining partners one calendar month's notice in writing to this effect at the address of the firm.

18. That in case of any dispute, controversy or claim relating to this partnership or any breach in respect thereof, the matter will be decided by the partners and if the partners are unable to settle the dispute, the same shall be referred to the Arbitrator under the Indian Arbitration Act than in force.

19. That all those matters for which no provisions has been made in this indenture shall be decided by the partners mutually.

IN WITNESS whereof the parties have put their hands this day, month & year as first mentioned above.

WITNESSES

1.

2. Known to me and He/She has signed in my presence

NOTARY ... CITY OF INDIA

PARTNERS

1. (Avtar Singh)

2. (Pritpal Singh)

3. (Ekjot Singh Chawla)

Signature Attested

Notary Public, Ludhiana

1/4/14

Annexure-VIII

NOC- PPCB

Jyoti Industries, (unit-II)

ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਨਿਯੰਤਰਣ ਬੋਰਡ

PUNJAB POLLUTION CONTROL BOARD

Zonal Office-II, 20-21, Amar Plaza, P.F./LIC Complex, Near Bus Stand, Ludhiana

Ph. 0161-2441918 E-Mail:- pmcb@sify.com

No. 936 Date 19/5/2011

Regd.

To

M/s Jyoti Industries, (unit-II),
B-57-A, Focal Point, Phase-7,
Ludhiana.

Subject: **'Consent to Establish (NOC)' from Pollution Angle under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act 1974- M/s Jyoti Industries, (unit-II), B-57-A, Focal Point, Phase-7, Ludhiana.**

The Punjab Pollution Control Board has "No Objection" for expansion of **M/s Jyoti Industries, (unit-II), B-57-A, Focal Point, Phase-7, Ludhiana** as per the details tabulated below and subject to the following term and conditions:

Name of the Directors	:	Sh. Avtar Singh, Partner
Scale of Industry	:	Small
NOC Fee Details	:	Rs.25000/- vide , DD. No. 312039 dated 27.11.2010
Product	:	M.S. Ingots @29000Mt/year(after expansion)
Source of Water Pollution, quantities of effluent and mode of disposal.	:	No trade effluent. Domestic effluent (400 litres/day) into sewer.
Sources of Air Pollution /fuel / APCD	:	Two Induction Furnaces of capacity 4 ton each with bag house as APCD. (After expansion)
NOC no. ZO/LDH-II/RO-IV/2011/NOC- 437		
Date of Issue : 19/05/2011		**Date of Expiry :** 18/05/2012

1. The NOC is valid only for registration of application and issue of demand notice for electric connection by PSPCL/Water supply connection/loans etc. However, the industry shall obtain a clearance certificate from the Board to the effect that it has installed proper and adequate pollution control equipments for the purposes of release of electric connection by PSPCL and drawing the last installment of loan from financial institutions.
2. The N.O.C. is valid for period of one year from the date of its issue or till the commissioning of the industry whichever is earlier.

Count.....2....

3. The industry shall apply for consents of the Board as required under the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 alongwith the application for authorization under the provision of Hazardous Waste (Management and Handling) Rules, 2003 two months before the commissioning of the expansion plant or at the time of submission of clearance application for the release of load, whichever is applicable.
4. The industry shall provide adequate arrangements for fighting the accidental leakages/discharge of any air pollutant/gas/liquids from the vessels, mechanical equipments etc. which are likely to cause environmental pollution.
5. The industry shall comply with any other conditions laid down or directions issued by the Board under the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 from time to time.
6. Nothing in this N.O.C. shall be deemed to neither preclude the institution of any legal action nor relieve the applicant from any responsibilities or penalties to which the applicant is or may be subjected under the provisions of the Water/Air Acts respectively.
7. The project has been approved by the Board from pollution angle and the industry shall obtain the approval of site from other concerned departments, if need be.
8. The industry shall plant minimum of three suitable varieties of trees at the density of not less than 1000 trees per hectare along the boundary of the industrial premises.
9. The industry shall provide terminal manhole at the end of each collecting system and a manhole upstream of final outlet (s) out of the premises of the industry for measurement of flow and for taking samples.
10. The industry shall, for the purpose of measuring and recording of quantity of water consumed, affix electromagnetic flow meters of such standards at such places as approved by the Environmental Engineer, Pollution Control Board, Regional Office-II, Ludhiana.
11. The industry shall provided adequate and appropriate air pollution control device to control and treat the emission from the new induction furnace simultaneously with the expansion project and to operate the existing pollution control devices regularly and efficiently, so as to achieve the standard prescribed by the Board for such furnaces / units.

Contd....3....

12. The industry shall discharge all gases through a stack of minimum height as specified in the following standards laid down by the Board.

$$H = 14\ Qg^{0.3} \text{ or } H = 74\ (QP)^{0.24}$$

Where Qg = Quantity of SO_2 in kg/ hr

QP = Quantity of particulate matter in tonne/day

Note: Minimum Stack height in all cases shall be 9.0 mtr. or as calculated from relevant formula whichever is more.

13. The industry shall discharge all gases through a stack of minimum height as specified in the following standards laid down by the Board.

14. The industry shall provide port-holes, platforms and/or other necessary facilities as may be required for collecting the samples of emissions from any chimney, flue or duct or any other outlets.

Specifications of the port-holes shall be as under:-

i) The sampling ports shall be provided at atleast 8 times chimney diameter down stream and 2 times up stream from the flow disturbance. For a rectangular cross section the equivalent diameter (De) shall be calculated from the following equation to determine upstream, downstream distance:-

$$De = \frac{2LW}{L+W}$$

Where L=Length in mts. W=Width in mts.

ii) The sampling port shall be 7 to 10 cm in diameter.

15. The industry shall ensure that no air pollution problem or public nuisance is created in the area due to discharge of emissions from the industry.

16. The industry shall maintain the following record to the satisfaction of the Board :-

a) Log books for running of air pollution control devices or pumps/motors used for running of the same.

b) Register showing the results of various tests conducted by the industry for monitoring of stack emissions and ambient air.

c) Register showing the stock of absorbents and other chemicals to be used for scrubbers.

17. The industry shall ensure that at any time the emission do not exceed the emissions standards laid down by the Board from time to time for such discharge.

Contd....4...

18. The industry shall keep the height of all exhaust pipes with ventilation equipments etc. at least 3 meters above the roof level.
19. The industry shall not consume any other fuel except diesel oil in D.G set without the prior written permission of the Board.
20. All amendments/revisions made by the Board in the effluent and/or emission/stack height standards shall be applicable to the industry from the date of such amendments/revisions.
21. The industry shall install separate energy meter for its air pollution control device plant and maintain the record on daily basis regarding consumption of energy for the running and maintenance of effluent treatment plant.
22. The adequacy and efficiency of the air pollution control devices will be the entire responsibility of the industry.
23. The industry shall re-circulate the entire cooling water and shall discharge only domestic effluent onto land for plantation through STP.
24. The industry shall provide suitable acoustic arrangements/ canopy to its D.G. sets as prescribed under the provisions of EPA Rules, 1986 and notifications issued therein by the Ministry of Environment & Forest, Govt. of India, and as per procedure and guidelines issued by CPCB in this regard.
25. (i) The industry shall get its building plans approved under the provisions of section 3-A of Punjab Factory Rules, 1952.

    (ii) The industry will submit a certificate from the Department of Factories, Punjab to the effect that the building construction has been completed as per plans approved by the Department of Factories, Punjab, at the time of applying for clearance certificate from the Board.
26. The NOC is issued in pursuance of the recommendation made by Site Appraisal Committee to the Govt. vide Environmental Engineer (CSA) letter no. CSA/2011/69th Meet/1227-33 dated 13/04/2011 and item no. 69.18 of the meeting.
27. The Board reserves the right to revoke the NOC granted to the industry at any time in case the industry is found violating any of the conditions of NOC or any provision of Air (Prevention & Control of Pollution) Act,1981 &Water (Prevention & Control of Pollution) Act 1974 as amended time to time.
28. The industry shall install air pollution control device as proposed in the NOC application based on the counter flow baffled spray scrubber along with in built filters at with the paint booth.

Contd....5....

29. Before the grant of clearance certificate/consents to operate the entrepreneur will submit a copy of the bill and technical specifications of the induction furnace supplied by the company manufacturing the induction furnace.
30. Before the grant of clearance certificate/consents to operate the Board will physically verify the capacity of the crucible of the induction furnace.
31. The Industry shall obtain prior approval for the installation of new tubewells from the District Advisory Committee constituted as per the guidelines of Central Ground Water Authority.
32. (i) The industry shall get its building plans approved under the provisions of section 3-A of Punjab Factory Rules, 1952.

    (ii) The Industry will submit a certificate from the Department of Factories, Punjab to the effect that the building construction has been completed as per plans approved by the Department of Factories, Punjab, at the time of applying for clearance certificate from the Board.

Environmental Engineer,
For Sr Environmental Engineer

Endst. no ..... Dated .....

A copy of the above is forwarded to the Environmental Engineer, Punjab Pollution Control Board, Regional Office-IV, Ludhiana for information & necessary action.

Environmental Engineer,
For Sr Environmental Engineer

Annexure-IX

Site Approval by DOL

Department of Labour

To

M/s. Jyoti Industries (Unit No.II),
B-57-A, Phase-VII, Focal Point,
Ludhiana.

No. 4633
Dated:Chandigarh,the; 2-5-11

Subject:- Approval of site to M/s. Jyoti Industries (Unit No.II), B-57-A, Phase-VII, Focal Point, Ludhiana. (Item No.69.18)

****

Kindly refer to the subject noted above.

The Governor of Punjab is pleased to accord approval of site to M/s. Jyoti Industries (Unit No.II), B-57-A, Phase-VII, Focal Point, Ludhiana for increasing the production capacity of Alloy & Non-Alloy Steel Ingots from 14,500 MT/Annum to 29,000 MT/Annum by installing an additional Induction Furnace of 4 Ton/heat capacity, on the recommendation of State Competent Authority-cum-Site Appraisal Committee, constituted under Section 41-A of the Factories Act, 1948 subject to the following conditions:-

Conditions by P.P.C.B

1. Before the grant of consent to establish (NOC) by the Board, the entrepreneur will subnit an undertaking to the effect that the total production capacity of Alloy & Non-Alloy Steel Ingots will not exceed 29,000 MT/Annum by installation of an additional induction furnace of 4 Ton/heat capacity in the existing premises in which the industry has already installed 1 number induction furnace of 4 Ton/heat capacity.
2. Before the grant of clearance certificate/consents to operate, the entrepreneur will submit a copy of the bill and technical specifications of the induction furnace supplied by the manufacturer of the furnace.
3. Before the grant of clearance certificate/consents to operate the Board will physically verify the capacity of the crucible of the Induction Furnace.
4. The industry will comply with the conditions of NOC to be granted by the Punjab Pollution Control Board.

Conditions by D.O.F

5. The industry shall provide Air pollution control devices and make adequate arrangements to control metallic fumes and dust generated in the process, so that the gases do not spread in the working environment.
6. The industry shall construct a separate shed for the storage of Scrap/raw material.
7. The scrap shall be sorted under the supervision of experienced and qualified person to avoid any explosive material entering into the furnace.
8. The industry will provide personal protective equipments to the workers and will ensure that the workers are using the same.
9. The industry shall comply with the provisions of Factories Act, 1948 and Punjab Factory Rules, 1952.
10. The industry will modify its On-Site Emergency Plan and Health & Safety Policy if there is any change in organization, plant and machinery.
11. The industry will provide fire extinguisher equipments as required under rule 66 of Punjab Factory Rules, 1952.
12. The industry shall submit compliance report of the conditions of approval of site to Director of Factories, Punjab before the commissioning of its project.
13. The industry shall be inspected after commissioning of its proposed project to monitor the compliance of conditions of approval of site.
14. The building plans of the factory shall be got approved from Director of Factories, Punjab before starting the construction and other concerned departments such as PUDA and CTP etc., if need be.
15. Charging of iron scrap into the induction furnace will be done by mechanical

Condition by C.F.O

16. The entrepreneur will make adequate fire fighting arrangements as provided in Part-IV of the National Building Code 2005, Indian Standard Code and as per the advice of the concerned Fire Officer and will obtain fire safety certificate from the concerned Fire Officer, before commissioning of the project.

Conditions by DHS

17. The workers and the people in the vicinity should be informed about the hazards involved and methods to be adopted to prevent the harmful effects, if any.
18. First Aid Centers and Occupational Health Centre should be provided, as per requirements, to combat and manage health hazards from the processes.
19. No harmful bye products should be allowed to be disposed off outside the plant to keep the surrounding environment free from hazardous effects of wastage.
20. Names and connecting telephone numbers of nearby health institutions should be displayed on the board and made known to all concerned in the vicinity of the plant also.
21. SPM (Suspended Particulate Matter) should not be more than the prescribed limit at any stage to avoid exposure to the people in the vicinity.
22. Periodic inspection by the competent authority of the health department will be undertaken for the enforcement of the stipulated conditions given above. Appropriate action under rules will be taken on infringement of these conditions.

General Conditions

23. This site clearance is granted under the Factories Act and the rules framed there under as amended from time to time. The industry will obtain clearances/ approvals from other departments under any other Act/rules, if need be.
24. This site clearance does not preclude the institution of any legal action nor relieve the applicant from any responsibilities or penalties to which the applicant is or may be subjected under the provisions of Factories Act or any other Act/rules.
25. This site clearance is valid for a period of five years from the date of issue.

Addl. Director of Factories,
For Director of Factories, Punjab

Endst.No. Dated:Chd.the;

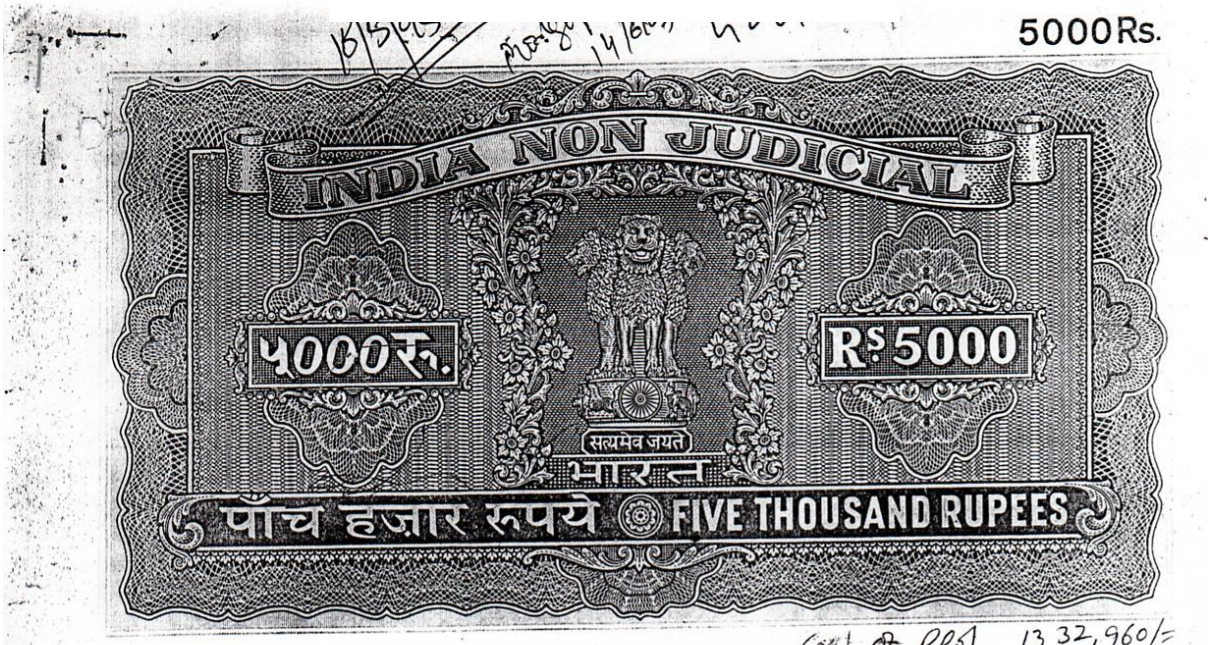
A copy is forwarded to the following for information and necessary action:-

1. Secretary to Govt. of Punjab, Department of Science, Technology, Environment and Non-Conventional Energy, Punjab, Chandigarh
2. Chairman, Punjab Pollution Control Board-cum-Member Secretary, SCA-cum-SAC, Patiala.
3. Director of Industries & Commerce, Punjab, Chandigarh.
4. Chief Town Planner, Punjab, Chandigarh.
5. Deputy Director of Factories, Ludhiana-7
6. Nodal Officer, Computerization for uploading it in the departmental Web Site.

-Sd-
Addl. Director of Factories,
For Director of Factories, Punjab

Lease Deed

Annexure-X



Cost of Plot 13,32,960/=
N.J.S.P. 40,000/=

LEASE DEED

THIS LEASE DEED IS EXECUTED on this 10th day May of 1995 on 99 years lease hold basis between (1) Punjab Small Industries & Export Corporation Ltd., hereinafter referred to as Lessor of the one part of this deed and (2) M/s. Jyoti Industries Unit No.2 Ludhiana hereinafter referred to as the Lessee of the other part of this deed and botj the terms "Lessor" and "Lessee" would also includes their heirs, executor, administrators, assignees and legal representatives etc.

WHEREAS the Industrial Plot No. B-57-A Phase VII measuring 8331 Sq. Yards at FOCAL POINT, DHANDARI KALAN, LUDHIANA hereinafter referred to as the said plot had been allotted by transfer to M/s. Jypti Industries, Unit No.2 Ludhiana and who has paid total tentative consideration amount of Rs. 10,41,375/- to Lessor through the original allottee besides transfer fee of Rs. 2,91,585/- and consequent thereupon is the present deed.

Now the said lessor has agreed to execute the lease deed of the said plot the present Lessee and the said Lessor and Lessee have further agreed and convenanted with each other as under:-

For K. A. Ferro Alloys (P.) Ltd.

Director

CONTD....P/2

5000Rs.

1. That the Lessee shall have to accept and abide by all the terms and conditions of transfer of the plot vide transfer letter No. PSIEC/EW/EO/ 30676 dated 9.3.1995 issued by the Lessor (Corporation) in favour of the Lessee (Transferee) and rules and orders made or issued by the Managing Director, Punjab Small Inds. & Export Corporation Ltd., Chandigarh from time to time.

2. That the Lessee shall not transfer his rights in the site/ plot without the prior written permission after paying all dues and transfer fee as may be prescribed by the Lessor. However the Lessee shall be entitled to mortgage his rights as second charge to any Scheduled Bank, Punjab Financial Corporation or the Life Insurance Corporation of India, as security for any loan to be raised for construction of factory building, purchase of machinery or raw materials after obtaining prior permission from the Lessor Corporation.

3. That the Lessee shall not carry on without the written consent of the Corporation or permit to be carried on in the plot or on any building thereto any trade or business whatsoever or use the same permit the same to be used for any purpose other than that for which it has been allotted to him or cause to be done therein anything whatsoever which in the opinion of the Corporation may be nuisance, annoyance or disturbance to the neighbours.

5000Rs.

4. That after taking over possession of plot as indicated above, the lessee shall get the building plan prepared from a registered Architect by the Architecture council of India, strictly confirming to the zonal plan and building Bye laws of the Lessor. A copy of the plan so prepared, duly signed by the lessee and approved architect will be sent to the Cheif Engineer of the Lessor for scrutiny and record before undertaking any construction. In case any addition/alteration over the construction of building is needed subsequently, drawings for the same confirming the Zonal Plan and Building Bye laws of the Lessor shall also be got prepared from the registered architect referred to above and submitted to the Chief Engineer of the Lessor duly signed by the Lessee and the approved architect for scrutiny and record before undertaking the required additions/alteration over the construction of building in the allotted plot.

5. In case any deviation from the Zonal Plan/Building Bye laws of the Lessor is noted in the plan or at site, the offending portion(s) shall be demolished under the orders of Chief Engineer of Lessor and demolition charge as may be incurred shall be recovered from the lessee.

For K. A. Ferro Alloys (P.) Ltd

5000Rs.

6. That the Lessee shall not deviate in any manner from the lay out plan or alter the plot whether by Subdivision, amalgamation or otherwise.

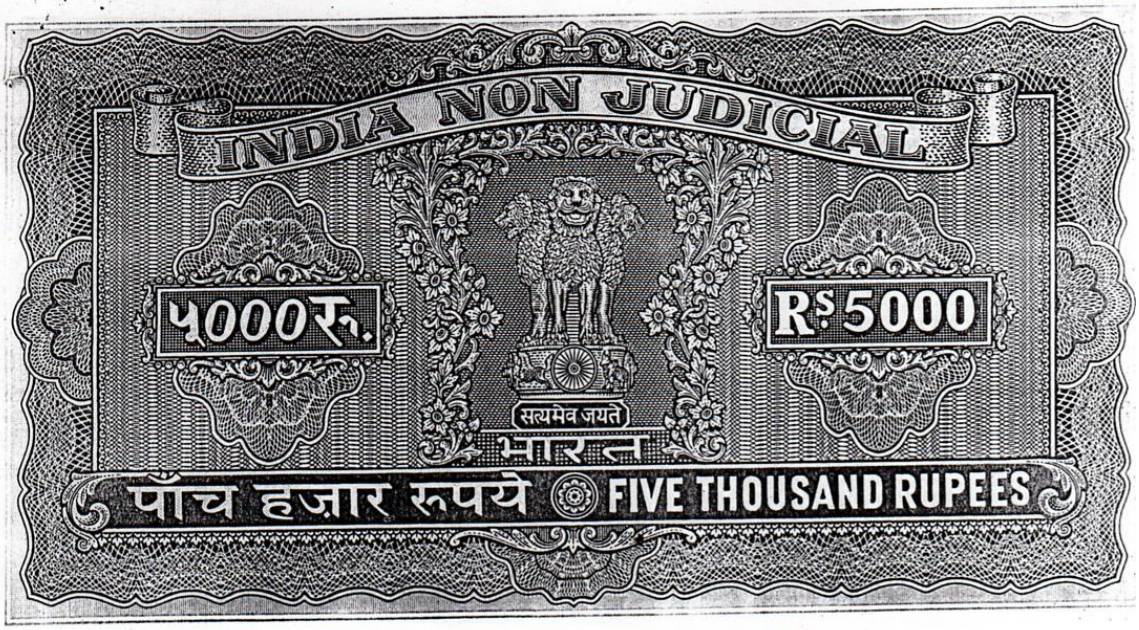
7. That the Lessee may take water for the factory and other area of the plot from the Govt./Corporation water Supply Scheme on the charges to be fixed by the Govt./Corporation.

8. That the lessee shall from time to time and at all time pay and discharge all rates, taxes, charges and assessments of every description which may at any time hereafter be assessed/charges/or imposed upon the plot.

9. That the Lessee shall at all reasonable time grant access to the allotted property to the official of the Corporation for satisfying that conditions herein have been and are being complied with properly.

10. That no affluent or industrial waste shall be permitted to be discharged into public/corporation sewer or disposed off into stream well or into land unless consent of Punjab State Water Pollution Board for the prevention and control of Water Pollution is obtained by the allottees in regard to treatment works prescribed by the Board.

5000Rs.



11. In the event of death, insolvency or liquidation of the lessee, any person to whom the title developes shall ~~within three months~~ of the devolution give notice of such devolution to the Corporation. The person to whom the title devolves as the case may be shall supply to the lessor corporation certified copies of the documents containing evidence of such devolution.

12. That the Lessor has first and paramount charge over the plot and without his prior consent the lessee shall have no right to transfer his lease right by way of sale or otherwise in the said plot.

13. That the Lessee shall not have the right to do any fragmentation of the site as allotted by transfer by the Lessor.

14. That ~~the lessee agree~~ to any to the lessor the enhancement in the price of the land in case of enhancement of compensation on account of acquisition of the land by the court or otherwise and the lessee shall pay suc h additional price for the plot, if any, to be determined by Lessor within 30 days from the date of such demand.

For K. A. Ferro Alloys (P.) Ltd.

5000Rs.

15. The possession of plot if not already with the lessee will be delivered to lessee after lease deed is executed by him and assurance given in regard to construction of factory building and installation of machinery within prescribed period.

16. The lessee shall enjoy the right of possession so long as he continues paying all dues on due date and abides by the other terms and conditions.

17. The stamp duty and registration charges in respect of this indenture and the duplicate thereof shall be borne by the lessee. The lessee shall retain the duplicate of this indenture and the original indenture shall remain with the Corporation.

18. The ownership of the demised premises shall remain with the Corporation.

19. The lessee shall complete the construction of factory building within one and a half years and come into production within six months thereafter from the date of issue of transfer letter referred to above.

20. The lessee shall maintain the premises of site and building properly in the manner as may be specified by the Corporation.

76

5000Rs.

- 7 -

21. In the event of allotment by transferee being cancelled, the lessee shall have to remove the structure at its/his/her own expenses within such reasonable time not exceeding three months, as may be prescribed by the Managing Director of the Corporation and restore the possession of the site on the conditions in which transfer of plot to lessee was allowed. Otherwise, the structure will become the property of the Corporation.

22. The Lessee shall have to show positive evidence of effective steps having been taken to place orders for supply of machinery etc., within six months from the date of issue of transfer letter in his favour referred to hereinabove.

23. If the lessee in contravention of the condition herein contained used the said property in the matter not permissible or lets the allotted property or any part thereor keeps an authorised person on the allotted property or fails to observe any of the stipulations on his part herein and commits a breach then without prejudice to any other remedy available in respect of such breach under this agreement, the lessor may take steps to get this breach removed.

For K. A. Ferro Alloys (P.) Ltd.

5000Rs.

24. Notwithstanding anything herein before contained whether the lessee has become liable to be evicted or is evicted from the said property under any of the forgoing conditions the lessor may, in its discretion continue the allotted property in the occupation of the lessee on payment of such fine by the lessee as may be decided by the lessor, and in such a case, this agreement shall have effect as if there had been no eviction of the lessee.

25. The lessee shall not make any change in constitution of partnership/private Ltd. concern without the prior approval of the Corporation. In case of any such approvals, if allowed, the transfer letter referred to hereinabove shall, however, have effect.

26. In the event of breach of any of the terms and conditions of allotment, the said corporation shall have the right to revoke the lease and take back the possession of these building and also forfeit the entire amount paid by that time.

27. If the lessee is evicted from the said leased property the provision of conditions (ii)a bove mutatis mutandis apply to the lessee as if he had terminated this agreement of his own accord.

For K. A. Ferro Alloys (P.) Ltd.

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hat all dispute and - nce arising out of or in any way touching or concerning this allotment whatsoever shall be referred to the sole arbitration of the Managing Director of Lessor or any other official appointed by him. The lessee shall have no objection to such an appointment that the arbitrator so appointed is a Govt. Servant or any official of the Lessor and the decision of such an arbitrator shall be final and binding on the lessor and the lessee. That further to this the said arbitrator shall have the powers to entertain and adjudicate upon the matters including the matter of the cancellation of allotment and the removal of the structure thereon and pass suitable orders in the event of any dispute whatsoever between the Lessor and the Lessee.

WITNESSES:

1.

2.

(VIKAS MADAAN)
HD 31
Focal Point
Ludhiana.

LESSOR

LESSEE

For K. A. Ferro Alloys (P) Ltd.

Director

Annexure- XI

Industry List (10 Km. radius)

S. No.	Name of the unit
1.	Gulzar Mechanical Works
2.	Guru Nanak Engineering Works
3.	Packson Cycle Industries
4.	Punjab Pipe Store
5.	Royal Scales & Engineering Works
6.	Shiva Durga Engg. Works
7.	Sohal Engineers (India)
8.	Yogesh Cycle Industries
9.	Indogem Enamels (P) Ltd.
10.	Ginni Sales Corporation
11.	Unesco (India)
12.	Shri Atam Vallabh Poly Plastic Industries
13.	Ghaison International
14.	Nbeson Tools (India)
15.	Packwell Products (India)
16.	Asia Cutting Tools & Allied Industries
17.	Elson Hosiery Mills
18.	Cyclo India
19.	Satnam Steels (P) Ltd.
20.	Vishal Paints (India)
21.	Surjan Industries (Regd)
22.	Poly Moulds (India)
23.	Indiana Industries
24.	Alka Industries
25.	Triveni Industries
26.	Rana Metal Industries

27.	Bright Industries
28.	Basanta Mal Tilak Ram
29.	Scoot Manufacturing Company
30.	Roland Engineers
31.	Gupta Traders
32.	Arora Industries
33.	Punjab Electric House
34.	Genuine Minerals (India)
35.	Abhey Steel (P) Ltd
36.	Shine Steel Industries
37.	Sahil Palvi Industries
38.	Amrit Press Tools
39.	Aeon Hi-Tech Engineering Ltd.
40.	Champion Nut Bolt & Steel Products
41.	Aeon Engineering Enterprises
42.	Ramtech Impex (P) Ltd.
43.	M.T. Industries
44.	Chawla Electricals
45.	Swarn & Company
46.	Alamgir Industrial Corporation
47.	Rekofa Small Tools (P) Ltd.
48.	Alamgir Industries (Regd)
49.	H.C. Jain Industries
50.	Dhir Enterprises
51.	Raja Ram & Sons
52.	Jaggi Mineral & Chemicals
53.	Emm Industries (India)
54.	National Engineering Enterprises
55.	Arneja Tools (India)
56.	Onkar Electric Company

57.	Aarti Steels Ltd.
58.	Akal Springs Ltd.
59.	Ambika Cycles
60.	Antarctic Industries
61.	Arora Alloys (P) Limited
62.	Atma Ram Mela Ram Steels (P) Limited
63.	B.P. Alloys Ltd.
64.	Bajaj Sons Limited
65.	Bharat Jyoti Mechanical (Regd.)
66.	C.L. Engineering Ltd.
67.	Daichi International
68.	Dhir Industrial Corporation
69.	Garg International
70.	Goel & Goel International
71.	Indiana Auto Industries
72.	Jain Udhay Industries Ltd.
73.	Jindal Industries
74.	K.C. Alloys & Steel Castings
75.	Kay Jay Forgings (P) Ltd.
76.	Precision Products
77.	Lila Forgings
78.	Majestic Auto Ltd.
79.	Malcast Engineers
80.	Manav Tools Industries
81.	Mehta Engineers Limited
82.	Munish Forge Ltd.
83.	Nucon Switchgears (P) Ltd.
84.	Shivalik International
85.	Team Impex
86.	Tvashta Engineering (P) Ltd.

87.	Yashka Industries
88.	Knit-O-Craft
89.	Ajanta Hosiery & Exports (P) Ltd.
90.	B.S.C. Bead Rings
91.	Servo Products (India)
92.	Aggarwal Cycle Industries
93.	Accurate Tools Mfg. Co. (Regd)
94.	H.S. Krishna Enterprises
95.	Pyro Industrial Controls
96.	S.V. Forgings (P) Ltd.
97.	Grovel Industries
98.	Jainson Rubber Industries
99.	Seiko Sewing Machine & Spare Company
100.	Harman Udyog (Regd)
101.	H.S. Krishna Enterprises
102.	Pyro Industrial Controls
103.	S.V. Forgings (P) Ltd.
104.	Grovel Industries
105.	Jainson Rubber Industries
106.	Seiko Sewing Machine & Spare Company
107.	Harman Udyog (Regd)

Annexure- XII

Environment Policy

JYOTI INDUSTRIES

UNIT NO. II

Manufacturers of : STEEL INGOTS & STEEL CASTINGS

Environmental Policy

We are committed to providing a quality service in a manner that ensures a safe and healthy workplace for our employees and minimises our potential impact on the environment. We will operate in compliance with all relevant environmental legislation and we will strive to use pollution prevention and environmental best practices in all we do.

We will:-

- Integrate the consideration of environmental concerns and impacts into all of our decision making and activities,
- Promote environmental awareness among our employees and encourage them to work in an environmentally responsible manner,
- Train, educate and inform our employees about environmental issues that may affect their work,
- Reduce waste through re-use and recycling and by purchasing recycled, recyclable or re-furbished products and materials where these alternatives are available, economical and suitable,
- Promote efficient use of materials and resources throughout our facility including water, electricity, raw materials and other resources, particularly those that are non-renewable,
- Avoid unnecessary use of hazardous materials and products, seek substitutions when feasible, and take all reasonable steps to protect human health and the environment when such materials must be used, stored and disposed of,
- We will comply with all relevant environmental legislation,
- Where required by legislation or where significant health, safety or environmental hazards exist, develop and maintain appropriate emergency and spill response programmes,
- Communicate our environmental commitment to clients, customers and the public and encourage them to support it,
- Strive to continually improve our environmental performance and minimise the social impact and damage of activities by periodically reviewing our environmental policy in light of our current and planned future activities.

For Jyoti Industries

Authorized Signatory

B-57-A, PHASE-VII, FOCAL POINT, LUDHIANA-141010.
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E-mail : jyotiindustries2@yahoo.co.in