BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

O.A. No. 134/2020

IN THE MATTER OF:

News item published on 13.07.2020 in daily paper "India Today" titled "Massive fire engulf Vizag Chemical Plant, explosions heard, injuries reported"

PAPERBOOK

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MATRUGUPTA MISHRA/ SHIKHA OHRI
ADVOCATE FOR M/S VISAKHA SOLVENT LTD.

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THROUGH

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NEW DELHI
DATE: 03.12.2020

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

O.A. No. 134/2020

IN THE MATTER OF:

News item published on 13.07.2020 in daily paper "India Today" titled "Massive fire engulf Vizag Chemical Plant, explosions heard, injuries reported"

RESPONSE OF M/S VISAKHA SOLVENTS LTD. TO THE REPORT OF THE JOINT COMMITTEE IN O. A. NO. 134 OF 2020

MOST RESPECTFULLY SHOWETH:

1. The present proceeding has been initiated *suo motu,* by this Hon'ble Tribunal based on media report that massive fire engulfed the chemical plant of M/s Visakha Solvent Ltd. (herein after referred to as the 'VSL'). The said media report further reported that explosion was heard, injuries were reported on 13.07.2020 at Ramky CETP Solvents Building in Pharma city. Further, this Hon'ble Tribunal vide its order dated 23.07.2020 constituted a joint committee comprising Centre Pollution Control Board (CPCB), State Pollution Control Board (SPCB) and Prof. P Jagannadha Rao, Dept. of Chemical Engineering, Andhra University, Vishakhapatnam to ascertain facts, determine responsibility, assess the final compensation for the victims and the environment, to prepare planned restoration of the environment, suggest precautions for future.

2. Pursuant to the aforesaid order, the committee constituted by Hon'ble Tribunal vide order dated 23.07.2020 convened its first meeting on 07.08.2020 through video conference and devised an

action plan to proceed further in the case. The committee inspected the unit on 14.08.2020, interacted with unit officials, two persons who were present during the night of the accident and with officials working in neighbouring industries and thereafter filed report of the joint committee in the matter of O.A. No. 134 of 2020 on 29.10.2020 (hereinafter referred to as 'Joint Committee Report/ JCR').

3. At the very outset, it is stated that VSL is deeply affected by the unfortunate event that occurred inside the Solvent Recovery Plant (SRP) on 13.07.2020. In the last 10 years of operation, VSL has never witnessed any accident of such magnitude which had completely damaged the plant and machineries within the premises. Before adverting into the details of the report filed by the committee, VSL is seeking the indulgence of this Hon'ble Tribunal to have a brief insight into the nature and functioning of the entity and what objective the SRP was subjected to during its operation for the last 10 years.

4. VSL's unit is a common SRP conceived and established as a service to member industries of Jawaharlal Nehru Pharma City (JNPC). JNPC is a global destiny for manufacturers of bulk drugs, active pharmaceutical ingredients, and intermediates. The Pharmacity is furnished with all the requisite approvals like environmental clearances and operational amenities.

The City is structured and developed to act as an exclusive hub for manufacturers of bulk drugs, Active pharmaceutical ingredients, etc. The City has diverse range of facilities viz.,

Common Effluent Treatment Plant, Secured Land fill, Hazardous Waste Management with incinerator, assured continuous potable water distribution, emergency medical centre, central fire services. It may be appreciated that JNPC developed as a public private partnership in establishing a manufacturing hub for pharmaceutical companies along with processes to take care of the hazardous waste generated from such manufacturing units. The SRP is being established within JNPC as a part and parcel of offering an integrated platform to the pharmaceutical unit to thrive within the city from manufacturing till disposal of the waste generated. Hence, the entire city is developed and designed with environmentally benign objectives to be achieved without creating any logistical hassle.

5. The SRP is established in 2011 at a cost of less than 5 crore and co-located with Common Effluent Treatment Plant (CETP) and Common Hazardous Waste, Treatment, Storage and Disposal Facility (CHWTSDF) in JNPC drawing steam from a common boiler.

6. The SRP was established with a purpose of:

   a. Augmenting the in-house solvent recycling capabilities of Pharma industries in JNPC and surrounding districts;

   b. Keep track of spent solvents being recycled/disposed from these industries;

   c. Save valuable natural resources and national resources by recycling and reusing organic solvents and also minimizing pollution.

7. It is submitted that there are 73 member industries in JNPC and additional 40-50 Pharma industries in the surrounding districts. VSL has served close to 35 industries during its existence and 13 industries in the last 6 months. These industries range from large multinationals (MNCs) like Dr. Reddy's Laboratories, Mylan Pharma, Eisai Pharmaceuticals India Pvt. Ltd. and Aurobindo Pharma etc. to small units having their first unit in JNPC. The companies and streams that VSL has served, are in manufacturing of common drugs used for fever/ cold etc. to life saving medicines used in treatment of Cancer and HIV/Aids etc.

8. VSL has complied with all its obligations under various statutes and approvals. It has been submitting periodic compliance reports to the respective authorities. It also submitted that stocks/process and other information regularly to state PCB in timely manner. State PCB has been making periodic and regular inspections to the premise for ascertaining physically compliances of statutory requirements. There has been no objection or report or complaint with regard to any violation of environmental norms on the part of VSL. VSL has been disposing all its effluents through CETP without fail. Similarly, all the solid Hazardous waste is disposed through CHWTSDF without any deviation.

9. Over the last 10 years we have processed close to 75,00,000 kgs (75,000 tns) of spent solvents and have contributed for reduction of pollution and preservation of natural resources. India imports more than 80% of its petroleum products and VSL has made its humble contribution in reducing the import bill. Similarly, instead

of burning or disposal by recycling, VSL has made a positive contribution to environment.

10. At the outset, VSL humbly submits that it has taken all due care and precautions expected from a solvent recovery plant within the four corners of the existing environmental norms, however, at the same breath, it also regrets such an unfortunate event which unfolded upon the company which could not be avoided notwithstanding all the precautions being in place. However, VSL is not inclined to run away from its own responsibility towards the consequence of such an unfortunate event as well as towards the larger environmental concern. Therefore, the JCR is neither challenged nor objected to by VSL in the present response, however, without prejudice to the above, VSL is bringing certain information/ submission for the specific indulgence of this Hon'ble Tribunal in the wake of the issues identified in the report, for the interest of justice and for bringing the whole scenario before this Hon'ble Tribunal.

11. The present response aims at supplementing the gaps as well as intents to apprise this Hon'ble Tribunal as to the ground realities and compliances made by VSL in the subject SRP. It is pertinent to note herein that specific indulgence of this Hon'ble Tribunal is being sought to look into the reasoning advanced by the joint committee in arriving in its conclusion in the JCR. VSL has also conducted an internal investigation and report was prepared by FET Solutions Pvt. Ltd. on September, 2020 (hereinafter referred to as 'internal report').

12. Further, VSL has made a written representation before the joint committee pertaining to the process adopted by VSL, its modus operandi and also the details pertaining to the event that has occurred. In the said representation, VSL has informed that it has appointed a competent and independent third party safety consultant to analyse the incident and to give recommendations as to further improvements to restrain any such future occurrences.

It was further informed that there has been absolutely no environmental damage beyond the premises of VSL during the incident. The continuous process industries near the site of occurrence, have not stopped production for a single shift and there has been no reported/ observed effect of the incident beyond the premise where the incidences occurred. All the run off has been collected and sent to CETP. The third party consultant so appointed for carrying out the investigation and to lay down a future road map for bringing a robust mechanism to zero-down upon the chances of such occurrences, is MoEF registered, NABET and NABL accredited.

A copy of the representation made by VSL to the Joint Committee is annexed hereto and marked as **ANNEXURE R-1**.

13. It may be appreciated that VSL itself a small scale industry established as a recycling unit for serving environmental process requirement of the pharmaceutical and allied industries, in an integrated manner as a part of the JNPC for ensuring a 360 degree

solution of pharmaceutical manufacturing units, from the process of manufacturing till recycling and disposal of waste generated in such units. VSL has suffered total loss of all buildings, plant and machinery in the said event. However, without being perturbed by such loss, VSL has agreed for payment of compensation of Rs. 70 Lac to families of two employees deceased in the accident. Out of the said Rs.70 Lac, VSL has already made a payment of Rs. 60 lac to the family and will disburse the balance soon. Further, VSL has spent an additional amount of Rs. 30 lac toward hospital expenses, putting the existing employees to other jobs and also making payment towards severance package to its employees. VSL undertakes that it shall bear the cost for such an unfortunate incident and duty bound to honour environmental compensation to be imposed by this Hon'ble Tribunal. While determining the quantum of such compensation, it is humbly prayed by VSL that the aforementioned factors may kindly be taken into consideration.

14. Qua the report submitted by the joint committee, VSL brings to the knowledge of this Hon'ble Tribunal the reasons and conclusions drawn by the expert which prepared an internal report. The internal report in itself is comprehensive and precise report, which has concluded that accident has occurred due to following reasons:

"**8 CONCLUSIONS & RECOMMENDATIONS**

8.1 CONCLUSIONS

Fires and explosions are serious problem in process industries. The industries & safety professionals often lacked awareness of flammability hazards and more so about low MIE chemicals, which are more prone to electrostatic ignitions, as MSDSs ineffectively communicate to employers and workers the hazards of such ignitions and ways to prevent them.

Based on the investigation, the major findings can be elaborated as below:

1. The incident started during sampling by Malleshwaro, when 5-10 litre of liquid was in the Stainless Steel (SS) bucket, he may have tried to close the valve.

2. A small flammable vapour cloud would have generated, as the bucket is open to atmosphere and possibly, when he touched plastic handle of the valve, the electrostatic charges may have dissipated creating a spark, which led to a flash fire and subsequently burn injuries.

3. He ran away while the liquid was draining out in the open, this liquid release created a flammable vapour cloud, extending to long distances. Somewhere on the way it got in touch with an ignition source and it flashed back to reactor causing a vapour cloud explosion (VCE). The vapour cloud explosion was the big sound heard about 5 min after the flash.

4. Since there was damage to plant structure, room on first floor and window panes upto about 100 m away, it confirms that there was an explosion causing such damage. This damage initiated multiple fires in various locations, including storage tanks, barrels and gas cylinders in the lab.

5. The process related documentation had been managed at the site. Adequate risk assessment and management was carried out and documented, which is available for relevant personnel.

6. Process details, SOPs were documented and trainings are provided to the personnel.

7. Emergency Response Plan was available and it covered the fire incident response. In the fire incident, there was damage reported to the fire hydrant line."

A copy of the September, 2020 internal report prepared by FET Solutions Pvt. Ltd. is annexed herewith and marked as **ANNEXURE R-2**.

15. It is submitted herein that there were experienced and competent/qualified supervisors in the unit. The persons present in the unit at the time of the unfortunate accident were trained and experienced with over 10 years in chemical handling. It has to be stated herein that experience of Sh. T. Malleswara Rao (Shift Incharge-III & Senior Operator) has been mentioned as 2 years, however the actual experience is of 10 years. Also, the qualification of Sh. Manoj Kumar (Chemist) is very well within the prescribed qualification under the prevalent labour laws in the country.

A copy of documents verifying the experience of Sh. T. Malleswara Rao (Shift Incharge-III & Senior Operator) and Sh. Manoj Kumar are annexed herewith and marked as **ANNEXURE R-3(Colly.).**

16. It is submitted herein that there were safety relief valves and rupture discs available in the unit and the SRP was well equipped with the safety instruments in terms of the relevant rules applicable to the unit. Further, the unit of VSL was commissioned only after obtaining necessary clearances from the requisite authorities. It is pertinent to mention herein that the clearances accorded to VSL was given only after due consideration of the safety norms and is in compliance with all relevant directions, guidelines and standards and including any infrastructure upgrades required for such SRP.

A copy of clearances accorded to VSL is annexed herewith and marked as **ANNEXURE R-4(Colly.).**

A copy of proof of safety valves and rupture discs (invoices, photos and inspection reports) are annexed herewith and marked as **ANNEXURE R-5(Colly).**

17. Further, it is pointed out by the joint committee in its report that there has been lack of training to the staff and persons were deployed with limited experience and qualification working in the shop floor. The qualification aspect has already been dealt above along with documentary proof. Further, SRP has been conducting periodic mock fire drills and other training programs with regard to various safety measures from time to time.

A copy of proof of fire drills and other training of the employees, conducted by SRP is annexed herewith and marked as **ANNEXURE R-6(Colly.).**

18. At this juncture, it bears mentioning herein that the present response does not object to the findings of the joint committee towards the payment of compensation to the families of deceased along with the environmental damage calculated by the joint committee and is merely restricted to the averments which portrays that VSL is solely attributable for the accident as there is failure to comply with safety guidelines. The same is causing prejudice to the reputation of VSL despite of them being committed towards reduction of pollution and preservation of natural resources. Without prejudice to the foregoing, it is submitted that while computing the environmental damages/ compensation, this Hon'ble Tribunal may take into cognizance the compensation amount already paid to the family of the deceased by VSL.

THROUGH

MATRUGUPTA MISHRA /SHIKHA OHRI
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AFFIDAVIT

I, Gade Sudhakar Reddy, S/o Venkata Reddy, aged about 48 years, working for gain at Visakha Solvents Ltd, working as Director, R/o Plot no 60, Dollar Hills, Manikonda, Hyderabad 500089, do hereby solemnly affirm and state as follows:

1. That I am the director of the Visakha Solvents Ltd. in the above mentioned matter. I have been dealing with the matters relating to the above-mentioned case and I am conversant with the facts of the case.

2. I have read the accompanying response and I say that its contents are true to my knowledge and belief and based on records which are believed to be true and correct.

3. That annexures filed with the accompanying response are true copies of their respective originals.

VISAKHA SOLVENTS LTD. HYDERABAD

G. Sudhakar Reddy

... **DEPONENT**

VERIFICATION:

Verified at HYDERABAD on this 21 day of November, 2020 that the facts and circumstances stated above are true and correct to the best of knowledge and belief and nothing material has been concealed therefrom.

G. Sudhakar Reddy

...**DEPONENT**

KOVURI SREENIVASULU NOTARY G.O.M.S.No.245 Expired on 24-12-2021 NOTARIAL Appointed by GoM, GoTS

ATTESTED

KOVURI SREENIVASULU
ADVOCATE & NOTARY
H No. 1-1/5, Old Hafizpet, Miyapur
R R Dist Cell: 9951539468

VISAKHA SOLVENTS LTD. HYDERABAD

Annexure R-1

visakha Solvents Ltd.

www.visakhasolvents.com

To
Honorable Members,
Joint Monitoring Committee,
National Green Tribunal.

Dear Sir/Madam,

We humbly thank you for giving us this opportunity to present our views to the committee.

We are a common Solvent Recovery Plant (SRP) conceived and established as a service to the member industries of JN Pharma City (JNPC Vizag). The SRP was built at a cost of Rs 4.7 crs in a land leased from JNPC and was co-located with CETP (Common Effluent Treatment plant) and CHWTSDF (Solid Hazardous waste facility) and drawing steam from a common boiler.

It became operational in January 2011 and has been serving industries in and around JNPC. There are at present 73 member industries and we augment their in-house capacity to recycle spent solvents. Almost 35 of them have utilized our services during the last 10 years. One of the principal aims to have a common SRP is to track and account spent solvents coming out of JNPC and we have fulfilled that as well over the last 10 years by keeping records and submitting them regularly to APPCB. During these 10 years we have processed close to 75,000,000 kgs (75,000 tonnes) of spent solvent and have contributed for reduction of pollution and preservation of natural resources. A lot of these solvents recovered are imported and recycling them not only reduces consumption of valuable natural resources but reduces India's import bill.

As part of our operations we have established proper SOPs for receiving, processing various mixes of spent solvents and further disposal of waste generated, and have strictly adhered to them. Over the 10 years of operation we had maintained a perfect safety record with zero accidents. We have strong safety training program and we have followed safety training and mock drill schedules that were established. Each of our employees is trained in all the SOPs. We have a qualified staff with 75% of operational staff with B.Tech (Chemical Engineering) or M.Sc (chemistry) or B.Sc (chemistry) degrees. All of them are trained in handling of chemicals and solvents.

On the day of the unfortunate incident the operations being undertaken were also covered by the SOPs. We have commissioned a competent and independent third party safety consultant to analyze the incident and give us recommendations as to further improvements.

G. Sudhakar Reddy

VISAKHA SOLVENTS LTD. JNPC PARAWADA

Corp off: 6-3-1089/G13, Ramky Grandiose, Ramky Towers, Gachi Bowli, Hyderabad, Telangana - 500032.

CIN : U74900AP2008PLC061618

Office Address:
Visakha Solvents Ltd., Plot No. 84A, C E T P Premises, J.N.P.C., Parawada,
Visakhapatnam - 531 021, A.P., India. Mob.: 9949666555

www.visakhasolvents.com

We have regularly submitted compliance reports to APPCB and were subject to inspections from time to time. The last in inspection happened in February-2020, while our bi-annual CFO compliance report was submitted in June-2020. Any observations and audit findings were followed through. We have been in compliance of all our CFO conditions. We have complied with most of the SOPs circulated for Solvent Recovery Units. Two of the short comings we were working towards fulfilling them. We have disposed our solid waste through CHWTSDF and effluent through CETP without exceptions.

We would like to bring to The Honorable committee's notice that there is absolutely no environmental damage beyond our premises during this incident. The continuous process industries near our site have not stopped production for even a single shift and there has been no reported/observed effect beyond our premises. All the runoff has been collected and sent to CETP. Only surficial discoloration in some areas of the plant is noticed. We have commissioned a MoEF registered, NABET and NABL accredited, third party to study and prepare a remediation plan which we will submit to the honorable committee. We are committed to comply with any recommendations given.

We are a small scale industry established to serve environmental needs of Pharma industry. In this incident we suffered a total loss of all buildings and Plant & Machinery. We are not in a position to resume business anytime soon. We have agreed to pay compensation of Rs 70 lakhs to families of our employees deceased in the accident. Out of which we have already paid Rs 60 lakhs to the families and will disburse the rest soon. We have already spent additional 30 lakhs towards hospital expenses, finding jobs for our employees and paying them generous severance package. We will also implement the environmental remediation plan.

We would like to humbly bring to committee's notice that recycling industry such as our selves are required to reduce environmental impact of industries. As a whole we believe we have been a positive contributor for reducing pollution during the last 10 years. We have also been diligent in paying any compensations and costs due to this unfortunate accident and we therefore beg for a kind and lenient consideration to our submission.

Yours Sincerely
For Visakha Solvents Ltd

Director

VISAKHA SOLVENTS LTD. JNPC PARAWADA

INCIDENT INVESTIGATION REPORT

Visakhapatnam site

of

VISHAKA SOLVENTS LTD.

REV 2

SEPTEMBER 2020

FET SOLUTIONS P LTD

ISO:9001 (2015) Certified

Vasant Kunj, New Delhi

Tel +91 9811340933, Email: info@fetsolution.com

CONTENTS

Our Ref: J1017 Rev2
Date: September 6th, 2020

Vishaka Solvents Ltd

Visakhapatnam, India

Dear Sir,

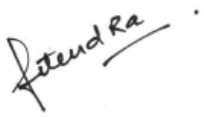
SUBJECT: INCIDENT INVESTIGATION REPORT

We are pleased to submit the study report for the above captioned project. If you have any questions or comments, please contact the undersigned. If the report is to your complete satisfaction, please sign and return a copy of the enclosed Report Approval Form.

We thank you for allowing us the opportunity to perform this study and if we can be of any further assistance to you, please contact us.

Yours faithfully,

FET Solutions P Ltd



(Jitendra Kumar)
Director

FET Solutions Pvt Ltd	REPORT APPROVAL FORM	Job No.: J1017
Client:	**Vishaka Solvents Ltd**	
Report Title:	**Incident Investigation Report**	

Rev No. 1	**SIGNATURE**	**DATE**
Prepared by:	Jitendra Kumar	05/09/2020
Checked by:	Meenakshi Madas	05/09/2020
Approved by:	Sonali Kumar	05/09/2020

Revisions

Rev.	Revision	By	Checked	Approved	Date
0	Issued for review and comments	JK	MM	SK	31/08/2020
1	Comments incorporated	JK	MM	SK	04/09/2020

Client Approval Of Report:

Rev	Signature	Date
2		

ABBREVIATIONS

DCS	Distributed Control System
DMSO	Di Methyl Sulfoxide
FET	Fires, Explosions and Toxics
HAC	Hazardous Area Classification
HARA	Hazard Analysis and Risk Assessment
HAZID	Hazard Identification
HAZOP	Hazard and Operability
KVA	Kilo Volt Ampere
MIE	Minimum Ignition Energy
MS	Mild Steel
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
P&ID	Piping and Instrumentation Diagram
PHA	Process Hazard Analysis
PPE	Personnel Protective Equipment
QC	Quality Control
QRA	Quantitative Risk Assessment
RF	Radio Frequency
SIL	Safety Integrity Level
SOP	Standard Operating Procedure
SS	Stainless Steel
VCE	Vapour Cloud Explosion.

EXECUTIVE SUMMARY

A fire incident had occurred at Vishaka Solvents site on July 13th, 2020 at 10.35 pm. The fire occurred in the production area, and led to a fatality, personnel injuries, environmental impact and asset damage. The fire involved DMSO during distillation operations.

Vishaka Solvents has assigned FET Solutions for carrying out the incident investigation for the fire that occurred at their Visakhapatnam site. The report represents the execution and findings of the investigation performed for the incident.

Process safety specialist from FET Solutions reviewed the documents / data and also a site review of Vishaka Solvents Limited on 24th August 2020 to investigate the incident. The purpose of the investigation was to:

- Understanding the surroundings at the time of incident.
- Understanding the fire and explosion properties of the chemicals involved
- Identification of the flammable atmosphere, which ignited and its flammability assessment
- Identification of the potential sources of ignition.
- Evaluating the safeguards in place at the time of incident against each of the potential source of ignition and determining the likely source(s) of ignition responsible for the incident.
- Recommending practical measures required to prevent/control such fire incidents based on the findings of the investigation.

The assessment of the incident included a review of operation & process conditions, process safety information, plant inspection, sequence of the incident and discussions with the plant personnel, who were present in the plant at the time of incident. The attendees were present during the investigation providing valuable information & support.

The purpose of this report is to present the results of the investigation into the cause of the fire and explosion incident in the following manner;

- Section 1 describes the intent and an introduction to the study
- Section 2 lists the scope, methodology and planning of the study
- Section 3 provides a brief description of the process

- Section 4 provides the flammability properties of the materials being processed
- Section 5 provides an outline description of the incident
- Section 6 provides the findings from the incident investigation
- Section 7 describes the assessment of likely ignition sources
- Sections 8 includes discussions & conclusions
- Section 9 provides details of the references used in this report.

Conclusion:

Based on the investigation, the major findings can be elaborated as below:

1. The incident started during sampling by Malleshwaro, when 5-10 litre of liquid was in the Stainless Steel (SS) bucket, he may have tried to close the valve.
2. A small flammable vapour cloud would have generated, as the bucket is open to atmosphere and possibly, when he touched plastic handle of the valve, the electrostatic charges may have dissipated creating a spark, which led to a flash fire and subsequently burn injuries.
3. He ran away while the liquid was draining out in the open, This liquid release created a flammable vapour cloud, extending to long distances. Somewhere on the way it got in touch with an ignition source and it flashed back to reactor causing a vapour cloud explosion (VCE). The vapour cloud explosion was the big sound heard about 5 min after the flash.
4. Since there was damage to plant structure, room on first floor and window panes upto about 100 m away, it confirms that there was an explosion causing such damage. This damage initiated multiple fires in various locations, including storage tanks, barrels and gas cylinders in the lab.
5. The process related documentation had been managed at the site. Adequate risk assessment and management was carried out and documented, which is available for relevant personnel.
6. Process details, SOPs were documented and trainings are provided to the personnel.
7. Emergency Response Plan was available and it covered the fire incident response. In the fire incident, there was damage reported to the fire hydrant line.

As per the findings, and the incident investigation, a total of 14 recommendations are made, which are listed in various relevant sections and summarised in section 8.2:

1 INTRODUCTION

1.1 GENERAL

A fire incident had occurred at Vishaka Solvents site on July 13th, 2020 at 10.35 pm. The fire occurred in the production area, and led to a fatality, personnel injuries, environmental impact and asset damage. The fire involved DMSO, during distillation operations.

Vishaka Solvents has assigned FET Solutions for carrying out the incident investigation for the fire that occurred on July 13th at their Visakhapatnam site. The report represents the execution and findings of the investigation performed for the incident.

1.2 REPORT STRUCTURE

The report is split into various sections, as below.

- Section 1 describes the intent and an introduction to the study
- Section 2 lists the scope, methodology and planning of the study
- Section 3 provides a brief description of the process
- Section 4 provides the flammability properties of the materials being processed
- Section 5 provides an outline description of the incident
- Section 6 provides the findings from the incident investigation
- Section 7 describes the assessment of likely ignition sources
- Sections 8 includes discussions & conclusions
- Section 9 provides details of the references used in this report.

2 SCOPE AND METHODOLOGY

2.1 SCOPE OF WORK

There was a fire incident occurred at Visakha Solvents Visakhapatnam site. Visakha Solvents assigned FET Solutions' expert for carrying out an investigation for the same. The Scope of work is to conduct Incident Investigation for the fire incident occurred at Visakhapatnam as described in section 5 of the report.

2.2 METHODOLOGY

The major activities of the investigation included:

- Understanding the surroundings at the time of incident.
- Understanding the fire and explosion properties of the chemicals involved
- Identification of the flammable atmosphere, which ignited and its flammability assessment
- Identification of the potential sources of ignition.
- Evaluating the safeguards in place at the time of incident
- Recommending practical measures required to prevent/control such fire incidents based on the findings of the investigation.

As the post-incident evidence(s) at site may not be available and therefore, this investigation is mainly based upon the information gathered by personnel interview, current practices and document review.

2.3 PLANNING AND EXECUTION OF THE ASSIGNMENT

The initial efforts for the study involved collection of site information and project data. This also included discussions on Process and Hazards with client personnel. The information required provided familiarity with the project to the expert carrying out the investigation. The next part comprised of the site visit, reviewing the actual site conditions, discussions with site personnel. On the basis of the data review, site visit and discussions with site personnel, conclusions and recommendations have been stated in this report.

3 PROCESS DESCRIPTION

The process description of solvent recovery is as given below, as per the SOP in use, the blanks need to filled up by the operator while the process is operating.

S No	Process
1.	Take the Dimethyl Sulfoxide ML`s from Road tanker to day storage tank SST-_____
2.	Ensure the double body earthing condition of day storage tank before charging of dimethyl Sulfoxide.
3.	Check the equipment status card and ensure that column reactor SSR-_____is clean and dry. Visual Cleanliness**:**
4.	Charge ML's Dimethyl Sulfoxide into Column reactor SSR-_____ Charged Qty:_____L
5.	Ensure the vacuum pump condition and after that apply the vacuum to the system. Check the vacuum in the system by using the connected vacuum gauge.
6.	Apply steam in to the reactor jacket and raise the temperature up to reflux.
7.	Record temperature in temperature sheet every 30 ± 5 minutes once.
8.	After that 120 minutes reflux collect the sample and send to QC for moisture content and purity.
9.	Wear proper PPE`s are while taking the sample process.
10.	In the QC Analysis report found any impurities or high moisture content, Start to collect the impurities in to the receiver as a fraction.
11.	Ensure before collecting the receiver check the status and visual cleanness. Note: Record temperature in temperature sheet every 30 ± 5 minutes once.
12.	Ensure the collection of fraction material in Receiver RT-

S No	Process
	_____ Collected Quantity:_____L
13.	After the collection of fraction, than take and send the sample to the QC For checking the moisture content& Purity.
14.	Ensure the result of the material meet the specifications (MC-Limit less than 0.2% & Purity more than 99.6%), immediately the collection in to receiver.
15.	Ensure before collecting the receiver check the status and visual cleanness. Note: Record temperature in temperature sheet every 30 ± 5 minutes once.
16.	Ensure the collection of distillation material in Receiver RT-_____ Collected Quantity :_____L
17.	After completion of collection of distilled material in to receiver take the sample and send to QC for checking the Moisture content and Purity. Moisture Content:_____% Purity:_____%
18.	Ensure the result meet the specifications, than transfer the distilled material from receiver to day storage tank.
19.	Ensure the cleanliness & Status of day storage tank before collecting the material.
20.	Ensure the Collected Day Storage Tank RST-_____ Collection Qty:_____L
21.	After completion of the batch unloading the process distillation residue below 40^0C temperature in the MS Drums with wearing of proper PPE.
22.	Total residue unloading completion activity, Update in equipment usages log book.

4 CHEMICAL(S) INVOLVED AND FLAMMABILITY PROPERTIES

4.1 CHEMICALS

The chemical processed in the reactor is a mix of solvents, with predominantly Di Methyl SulfOxide (DMSO). Properties of the solvent mix is not available, however, MSDS of the DMSO is available with the operations team.

The mixed solvent contains small percentage of other solvents such as Methanol, Acetone and Toluene. These get distilled at atmospheric pressure only and the built up of vacuum will be only after distillation of these solvents. Due to high boiling point of DMSO (189 deg.C), it is distilled under vacuum at around 650mm Hg and 120 deg.C. Vacuum distillation is comparatively safe method which is carried out at around 120 deg.C whereas distillation at atmospheric temperature needs high temperature which can lead to decomposition of DMSO above 189 deg.C. The other flammable properties such as Minimum Ignition Energy (MIE), Minimum Ignition Temperature (MIT) or Layer Ignition Temperature (LIT) are not provided to understand the characteristics of the material. The main flammability properties for DMSO are as below:

- Boiling Point 189 degC
- Vapour pressure 0.42 mm Hg @ 20 deg C
- Flash Point 149 deg C (300 deg F)
- Flammable Limits 2.6% to 42% v/v
- Auto Ignition Temperature 300 deg C (573 deg F)
- Minimum Ignition Energy Not available.

While the properties of the Methanol, Acetone and Toluene are available for pure chemicals, these solvents are present in the mixture is small proportions.

4.2 PROCESS SAFETY INFORMATION (PSI)

The process related documentation status, as reported is given below:

- MSDS Available for DMSO
- Flammability properties Available
- Process Flow Diagram Available
- Pressure Relief Available. (2 inch)
- Power backup 200KVA Generator available.

4.3 PROCESS HAZARD ANALYSIS (PHA)

The process hazard analysis related documentation status, as reported is given below:

- HAZOP Available
- Hazard Assessment & Risk Analysis Available
- Emergency Response Plan Available

Hazard Assessment & Risk Analysis (HARA) and HAZOP studies were conducted for entire solvent recovery process. The process related documentation had been managed at the site. Adequate risk assessment and management was available. Process details, SOPs were documented and trainings are provided to the personnel.

R1 Process Hazard Assessment should consider the Thermal decomposition hazards related to the solvents.

4.4 MECHANICAL INTEGRITY

Based on the information available and reviewed the status, as reported is given below:

- Earthing check — Done periodically, last done June 2020.
- Pressure relief testing — Done periodically
- Flameproof fittings — Provided

R2 Integrity of flameproof fittings need to be maintained at all times.

R3 Safety critical devices identification to be performed along with frequency and performance standards. The maintenance of performance standards for safety critical devices to be done on priority basis.

5 DSCRIPTION OF THE INCIDENT

At the time of the incident, there were 4 staff members at the facility. Other than the deceased, Mr. Malleswarao was the only direct eyewitness of the incident. However, he was under medical treatment and died later, and he could not to interviewed. The following information is therefore largely based on anecdotal information provided by the other two staff members.

1. Mr B Chinnarao – Security Guard. At the time of the incident, Mr B Chinnarao was present in an open area - close to the rear access road (along the western portion of the facility). At about 10.35 pm on 13th July, he observed smoke and flames emerging from the 1st floor level of the Production Block. He raised an alarm by shouting. He thereafter observed two staff members (# 2 and # 3 in this list) running out of the facility and joined them in evacuating from the facility via the rear side path way (on the west side of the plant) and reached a safe place.

2. Mr. M Manoj – Chemist. Stationed at Wet Lab, close to the west side of the Production Block, near rear access road. Soon after he observed smoke and flames emerging form the 1st floor level of the Production Block, he ran out of Wet Lab via and evaluated from the facility via the same route as taken by Mr. B Chinnarao.

3. Mr. Malleswarao – Senior Operator: it is currently assumed that Mr Malleswarao was stationed somewhere within the Production Block (his normal place of work). He apparently escaped from the Production Block via a staircase and sustained burn injuries in the process. He then evacuated from the facility around the same time and using the same route as Mr Chinnarao and Mr Manoj. Post evacuation, he was rushed to the hospital for medical treatment, where he died later.

4. Mr. Srinivas – Junior Operator: it is currently assumed that Mr. Srinivas was present somewhere within the Production Block (his normal place of work). At the moment, there is no direct eye witness account or other credible information available to confirm his location or his movements at the time of the incident. Initially, it was assumed by other staff members that he had also evacuated from the facility. However, his body was discovered at ground floor level of the Production Block at 5.10 am on 14 July.

Based on operations data from the previous (B) shift, reactor SSR-102 was in use towards distillation of DMSO solvent. It is therefore assumed that the reactor SSR-102

was possibly involved in the incident. The fire apparently spread from the Production Block towards north and east, affecting the other parts of the facility.

6 FINDINGS FROM THE INVESTIGATION

Assessing where flammable atmospheres could occur is the first step in the investigation of any fire/explosion incident. This is followed by an assessment of potential ignition sources which could simultaneously occur in the flammable atmosphere.

The investigation attempted to identify the flammable atmosphere, sources of ignition, the likely propagation path and the actions to prevent any recurrence of the incident.

6.1 MATERIAL IGNITED:

As seen at the site and based on the description of personnel present near the incident site, first of all the flame was reported which caused burn injuries to an operator. This then spread in a bigger fire and about 5 minutes later, resulted into an explosion, severely damaging the plant civil structure and equipment. Post the explosion, fire continued at various location nearby the initial incident site.

Based on the discussions, and turn of events, following sequence has been assumed.

- Flammable fuel DMSO (97%) mixed with Acetone, hexane and toluene was released from the sampling point. Sampling was being done by Malleshwaro by opening the sampling valve and collecting the solvents in an open Stainless Steel bucket. This created a flammable vapour cloud.

6.2 IGNITION SOURCES:

The presence of all ignition sources that are capable of igniting a flammable atmosphere should be considered. Potential sources of ignition that have to be considered for a process, as listed in EN 1127-1: 2007 are:

- Flames and hot gases (including hot particles)
- Unsuitable or malfunctioning electrical apparatus
- Hot surfaces
- Mechanically generated sparks
- Static electricity
- Thermal decomposition leading to self-ignition of dusts
- Lightning
- Stray electric currents, cathodic corrosion protection
- Radio frequency (RF) electromagnetic waves from 10^4 Hz to 3 x 10^{12} Hz
- Visible light electromagnetic waves from 3 x 10^{11} Hz to 3 x 10^{12} Hz

- Ionizing radiation
- Ultrasonics
- Adiabatic compression and shock waves
- Chemical reactions, including self-ignition due to thermal decomposition.

It is also important to determine that whether the fire or the explosion occurred first. In this incident, there was a flash first, followed by an explosion about 5 minutes later. From the incident scene, it was amply clear that the explosion happened when the reactor's integrity gave away due to overpressure created inside. The overpressure wave created led to damage to the reactor, the structure and equipment in nearby areas. It also led to damage to window glass panes, reportedly upto a distance of 100 m.

6.3 SEQUENCE OF EVENTS

Based on the review of the documents, data and discussions following sequence has been assumed.

- While sampling by Malleshwaro, he opens the sampling valve.
- When 5-10 litres of liquid is in the bucket, he tries to close the valve
- There is a small flammable vapour cloud, as the bucket is open.
- As he touch plastic handle of the valve, the electrostatic charges dissipates creating a spark, led to a flash fire and burn injuries.
- He ran away while the liquid was draining out.
- This liquid release created a flammable vapour cloud, extending to long distances.
- Somewhere on the way it got in touch with an ignition source creating a vapour cloud explosion.
- As the fire spread outside the production area, likely ignition source could be outside the plant area.
- This was the big sound heard about 5 min after the flash
- Explosion led to damage to plant structure, room on first floor and window panes upto about 100 m away.
- This damage created multiple fires in various locations, including storage tanks, barrels and gas cylinders in the lab.
- The fire resulted in loss of following documents, some copies are available outside as well:
    - Drawings
    - Specifications

- Hazard assessment
- Safeguards and their adequacy, as part of HAZOP and HARA studies.
- SOPs
- Training records
- Emergency Response Plan.

6.4 EMERGENCY RESPONSE

As per the review of the documents, data and discussions.

- Emergency response was undertaken as per the emergency response plan.
- Fire water system was affected due to damage to hydrant line.
- Fire tenders were used for fire fighting.

The following recommendations are suggested:

R4 Fire Water to be on auto mode, preferably to be automatically activated on fire detection.

7 LIKELY IGNITION SOURCES

7.1 LIST OF SOURCES

Possible ignition sources are provided in the table below to try to identify which scenarios can be eliminated quickly, and which others require additional consideration.

Table 7.1: Scenario Matrix likelihood Likely

S. No	Ignition Sources	possibility
1.	Flames and hot gases	Unlikely
2.	Unsuitable electrical equipment	Unlikely
3.	Hot surfaces due to process temperature	Unlikely
4.	Hot surfaces due to mechanical frictional heating	Unlikely
5.	Electrostatic spark discharge	**Likely**
6.	Electrostatic brush discharge	Unlikely
7.	Electrostatic cone discharge	Unlikely
8.	Thermal decomposition leading to self-ignition	**Likely**
9.	Lightning	Impossible
10.	Stray electric currents, cathodic corrosion protection	Impossible
11.	Radio frequency (RF) electromagnetic waves from 10^4 Hz to 3 x 10^{12} Hz	Impossible
12.	Visible light electromagnetic waves from 3 x 10^{11} Hz to 3 x 10^{12} Hz	Impossible
13.	Ionizing radiation	Impossible
14.	Ultrasonics	Impossible
15.	Adiabatic compression and shock waves	Impossible

Table 7.1 is projected to show that all sources of ignition have been considered, and which materials they could have ignited. Where ‘impossible’ is mentioned, it indicates the source of ignition would not be powerful enough, or was in the wrong location. Similarly, ‘Unlikely’ means that it could be the cause of ignition, but some doubt remains. ‘Possible’

shows where consideration should be given, and ‘likely’ is normally defined as the source of ignition originally identified by investigators as one of the most likely causes of ignition.

It can be seen that there are two ‘likely’ entries. The unlikely, possible and likely scenarios are now discussed in more detail in the following sections.

7.2 FLAMES & HOT GASES:

No hot work or operations which would give rise to flames were being carried out and no hot gases are used at the time of the incident. Hence ignition due to flames & hot gases is considered unlikely.

7.3 MALFUNCTION OF ELECTRICAL APPARATUS:

It is essential, for controlling the risk of ignition from unsuitable or malfunctioning electrical equipment that all electrical apparatus needs to be suitable for use in the designated hazardous area in which it is located. Therefore, provided the equipment is certified for use in the designated hazardous areas and maintained as per the supplier’s instructions, ignition of a dust cloud or a dust layer by an electrical apparatus is not be considered likely.

Hazardous areas classified into zones based upon the frequency of the occurrence and duration of flammable atmosphere for selection of electrical equipment. However, at the site, flameproof fittings were provided.

R5 It will be necessary that all ‘Ex’ rated electrical apparatus should be provided with adequate Double compression cable glands for termination of cables at terminal boxes.

R6 Adequately cover the unused openings on the terminal boxes to avoid entry of rodents, water and dust to avoid short circuits and fires. It will also be necessary to provide suitable body earthing.

R7 All electrical equipment located in the hazardous areas should have appropriate temperature class and degree of protection.

7.4 HOT SURFACE DUE TO PROCESS TEMPERATURES:

The operating temperature for the reactor is max 110 deg C, which is below the decomposition or ignition temperature of the solvents that are handled in the reactor,

The temperature of the reactor is monitored continuously. Temperature back up facility is not available in manual log / DCS for referring temperature profile at the time of incident during the visit.

R8 In absence of any instrumentation provided, it is suggested to provide manual log for temperature of the reactor at periodic intervals (say every 2 hours).

7.5 MECHANICALLY GENERATED SPARKS:

Mechanical friction, such as may occur through binding of moving parts, bearing failure etc., can produce heat that will create high surface temperatures or hot spots. This could lead to direct ignition of flammable atmospheres. Deposits in contact with hot surfaces may become thermally unstable leading to shouldering also. Such material if disturbed may introduce a fire risk.

Mechanical friction will be generated in high speed rotating equipment or metal to metal / surface contact. It was reported that these was no such occurrence at the site.

7.6 ELECTROSTATIC DISCHARGES

Minimum ignition energy (MIE) and Volume resistivity data of the solvent is not available. For this reason we considered, material has low minimum ignition energy (MIE) which is sensitive to ignite and static prone product.

Spark type discharges:

Spark type discharge occurs from charge accumulated on isolated conductors. Earthing has been provided and is checked on regular basis.

The energy could be capable of igniting the surrounding flammable atmosphere caused by manual touch of the plastic portion of the valve handle. Hence the electrostatic spark discharge from the valve handle is considered likely.

R9 It will be necessary to ensure that all metal items of the system are suitably earthed to eliminate the spark discharges.

R10 Establish the procedure to check the effectiveness of the earthing of fixed metal plant at regular intervals, normally once in month, and following every maintenance, modification or repair.

Brush type discharges:

Brush discharge occurs from charged insulating items, however, none of the items at site was considered in this category, so this was categorized as Unlikely.

Cone discharges:

Considered as not applicable, so categorized as Unlikely.

We had observed some low MIE solvents in the operations & as per discussion and recommended that following safety measures to be taken.

R11 Provide electrostatic dissipative shoes and hand gloves to all operators working in solvent handling operations where flammable atmosphere is presented.

R12 Product container (and Stainless Steel bucket) should be earthed properly with a resistance to earth less than 10 ohms while in use (While sampling operation).

R13 Ensure that all personnel working in potentially flammable atmosphere are earthed with resistance to earth of less than $1.0x10^8$ ohms via electrostatic dissipative foot wear and floor (Floors should be conductive) during powder handling operations (Shuffling, unloading, etc.).

7.7 THERMAL DECOMPOSITION LEADING TO SELF IGNITION

The fire reportedly occurred in an area, where predominantly DMSO solvent is processed. The Thermal decomposition of the solvent under vacuum condition can get initiated at as low as 125 Deg C. As there is a possibility of overheating which can go to as high as 125 deg C in case of steam heating, the same can not be ruled out. However, considering the delay of 5 minutes in first flash and the explosion, it may be concluded that this was not very likely cause of initial ignition.

At the same time, if there was a fire in nearby area, which may have led to an increase in temperature and causing start of decomposition of solvents inside the reactor. As seen from the site condition, since the reactor was damaged, it can be concluded that the pressure relief sizing for the reactor was inadequate for the scenario.

R14 Thermal decomposition scenarios are not covered under relief design, the same needs to be updated for all tanks with these potential hazards.

8 CONCLUSIONS & RECOMMENDATIONS

8.1 CONCLUSIONS

Fires and explosions are serious problem in process industries. The industries & safety professionals often lacked awareness of flammability hazards and more so about low MIE chemicals, which are more prone to electrostatic ignitions, as MSDSs ineffectively communicate to employers and workers the hazards of such ignitions and ways to prevent them.

Based on the investigation, the major findings can be elaborated as below:

1. The incident started during sampling by Malleshwaro, when 5-10 litre of liquid was in the Stainless Steel (SS) bucket, he may have tried to close the valve.
2. A small flammable vapour cloud would have generated, as the bucket is open to atmosphere and possibly, when he touched plastic handle of the valve, the electrostatic charges may have dissipated creating a spark, which led to a flash fire and subsequently burn injuries.
3. He ran away while the liquid was draining out in the open, This liquid release created a flammable vapour cloud, extending to long distances. Somewhere on the way it got in touch with an ignition source and it flashed back to reactor causing a vapour cloud explosion (VCE). The vapour cloud explosion was the big sound heard about 5 min after the flash.
4. Since there was damage to plant structure, room on first floor and window panes upto about 100 m away, it confirms that there was an explosion causing such damage. This damage initiated multiple fires in various locations, including storage tanks, barrels and gas cylinders in the lab.
5. The process related documentation had been managed at the site. Adequate risk assessment and management was carried out and documented, which is available for relevant personnel.
6. Process details, SOPs were documented and trainings are provided to the personnel.
7. Emergency Response Plan was available and it covered the fire incident response. In the fire incident, there was damage reported to the fire hydrant line.

8.2 RECOMMENDATIONS

As per the findings, and the incident investigation, the following recommendations are made:

R1 Process Hazard Assessment should consider the Thermal decomposition hazards related to the solvents.

R2 Integrity of flameproof fittings need to be maintained at all times.

R3 Safety critical devices identification to be performed along with frequency and performance standards. The maintenance of performance standards for safety critical devices to be done on priority basis.

R4 Fire Water to be on auto mode, preferably to be automatically activated on fire detection.

R5 It will be necessary that all 'Ex' rated electrical apparatus should be provided with adequate Double compression cable glands for termination of cables at terminal boxes.

R6 Adequately cover the unused openings on the terminal boxes to avoid entry of rodents, water and dust to avoid short circuits and fires. It will also be necessary to provide suitable body earthing.

R7 All electrical equipment located in the hazardous areas should have appropriate temperature class and degree of protection.

R8 In absence of any instrumentation provided, it is suggested to provide manual log for temperature of the reactor at periodic intervals (say every 2 hours).

R9 It will be necessary to ensure that all metal items of the system are suitably earthed to eliminate the spark discharges.

R10 Establish the procedure to check the effectiveness of the earthing of fixed metal plant at regular intervals, normally once in month, and following every maintenance, modification or repair.

R11 Provide electrostatic dissipative shoes and hand gloves to all operators working in solvent handling operations where flammable atmosphere is presented.

R12 Product container (and Stainless Steel bucket) should be earthed properly with a resistance to earth less than 10 ohms while in use (While sampling operation).

R13 Ensure that all personnel working in potentially flammable atmosphere are earthed with resistance to earth of less than 1.0×10^8 ohms via electrostatic dissipative foot wear and floor (Floors should be conductive) during powder handling operations (Shuffling, unloading, etc.).

R14 Thermal decomposition scenarios are not covered under relief design, the same needs to be updated for all tanks with these potential hazards.

9 REFERENCES

1. Data, as provided by Vishaka Solvents Ltd for the site and its operations.
2. SOP for process operations.
3. Weather data for the site location.
4. NFPA 77 (2007) – Recommended Practice on Static Electricity, National Fire Protection Association
5. BS EN 1127-1:1998 – Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology
6. Prevention of Fires and Explosions in Dryers-John Abbott- Second Edition.
7. NFPA 69 – Standard on Explosion Prevention Systems, 2002 Edition
8. Material safety data sheets of chemicals provided by Vishaka Solvents Limited.

APPENDIX A – LEGAL DISCLAIMER

a. Limitation of Liability. The consulting services conducted by FET Solutions (Pvt.) Ltd. (the "Company") were performed using generally accepted guidelines, standards, and/or practices, which the Company considers reliable. Although the Company performed its consulting services pursuant to reliable and generally accepted practices in the industry, the Company does not guarantee or provide any representations or warranties with respect to Client's use, interpretation or application of the findings, conclusions, and/or suggestions of the consulting services provided by the Company. Moreover, the findings, conclusions, and the suggestions resulting from the consulting service are based upon certain assumptions, information, documents, and procedures provided by the Customer. AS SUCH, IN NO EVENT AND UNDER NO CIRCUMSTANCE SHALL THE COMPANY BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE OR CONSEQUENTIAL DAMGES OF ANY NATURE WHATSOEVER, INCLUDING WITHOUT LIMITATION, ANY LOST REVENUE OR PROFITS OF THE CUSTOMER OR ITS CUSTOMERS, AGENTS AND DISTRIBUTORS, RESULTING FROM, ARISING OUT OF OR IN CONNECTION WITH, THE SERVICES PROVIDED BY THE COMPANY. The Customer agrees that the Company shall have no liability for damages, which may result from Client's use, interpretation or application of the consulting services provided by the Company.

b. The Company's pricing of the consulting services provided does not contemplate that the Company shall have any liability resulting from its performance of the consulting services, except as otherwise set forth in the Quotation from the Company. Accordingly, the Customer shall indemnify and hold harmless the Company, its shareholders, directors, officers, employees and agents (the "Indemnified Parties") from and against any and all loss, cost, liability and expense, including reasonable attorney's fees and costs, which any of the Indemnified Parties may incur, sustain or be subject to, as a result of any claim, demand, action, investigation or proceeding arising out of or relating to either: (a) the consulting services provided by the Company; or (b) any material, equipment, specifications or safety information (or lack thereof) supplied to the Company (or which should have been supplied to the Company) by Customer and/or any failure of such materials, equipment, specifications and safety information to comply with any federal, state or local law or safety standard.

c. For additional terms and conditions, which apply with respect to the provision of this report, see the Quotation provided by the Company and executed by

Customer. If any terms set forth in the Quotation conflict with the terms set forth herein, the terms set forth herein shall apply.

Annexure R-3 (Colly.)

visakha Solvents Ltd

www.visakhasolvents.com

To

Whom so ever it Concerns

Dear Sir/Madam,

This is to confirm that Mr. Tavva Malleswara Rao aka Maneswara Rao s/o Chinna Appa Rao born on 25/03/1988 has been an employee of Visakha Solvents Ltd from 1/4/2011 until his death on 23/7/2020. He has joined as Fitter/Junior Operator and has been working as Senior Operator at the time of his death.

His qualifications are ITI (Fitter) as represented to us by him at the time of joining. We were also informed that he is pursuing B.Sc (chemistry) through distant education at the time of his death.

Yours sincerely

For Visakha Solvents Ltd

G. Siva

VISAKHA SOLVENTS LTD. JNPC PARAWADA

HR&Admin

OSMANIA UNIVERSITY

PE 269306

CONSOLIDATED MEMORANDUM OF MARKS

45

EXAMINATION: M.SC. (ORGANIC CHEMISTRY)
MAY/JUN, 2015

REF NO. 2464
NAME: MOGILICHARLA MANOJ KUMAR
FATHER'S NAME: MOGILICHARLA RAMAKRISHNA

DATE: 07/09/2015
ROLL NO.: 120213503001

SL. NO.	SUBJECT	U.E. MAX. MARKS	U.E. MARKS SECURED	I.A. MAX. MARKS	I.A. MARKS SECURED	UE+IA MARKS SECURED	YEAR OF PASSING
	I-SEMESTER						
1	INORGANIC CHEMISTRY	80	46	20	16	62	MAY'14
2	ORGANIC CHEMISTRY	80	44	20	17	61	NOV'13
3	PHYSICAL CHEMISTRY	80	37	20	16	53	NOV'13
4	MATH., BIOLOGY & SPECTROSCOPY	80	42	20	18	60	NOV'13
	II-SEMESTER						
1	INORGANIC CHEMISTRY	80	38	20	19	57	MAY'14
2	ORGANIC CHEMISTRY	80	47	20	20	67	MAY'14
3	PHYSICAL CHEMISTRY	80	46	20	19	65	MAY'15
4	COMPUTERS & SPECTROSCOPY	80	54	20	20	74	MAY'14
5	INORGANIC CHEMISTRY (LAB)	100	82	==	==	82	MAY'14
6	ORGANIC CHEMISTRY (LAB)	100	84	==	==	84	MAY'14
7	PHYSICAL CHEMISTRY (LAB)	100	81	==	==	81	MAY'14
	III-SEMESTER						
1	CONFORMATIONAL ANAL. PERICYCLIC REACTION AND ENZYMES	80	36	20	19	55	DEC'14
2	ASYMMETRIC SYNTHESIS & SYNTHE. STRATEGIES & HETEROCYCLICS	80	40	20	20	60	DEC'14
3	MODERN ORGANIC SYNTHESIS	80	43	20	19	62	MAY'15
4	SPECTROSCOPY & PHOTOCHEMISTRY	80	41	20	20	61	MAY'15
	IV-SEMESTER						
1	DRUG DISCOVERY	80	38	20	14	52	MAY'15
2	MECHANISM OF ACTION OF DRUGS	80	32	20	15	47	MAY'15
3	ADVANCED HETEROCYCLIC CHEM.	80	32	20	15	47	MAY'15
4	ADVANCED NATURAL PRODUCTS	80	38	20	14	52	MAY'15
5	SEPARATION & IDENTIFICAT. OF ORGANIC COMPOUNDS (PR)	75	56	==	==	56	MAY'15
6	SPECTROSCOPIC IDENTIFICAT. OF ORG. COMP. & CHROMATOGRAPHY (PR)	75	57	==	==	57	MAY'15
7	SYNTHESIS OF ORG. MOLECULES & ISOLATION OF NATURAL PROD. (PR)	75	55	==	==	55	MAY'15
8	SYNTHESIS & ANAL. OF DRUGS (PR)	75	55	==	==	55	MAY'15

TOTAL MARKS Secured in words: *ONE*FOUR*ZERO*FIVE*

TOTAL MARKS IN FIGURES: 2200 1405

RESULT: FIRST DIVISION

SECTION INCHARGE

CONTROLLER OF EXAMINATIONS

46

M.Manoj Kumar
Aswaraopeta,
Bhadradrikothagudem,
Pin - 507301.

PHONE: 8555886346
GMAIL: m.manu345@gmail.com

Career Objective

To build a career in an environment which involves team work, commitment, dedication while being resourceful, innovative and flexible and scope for proving myself and to be a part of the team that dynamically works towards the growth of organization and gain customer satisfaction

Work experience

- I have a One year (From Sep'2017 to Sep'2018) working experience as a Chemist in "Nifty laboratories" Kondapalli, Vijayawada. In Quality Control department.
- I have a One year (From Sep'2018 to Sep'2019) working experience as a Chemist in "KRS Pharmaceuticals Pvt Ltd" Parawada, Lankelapalem, Gajuwaka, Vizag. In Quality Control department.
- I have a 10 months (From Nov'2019 to Aug'2020) working experience as a Chemist in "Visakha Solvens Pvt Ltd" Parawada, Lankelapalem, Gajuwaka, Vizag. In Quality Control department.

I am responsible for following activities

- To Take Sampling and Control Sample packing
- I handling GC and HPLC
- Co-ordinate with production, warehouse , quality Issuance
- To Preparing COA'S
- Coordinating with team members for Achieving quality requirements
- Good knowledge about temperature sensitive products for saleable APIs.

Academics

- M.sc (organic chemistry) in Sri Sarada P.G College, Osmania University (2013-2015) with an aggregate of 70%.
- (B.SC) specializing in Computer Science and Chemistry from v.k.d.v.s.raju Degree college, Kakatiya University, Aswaraopeta, Khammam, graduated in April 2013 with an aggregate of 65%.
- Board of Intermediate (M.P.C) from v.k.d.v.s .Raju junior college, Aswraopeta, Khammam (2008-2010) with an aggregate of 60%.
- Board of Secondary Education (SSC) from Z.P.H.S School, Aswarao peta, Khammam. (2007-2008)with 51%

Technical Skills

- Other packages : MS Office,

Strengths

- Self-motivation
- Adaptability
- Quick learner
- Good team player

Personal Profile

- **Father's Name** : M.Ramakrishna
- **Languages Known** : English & Telugu
- **Sex** : male
- **Nationality** : Indian
- **Marital Status** : Unmarried
- **Hobbies** : reading books, Listening music.

Declaration:

I hereby declare that the above-mentioned information is correct to the best of my knowledge and I bear responsibility for the correctness of the above-mentioned particulars.

Place: Visakhapatnam.
Date:

Your'sfaithfully
M.MANOJ KUMAR

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari Street, Kasturibaipet, Vijayawada – 520010.

Website :www.appcb.ap.nic.in

CONSENT ORDER FOR ESTABLISHMENT

Order No. 03 /PCB/CFE/RO-VSP/HO/Pharma/2009 **Dt: 14.06.2018**

Sub: APPCB – CFE - **M/s. Visakha Solvents Ltd., Plot No.84 A, JN Pharmacity, Parawada, Visakhapatnam** - Consent for Establishment of the Board for **expansion** under Sec.25 of Water (P & C of P) Act, 1974 and Under Sec.21 of Air (P&C of P) Act, 1981 - Issued - Reg.

Ref:
1) Industry's CFE application received through APOCMMS on 18.05.2018.
2) R.O's inspection report dt. 25.05.2018.
3) CFE Committee meeting held on 14.06.2018.
4) Industry's lr. submitted on 14.06.2018.

1. In the reference 1st cited, an application was submitted to the Board seeking Consent for Establishment (CFE) for **expansion** to produce the following products with installed capacities as mentioned below, with an additional project cost of Rs. 0.75 Crore.

Name of the Products	As per CFE (EXP) order dt. 18.06.2013	Expansion	After expansion
Recovered solvents from Spent solvents / mixed solvents and Distilled Solvents / Paint Thinner	25 KLD	25 KLD	50 KLD

2. As per the application, the above activity is to be located in the existing premises at Plot No.84 A, JN Pharmacity, Parawada, Visakhapatnam in an area of 0.66 acre.

3. The above site was inspected by the Environmental Engineer & Asst. Environmental Engineer-I, Regional Office, Visakhapatnam A.P Pollution Control Board on 22.05.2018 and observed that the site is surrounded by

North : H.T. Line

South : Road followed by CETP

East : Road followed by CETP

West : Road followed by CETP

4. The Board, after careful scrutiny of the application, verification report of Regional Officer and recommendations of the CFE Committee, hereby issues **CONSENT FOR ESTABLISHMENT FOR EXPANSION** to the activity under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. **This order is issued to manufacture the products as mentioned at para (1) only.**

5. This Consent order issued is subject to the conditions mentioned in the Annexure.

6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

7. **This order is valid for period of 7 years from the date of issue.**

Encl: Annexure

Bandla Siva Sankar Prasad

Digitally signed by Bandla Siva Sankar Prasad
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Date: 2018.06.15 11:28:47 +05'30'

MEMBER SECRETARY

To

M/s. Visakha Solvents Ltd.,
CETP premises,
Jawaharlal Nehru Pharma City,
Parawada, Visakhapatnam District.
chandra.deva@gmail.com

Copy to: 1. The JCEE, Z.O: Visakhapatnam for information and necessary action.
2. The EE, R.O: Visakhapatnam for information and necessary action.

Annexure

1. The proponent shall obtain Consent for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sec. 21/22 of the Air (P&C of P) Act, 1981, authorization for handling of Hazardous waste and other wastes as per Hazardous waste and other wastes (Management and Transboundary Movement) Rules, 2016, before commencement of the expansion.

2. The industry shall construct separate storm water drains and provide rain water harvesting structures. No effluents shall be discharged in to the storm water drains.

Water:

3. The source of water is JNPC, Parawada and the maximum permitted water consumption is as following:

S. No.	Purpose	As per CFE (EXP) order dt. 18.06.2013 (KLD)	Expansion (KLD)	After expansion (KLD)
1.	Industrial cooling.	15.00	10.00	25.00
2.	Domestic and Gardening purposes.	3.00	3.00	6.00
3.	Processing, whereby water gets polluted and pollutants are easily bio- degradable.	---	---	---
4.	Processing, whereby water gets polluted and the pollutants are not easily bio-degradable.	2.00	1.00	3.00
	Total	**20.00**	**14.00**	**34.00**

Note: The domestic waste water is reduced. Steam is drawn from CETP boiler as such boiler blow down is deleted. The water generated during separation of solvents is shown as process water.

4. Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned above.

5. The maximum waste water generation shall not exceed the following:

S No	Source	As per CFE (EXP) order dt. 18.06.2013	Expansion	Total after expansion		
				HTDS	LTDS	Total
		Quantity in KLD				
1	Process water	2.00	3.00	2.50	2.50	5.0
2	Washings	2.00	1.00	0	3.00	3.0
3	Cooling towers	2.00	2.00	0	4.00	4.0
4	Domestic	2.00	1.00	0	3.00	3.0
	Total	**8.00**	**7.00**	**2.50**	**12.50**	**15.0**

Note: The domestic waste water is reduced. Steam is drawn from CETP boiler as such boiler blow down is deleted. The water generated during separation of solvents is shown as process water.

ETP Details & Mode of Disposal:

After expansion:

The industry shall construct 2 Nos of 25 KL tanks for HTDS & LTDS and the existing tanks shall be used for storage of Water.

Source	Treatment	Mode of final disposal
HTDS-Process	Above ground Collection Tank – 10 KL, Neutralization and settling –25 KL below ground tank	To CETP of Pharmacity
LTDS- Process, Washings, Cooling tower blow down	Above ground Collection Tank – 10 KL, Neutralization and settling –25 KL below ground tank	To CETP of Pharmacity
Domestic waste water	Septic tank	The over flow of septic tank shall be sent to the CETP of JN Pharmacity.

6. Effluents shall not be discharged on land or into any water bodies or aquifers under any circumstances.

7. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. All pipe valves, sewers, drains shall be leak proof.

Air:

8. The distillation columns consist of 2 nos. of MS columns and 8 nos. of SS columns with 18 m height.

9. The Air pollution Control equipment shall be installed along with the commissioning of the activity and shall comply with the following for controlling air pollution.

Existing & Proposed:

Source of Pollution	Control equipment provided	Stack height in m - above GL
1 X 200 KVA DG Set	Acoustic enclosures	5.0 m

10. A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.

11. The industry shall provide VOC monitoring system with auto recording facility.

12. The industry shall implement adequate measures to control all fugitive emissions from the plant.

13. The proponent shall ensure compliance of the National Ambient Air quality standards notified by MoEF, GoI vide notification No. GSR. 826 (E), dated. 16.11.2009 during construction and

14. The evaporation losses in solvents shall be controlled by taking the following measures:

i) Chilled brine circulation shall be carried out to effectively reduce the solvent losses into the atmosphere.
ii) Transfer of solvents shall be done by using pumps instead of manual handling.
iii) Closed centrifuges shall be used to reduce solvent losses.
iv) All the solvent storage tanks shall be connected with vent condensers to prevent solvent vapours.
v) The reactor vents shall be connected with primary & secondary condensers to prevent escaping of solvent vapour emissions into atmosphere.
vi) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.

Solid Waste:

15. The industry shall comply with the following for disposal of Solid wastes:

Sl. No.	Name of the Waste	Consented quantity	Qty. After expansion	Disposal option
1.	Process residue Distillation Residue	1000 Kg/day	2000 Kg/day	TSDF, Parawada for Incineration.
2.	Waste Oil	---	10 LPA	Authorized agencies

16. The proponent shall place the solvent / chemical drums and / or any drums in a shed provided with concrete platform only. The Platform shall be provided with sufficient dyke wall and effluent collection system. The industry shall provide containers detoxification facility. Container & Container liners shall be detoxified at the specified covered platform with dyke walls and the wash wastewater shall be routed to process and washing effluent collection tank.

17. The following rules and regulations notified by the MoE&F, GoI shall be implemented.

a) Hazardous waste and other wastes (Management and Transboundary Movement) Rules, 2016.

b) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.

c) Batteries (Management & Handling) Rules, 2010.

d) E-Waste (Management) Rules, 2016.

e) Construction and Demolition waste Management Rules, 2016.

Other Conditions:

18. Green belt shall be developed all along the boundary & vacant spaces with tall growing trees with good canopy and it shall not be less than 33% of the total area.

19. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order attracts action under the provisions of relevant pollution control Acts.

20. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec. 27(2) of Water (Prevention and Control of Pollution)

21. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules,1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution)Act,1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

Bandla Siva Sankar Prasad

Digitally signed by Bandla Siva Sankar Prasad
DN: c=IN, o=APPCB, ou=EFS and T Head Office, cn=Bandla Siva Sankar Prasad, postalCode=520010, 2.5.4.20=c040c01bf7f6f398976702e0cdb9b479454f18c98b21c03bc47f7349d6555b35, st=Andhra Pradesh
Date: 2018.06.15 11:29:12 +05'30'

MEMBER SECRETARY

To

M/s. Visakha Solvents Ltd.,
CETP premises,
Jawaharlal Nehru Pharma City,
Parawada, Visakhapatnam District.
chandra.deva@gmail.com

Date of Reg
19-4-11

"FORM NO. 4

PRESCRIBED UNDER RULE 4 (4)

LICENCE TO WORK A FACTORY

Licence Number	:	44646
Registration Number	:	104032
Full Name of Factory	:	VISAKHA SOLVENTS LTD
Full Address/location of factory	:	PLOT NO 84-A, CETP PREMISES JNPC VISAKHAPATNAM
Full Postal address for communications relating to the factory	:	– do –
Maximum horse power installed regular / standby	:	140 HP
Maximum number of workers to be employed	:	50 workers
Full name, father's name, age & residential address of the occupier and his position in the company/firm/Government factory/local fund factory	:	Sandadi Surender Reddy, S/o S Ramachandra Reddy, MD, PLOT NO 84-A JNPC Visakhapatnam

Licence is hereby granted to the factory at 3 above for the premises stated at 4 above for use as a factory within the limits stated in 6 and 7 above subject to the provisions of the Factories Act, 1948 and the rules made thereunder.

This Licence shall be valid until it has been duly cancelled.

Inspector of Factories

Date : 18-8-2011

JOINT CHIEF INSPECTOR OF FACTORIES
VISAKHAPATNAM

18/8/11

"ENDORSEMENTS"

Government of Andhra Pradesh

A.P. State Disaster Response and Fire Services Department **55**

Annual Periodical Renewal Fire Certificate

From:
Director
State Disaster Response & Fire Services
Andhra Pradesh, Vijayawada.

To:
District Industrial Center,
Visakhapatnam

File No: 6932/VSP/MSB/2019, Date:04/04/2019
Occupancy NoC RC Number: 2390/VSP/MSB/2018

Sub: Andhra Pradesh State Disaster Response and Fire Services Department - Annual Periodical Fire Certificate to the constructed Multi Storeyed Building of **Visakha Solvents Limited, represented by Owner, Plot No.84A, CETTP Premises, JNPC, Parawada, Visakhapatnam** - Regarding.

Ref:
1. G.O.Ms.NO.71 Home (Prisons-A) Department, Dated.01-04-2010 & G.O.Ms.NO.140 Home(Prison & Fire Services) Department, Dt.04-09-2015.
2. This Office Delegation of Powers Rc.No.3350/Audit/NOC/2012, Dated.09-03-2017.
3. This Office NOC for Occupancy Rc No. 2390/VSP/MSB/2018, Dt.16/03/2015
4. Renewal NOC For Occupancy 2390/VSP/MSB/2018, Dt.16/03/2018
5. Online Application for Renewal NOC of Owner, Plot No.84A, CETTP Premises, JNPC, Parawada, Visakhapatnam - Inspection report called for Regarding.
6. Online Inspection Report submitted by Officers of this Department on 01/04/2019.

<< 0 >>

The Management of Visakha Solvents Limited, represented by Owner, Plot No.84A, CETTP Premises, JNPC, Parawada, Visakhapatnam has requested to issue Annual Periodical Fire Certificate for period 2017-2018 duly remitting the Fire Precautionary fee for Rs.9778/- vide challan No. 21144623332018,21144623332018, Dated 11/03/2019 at SBI, Visakhapatnam.

M/s Visakha Solvents Limited With allied (02) Blocks

1. This certificate is being issued as per G.O.Ms.No 140 Home (prisons & Fire Services) Department, Dt: 04.09.2015.

2. The No Objection Certificate for Occupancy was issued vide reference cited (3) and the Management has also obtained Annual Periodical Renewal Fire Certificate for vide reference 4th cited to the constructed Multi Storeyed Building.

3. The Officers of the department have recommended to issue The Annual Periodical Renewal Fire Certificate **Owner Plot No.84A, CETTP Premises, JNPC, Parawada, Visakhapatnam**, subject to the following conditions.

Sl	As Builder	As Occupant	As Security Personnel
1	All the fire protection arrangements shall be maintained in good condition as seen during inspection.	All the escape/exit routes shall not be kept locked/blocked or encroached	All the occupants must know the correct method of operation of the fire fighting system installed.

2	Any loss of life or property due to non-functioning of fire safety measures and other installations shall be the responsibilities of the management.	All occupants shall be trained to operate the fire safety equipments during emergency.	Mock drills should be conducted once in 3 months for initial two years. Thereafter, once in every 6 months.
3	Addition / alteration, if any in the building may be verified by building authority.	Mock drills should be conducted once in 3 months for initial two years. Thereafter, once in every 6 months.	All security personnel shall be trained to operate the fire safety equipments during emergency.
4	This is Only for Fire Safety Point of View.	Raise the alarm if the fire cannot be controlled; Evacuate the area completely at once with nearest safe exit.	Attack the fire using available fire equipment only if you feel capable of controlling. If not, take all steps to isolate the area by closing doors and windows.

4. This Annual Periodical Renewal Fire Certificate is valid from 16/03/2019 to 15/03/2020.

5. The Responsibility/liability of the owner/occupier or both to maintain Fire safety measures in good condition in all times, in accordance with AP Fire safety Act 1999 and Rules, 2006.

The following deficiencies are identified by the officers of the department and needs to be attended to by the management.

1. On basing on the report the DFO, Visakhapatnam, has recommended, hence the renewal NOC is issued.

6932/VSP/MSB/2019

Your Sincerely,

4/4/2019

Director
State Disaster Response & Fire Services
Andhra Pradesh, Vijayawada.

Copy to Owner, Plot NO.84A, CETP Premises, JNPC, Parawada, Visakhapatnam
Copy to Chief Office for Record Purpose
Copy to Regional Fire Officer Concerned
Copy to District Fire Officer Concerned
Copy to Assistant District Fire Officer Concerned

PROVIDENT FUND CODE NUMBER INTIMATION

No : 4159287631VSP

Date : 13/08/2014

To

S SURENDER REDDY
DIRECTOR
VISAKHA SOLVENTS LIMITED
CETP PREMISES, JNPC
VISAKHAPATNAM VISAKHAPATNAM
ANDHRA PRADESH - 531021

Sub: Allotment of Code Number to establishment M/s VISAKHA SOLVENTS LIMITED under Employees' Provident Fund and Miscellaneous Provisions Act, 1952-regarding.

Sir/Madam ,

Based on the information submitted online by you, your establishment is registered with Employees' Provident Fund Organisation with the following code number :

Code Number : GRVSP0070390000

This code number is allotted based on the following declarations by you:

1. Name of Establishment	:	VISAKHA SOLVENTS LIMITED
2. PAN of Establishment	:	AADCV0069J
3. Date on which employment strength crossed 19	:	-
4. Section under which	:	0000001(4)
5. Primary Activity	:	OTHERS
6. Ownership Type	:	Private Limited Company
7. The address proof of the establishment is	:	- Copy of bank passbook/statement - Copy of post paid telephone bill of any company - Copy of power connection in the name of the - Copy of water connection in the name of the - Any license/certificate/number issued by any Govt.

8. The proof of date of set up 20/01/2011 is 0

9. As at the time of application, your establishment is having the following licenses and registrations:

10. As on date of your application, your establishment is registered with ESIC having Code 70000352100000304.

11. As on date of your application, your establishment is not having LIN.

SUB REGIONAL OFFICE
VISHAKAPATNAM
CETP PREMISES, JNPC 531021
subbachandra@ramky.com

Please note that this intimation letter is generated with the Owners' Details in Form 5A and the intimated letter will be valid only if the Form 5A is enclosed.

Important information:

1. By virtue of this registration, you are required to comply with the provision of the EPF & MP Act 1952. The obligations/duties/responsibilities cast upon you as an employer of this establishment and penalties, on account of non-compliance with the same, are explained on our website **www.epfindia.gov.in**. You are required to go through them carefully.

2. Remittance of dues under the provisions of the Act is to be made only through a Challan generated through the Unified portal. (The process for registration on the portal, preparation of the ECR txt file and related information is available on the website and the portal).

3. In case this letter is produced as a proof of the code number of the establishment, before any person including any Inspector from EPFO, the Form 5A generated through the portal at the time of registration should be a part of this letter. The remittance details of the establishment will be available on the EPFO website through the link "Establishment Search" where all payments from December 2016 onwards with the names of employees are available.

4. Please quote the Code Number GRVSP0070390000 for all the future correspondence with EPFO.

This is a system generated letter and needs no signature.

Employees' Provident Fund Organisation

Dated: 13/08/2014

सत्यमेव जयते

Government of India

Form GST REG-06

[See Rule 10(1)]

Registration Certificate

Registration Number :37AADCV0069J1Z5

1.	**Legal Name**	VISAKHA SOLVENTS LIMITED			
2.	**Trade Name, if any**	VISAKHA SOLVENTS LIMITED			
3.	**Constitution of Business**	Public Limited Company			
4.	**Address of Principal Place of Business**	Plot no 84A and 84B, CETP Premises, Road No 20, JNPC Parawada, Visakhapatnam, Andhra Pradesh, 531021			
5.	**Date of Liability**	01/07/2017			
6.	**Period of Validity**	From	01/07/2017	To	NA
7.	**Type of Registration**	Regular			
8.	**Particulars of Approving Authority**				
Signature					

Name	
Designation	
Jurisdictional Office	
9. Date of issue of Certificate	21/09/2017

Note: The registration certificate is required to be prominently displayed at all places of business in the State.

This is a system generated digitally signed Registration Certificate issued based on the deemed approval of the application for registration

सत्यमेव जयते

GSTIN	37AADCV0069J1Z5
Legal Name	VISAKHA SOLVENTS LIMITED
Trade Name, if any	VISAKHA SOLVENTS LIMITED

Details of Additional Places of Business

Total Number of Additional Places of Business in the State	0

सत्यमेव जयते

GSTIN	37AADCV0069J1Z5
Legal Name	VISAKHA SOLVENTS LIMITED
Trade Name, if any	VISAKHA SOLVENTS LIMITED

Details of Managing / Whole-time Directors and Key Managerial Persons

1		Name	Surender Reddy Sandadi
		Designation/Status	Director
		Resident of State	Telangana
2		Name	SUDHAKAR REDDY GADE
		Designation/Status	director
		Resident of State	Telangana

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari Street, Kasturibaipet, Vijayawada - 520 010
Phone. No.0866-2463200, Website : www.appcb.ap.nic.in

Member Secretary

RED CATEGORY
CONSENT & AUTHORISATION ORDER

Consent Order No : APPCB/VSP/VSP/3/CFO/HO/2018- 29/08/2018

CONSENT is hereby granted for Operation under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (hereinafter referred to as 'the Acts', `the Rules') to:

M/s. Visakha Solvents Ltd.,
(Expansion)
Plot No.84 A, JNPC
Parawada,
Visakhapatnam - 531 021
E Mail: visakhasolvents@gmail.com

(hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below.

i. Out lets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge KLD	Point of Disposal
1.	Process Effluents Process - 3.0 KLD + Washings - 1.0 KLD + Cooling towers - 2.0 KLD	6.0	To the CETP of Pharmacity for treatment and disposal.
2.	Domestic Effluents	1.0	To the CETP of Pharmacity.

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow
1.	Attached to 1x200 KVA DG Set	--

The industry shall use Steam requirement of the Solvent Recovery unit shall be met from Boiler of CETP. No separate boiler shall install for solvent recovery unit.

ii) HAZARDOUS WASTE AUTHORISATION (FORM - II) [See Rule 6 (2)]

M/s. Visakha Solvents Ltd., CETP Premises, Jawaharlal Nehru Pharma City, Parawada, Visakhapatnam District., is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

S. No.	Name of the hazardous waste	Stream	Quantity	Disposal Option
1.	Process residue Distillation Residue	28.5 of Schedule – I	1000 Kg/day	TSDF, Parawada, Visakhapatnam District for incineration/ cement units for co-processing.
2.	Waste Oil	5.1 of Schedule – 1	10 LPA	Authorized agencies

This consent order is valid to manufacture the following products along with quantities only.

S.No	Product	Quantity
1.	Recovered solvents from Spent solvents / mixed solvents and Distilled Solvents / Paint Thinner	**25 KLD**

This order is subject to the provisions of `the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorisation shall be valid for a period ending with the **31st day of July, 2023.**

VIVEK YADAV IAS
MEMBER SECRETARY

To
M/s. Visakha Solvents Ltd.,
(Expansion)
Plot No.84 A, JNPC
Parawada,
Visakhapatnam - 531 021

Copy To:

1. The JCEE, Zonal Office, **Visakhapatnam** for information and necessary action.
2. The JCEE, Unit-II, APPCB **Vijayawada** for information.
3. The Environmental Engineer, Regional Office, **Visakhapatnam** for information and necessary action.

S C H E D U L E - A

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards

stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.

2. The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
4. The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.
5. Not withstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
6. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
7. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under H&OW (M&TM) Rules, 2016 at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
8. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.

S C H E D U L E - B

Special Conditions

WATER POLLUTION:

1. The LTDS effluents sent to CETP, Pharmacity shall not contain constituents in excess of the tolerance limits mentioned below, as per their MoU with M/s Ramky Pharma City.

Outlet	Parameter	Concentration in mg/l
1.	pH	6.50 – 8.50
	Temperature ^{o}C	< 45^{0}C
	TDS	12,000 mg/l
	TSS	600 mg/l
	BOD	3,000 mg/l
	COD	8,000 mg/l

	Oil and Grease	20 mg/l
	Chromium Hexavalent (as Cr+6)	2 mg/l
	Chromium (total) (as Cr)	2 mg/l
	Ammonical Nitrogen (as N)	30 mg/l
	Cyanide (as CN)	0.20 mg/l
	Lead (as Pb)	1 mg/l
	Nickel (as Ni)	3 mg/l
	Zinc (as Zn)	15 mg/l
	Arsenic (as As)	0.20 mg/l
	Mercury (as Hg)	0.01 mg/l

2. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S.No.	Purpose	Quantity
1.	Washings	1.0 KLD
2.	Cooling towers	10.0 KLD
3.	Domestic	2.0 KLD
4	Green belt	1.0 KLD
	Total	**14.0 KLD**

3. Effluents shall not be discharged on land or into any water bodies or aquifers under any circumstances. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. All pipe valves, sewers, drains shall be leak proof.
4. The industry shall provide proper lining to the collection tanks to prevent seepage of effluents.

AIR POLLUTION:

5. **The industry shall provide and maintain online VOC analyser with recording facility within 1 month.**
6. The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10 □m) - 100 □g/ m3; PM2.5(Particulate Matter size less than 2.5 □m) - 60 □g/ m3; SO2 - 80 □g/ m3; NOx - 80 □g/m3, outside the factory premises at the periphery of the industry.

   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

   Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)

   Night time (10 PM to 6 AM) - 70 dB (A).

7. The industry shall not cause any air pollution / odour nuisance in the surrounding environment.

GENERAL:

8. **The industry shall take all necessary safety measures while handling solvents and solvent residues.**
9. The industry shall not increase the capacity beyond the permitted capacity mentioned in this order, without obtaining CFE & CFO of the Board.
10. The industry shall maintain & submit manifest copies of the solvents received on a monthly basis to the A.P. Pollution Control Board.
11. Sale details of the distilled solvent shall also be submitted to the A.P. Pollution Control Board regularly on a monthly basis.

12. The industry shall submit the inventory of the solvent to the Board regularly on a monthly basis.
13. The industry shall place the solvent / chemical drums and / or any drums in a shed provided with concrete platform only. The Platform shall be provided with sufficient dyke wall and effluent collection system. The industry shall provide containers detoxification facility. Container & Container liners shall be detoxified at the specified covered platform with dyke walls and the wash wastewater shall be routed to process and washing effluent collection tank.
14. Green belt shall be developed all along the boundary & vacant spaces with tall growing trees with good canopy and it shall not be less than 33% of the total area.
15. The industry shall not carry out any other activity except for the recovery of spent solvents as submitted in CFO.
16. The industry shall comply with the conditions stipulated in the CFE (Expansion) order dated 14.06.2018.
17. The industry shall store the chemical drums under the shed.
18. The industry shall maintain good house keeping within the plant premises.
19. The industry shall take the following measures to prevent solvent losses:

i. Solvent handling pump shall have mechanical seals to prevent leakages.
ii. The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery.
iii. Solvent shall be stored in a separate space specified with all safety measures.
iv. Proper earthling shall be provided in all the electrical equipment wherever solvent handling is done.
v. Entire plant shall be flame proof. The solvent storage tanks shall be provided condenser to prevent solvent loss.

S C H E D U L E - C

[see rule 6(2)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. All the rules and regulations notified by Ministry of Environment and Forests, Government of India under the E(P) Act, 1986 in respect of management, handling, transportation and storage of the Hazardous wastes should be followed.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 and amendments thereof.
3. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.
4. The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
5. The industry shall maintain proper records for Hazardous & other wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 6 (5) of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 and amendments thereof.
6. The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule A, B & C of this Order on half yearly basis to Board Office,

Vijayawada and concerned Regional Office.

VIVEK YADAV IAS
MEMBER SECRETARY

To

M/s. Visakha Solvents Ltd.,
(Expansion)
Plot No.84 A, JNPC
Parawada,
Visakhapatnam – 531 021


Reactor pressure
Relief valve at the
Time of
Installation


Reactor Pressure Relief Valve
REDMI NOTE 5 PRO
MI DUAL CAMERA


Rupture Disk
REDMI NOTE 5 PRO
MI DUAL CAMERA


Dump tank

AN ISO 9001-2015 CERTIFIED

SRI CALIBRATION SERVICES

(AN ISO 9001-2015 CERTIFIED)

12-10-336/4/3/1, Seetaphalmandi, Secunderabad - 500061, Telangana.

"BE ACCURATE & BE SAFE"

SAFETY RELIEF VALVE TEST CERTIFICATE

Report No.: SCS/SRV/2020070106
Location : SSR-101

1. Name of occupier of Factory	: **M/S. Visakha Solvents Limited.**
2. Situation & Address of Factory	: Jawaharlal Nehru Pharma City, Parawada, Visakhapatnam.
3. Name, Description and Distinctive Number of Safety Relief valve	: Safety Relief Valve (SRV/101/01)
4. Nature of Process for which it is used	: As a Pressure Relief Device
5. Design Pressure	: 7.0 Kg/cm^2
6. Set Pressure	: 2.5 Kg/cm^2
7. Test pressure	: 2.49 Kg/cm^2
8. Master Gauge used for testing	: -1 to 30 Bar (Certificate No: SCS/L-346/2020/DCG-02)
9. What Examination and tests Were made	: Through Visual Inspection & Hydraulic Pressure test Carried Out
10. Condition of Safety Relief valve External & Internal	: The Condition of the Safety Valve Are Found Satisfactory, Mechanically Both external and internal without any defects.
11. Other observations	: The Safety Relief Valve is found to be Satisfactory for use.

I certify that on 01-07-2020 the Safety valve described above was thoroughly cleaned and made for through examination and that on the said date, I thoroughly examined this safety valve and the above is a true report of my examination.

Valid up to: 30-06-2021

Calibrated by

Approved by

SRI CALIBRATION SERVICES AN ISO 9001-2015 Certified SEC'BAD

AN ISO 9001-2015 CERTIFIED

SRI CALIBRATION SERVICES

(AN ISO 9001-2015 CERTIFIED)

12-10-336/4/3/1, Seetaphalmandi, Secunderabad - 500061, Telangana.

"BE ACCURATE & BE SAFE"

SAFETY RELIEF VALVE TEST CERTIFICATE

Report No.: SCS/SRV/2020070107
Location : SSR-102

1. Name of occupier of Factory	: **M/S. Visakha Solvents Limited.**
2. Situation & Address of Factory	: Jawaharlal Nehru Pharma City, Parawada, Visakhapatnam.
3. Name, Description and Distinctive Number of Safety Relief valve	: Safety Relief Valve (SRV/102/01)
4. Nature of Process for which it is used	: As a Pressure Relief Device
5. Design Pressure	: 7.0 Kg/cm^2
6. Set Pressure	: 2.5 Kg/cm^2
7. Test pressure	: 2.48 Kg/cm^2
8. Master Gauge used for testing	: -1 to 30 Bar (Certificate No: SCS/L-346/2020/DCG-02)
9. What Examination and tests Were made	: Through Visual Inspection & Hydraulic Pressure test Carried Out
10. Condition of Safety Relief valve External & Internal	: The Condition of the Safety Valve Are Found Satisfactory, Mechanically Both external and internal without any defects.
11. Other observations	: The Safety Relief Valve is found to be Satisfactory for use.

I certify that on 01-07-2020 the Safety valve described above was thoroughly cleaned and made for through examination and that on the said date, I thoroughly examined this safety valve and the above is a true report of my examination.

Valid up to: 30-06-2021

Calibrated by

BM

Approved by

SRI CALIBRATION SERVICES AN ISO 9001:2015 Certified SEC'BAD

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(AN ISO 9001-2015 CERTIFIED)

12-10-336/4/3/1, Seetaphalmandi, Secunderabad - 500061, Telangana.

"BE ACCURATE & BE SAFE"

SAFETY RELIEF VALVE TEST CERTIFICATE

Report No.: SCS/SRV/2020070108
Location : SSR-103

1. Name of occupier of Factory	: **M/S. Visakha Solvents Limited.**
2. Situation & Address of Factory	: Jawaharlal Nehru Pharma City, Parawada, Visakhapatnam.
3. Name, Description and Distinctive Number of Safety Relief valve	: Safety Relief Valve (SRV/103/01)
4. Nature of Process for which it is used	: As a Pressure Relief Device
5. Design Pressure	: 7.0 Kg/cm^2
6. Set Pressure	: 2.5 Kg/cm^2
7. Test pressure	: 2.49 Kg/cm^2
8. Master Gauge used for testing	: -1 to 30 Bar (Certificate No: SCS/L-346/2020/DCG-02)
9. What Examination and tests Were made	: Through Visual Inspection & Hydraulic Pressure test Carried Out
10. Condition of Safety Relief valve External & Internal	: The Condition of the Safety Valve Are Found Satisfactory, Mechanically Both external and internal without any defects.
11. Other observations	: The Safety Relief Valve is found to be Satisfactory for use.

I certify that on 01-07-2020 the Safety valve described above was thoroughly cleaned and made for through examination and that on the said date, I thoroughly examined this safety valve and the above is a true report of my examination.

Valid up to: 30-06-2021

Calibrated by

Approved by

SRI CALIBRATION SERVICES AN ISO 9001-2015 Certified SEC'BAD

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(AN ISO 9001-2015 CERTIFIED)

12-10-336/4/3/1, Seetaphalmandi, Secunderabad - 500061, Telangana.

"BE ACCURATE & BE SAFE"

SAFETY RELIEF VALVE TEST CERTIFICATE

Report No.: SCS/SRV/2020070109
Location : SSR-104

1. Name of occupier of Factory	: **M/S. Visakha Solvents Limited.**
2. Situation & Address of Factory	: Jawaharlal Nehru Pharma City, Parawada, Visakhapatnam.
3. Name, Description and Distinctive Number of Safety Relief valve	: Safety Relief Valve (SRV/104/01)
4. Nature of Process for which it is used	: As a Pressure Relief Device
5. Design Pressure	: 7.0 Kg/cm^2
6. Set Pressure	: 2.5 Kg/cm^2
7. Test pressure	: 2.48 Kg/cm^2
8. Master Gauge used for testing	: -1 to 30 Bar (Certificate No: SCS/L-346/2020/DCG-02)
9. What Examination and tests Were made	: Through Visual Inspection & Hydraulic Pressure test Carried Out
10. Condition of Safety Relief valve External & Internal	: The Condition of the Safety Valve Are Found Satisfactory, Mechanically Both external and internal without any defects.
11. Other observations	: The Safety Relief Valve is found to be Satisfactory for use.

I certify that on 01-07-2020 the Safety valve described above was thoroughly cleaned and made for through examination and that on the said date, I thoroughly examined this safety valve and the above is a true report of my examination.

Valid up to: 30-06-2021

Calibrated by

BM

Approved by

SRI CALIBRATION SERVICES AN ISO 9001-2015 Certified SEC'BAD

AN ISO 9001-2015 CERTIFIED

SRI CALIBRATION SERVICES

(AN ISO 9001-2015 CERTIFIED)

12-10-336/4/3/1, Seetaphalmandi, Secunderabad - 500061, Telangana.

"BE ACCURATE & BE SAFE"

SAFETY RELIEF VALVE TEST CERTIFICATE

Report No.: SCS/SRV/2020070110
Location : SSR-105

1. Name of occupier of Factory	: **M/S. Visakha Solvents Limited.**
2. Situation & Address of Factory	: Jawaharlal Nehru Pharma City, Parawada, Visakhapatnam.
3. Name, Description and Distinctive Number of Safety Relief valve	: Safety Relief Valve (SRV/105/01)
4. Nature of Process for which it is used	: As a Pressure Relief Device
5. Design Pressure	: 10.0 Kg/cm^2
6. Set Pressure	: 2.5 Kg/cm^2
7. Test pressure	: 2.47 Kg/cm^2
8. Master Gauge used for testing	: -1 to 30 Bar (Certificate No: SCS/L-346/2020/DCG-02)
9. What Examination and tests Were made	: Through Visual Inspection & Hydraulic Pressure test Carried Out
10. Condition of Safety Relief valve External & Internal	: The Condition of the Safety Valve Are Found Satisfactory, Mechanically Both external and internal without any defects.
11. Other observations	: The Safety Relief Valve is found to be Satisfactory for use.

I certify that on 01-07-2020 the Safety valve described above was thoroughly cleaned and made for through examination and that on the said date, I thoroughly examined this safety valve and the above is a true report of my examination.

Valid up to: 30-06-2021

Calibrated by

BM

Approved by

SRI CALIBRATION SERVICES AN ISO 9001-2015 Certified SEC'BAD

TIN No. : 28625496933 Subject to Hyderabad Jurisdiction Only

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VIGNESH ENGINEERING ENTERPRISES

77

Plot No. 4-2/A/A, Road No.16, IDA Nacharam, Hyderabad - 500 076
Email : vigneshenggenterprises@gmail.com
All Kinds of Engineering Tools, Welding Accessories, Motor, Gear Box, SS, MS Pipes, Plates Fittings & Valves

TAX INVOICE

M/s.
VISAKHA SOLVENTS LIMITED
PLOT NO; 84 A, CETP PREMISES
JNPC - PARVADA
VISAKHAPATNAM 531021
TIN NO; 37625575766

Invoice No. 74 Date : 06/2/2017
No. of Pkg. Transport
To Freight to pay/paid Rs.
R.R./L.R. Challan No. Date :
Order No. VSL/EE/VISHAKHA/PC/073 Date : 02/1/2017

S.No.	DISCRIPTION	Quantity	RATE Rs.	Ps.	PER	Amount Rs.	Ps.
①	Rupter Disc With Holder SS316 With 3kg pressure 50mm	4 NOS	19975	00		79900	00
			CST 2%			1598	00
						81498	00
	CST WAY BILL NO: 3617 0207158 4003						
	ADV CST WAY BILL NO: 3717 0206347 4414						

(Rupees EIGHTY ONE THOUSAND FOUR HUNDRED AND NINETY EIGHT ONLY Only)

TOTAL Rs. 81498/-

E.O.&E

For VIGNESH ENGINEERING ENTERPRISES

Proprietor

TAX INVOICE

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HARINI ENTERPRISES

HARINI ENTERPRISES
2nd FLOOR, H NO 39-24-14/6
NARSIMHA NAGAR, MADHAVADHARA
VISAKHAPATNAM - 530007
GST: 37APJPA6724R1ZC
email : harinienterprises14@gmail.com
PH : 9849555125

Tax Invoice No. : HE/23/2019
Tax Invoice Date : 08.08.2019

Consignee Billing Address:
M/S : VISAKHA SOLVENTS LIMITED
Plot No: 84 A. CETP Premises
Parwada Mandal,
Visakhapatnam - 531021.
GST: 37AADCV069J1Z5

P.O. No. VSL/AS/Viskha /PC/058/19-20
P.O. Date 25.06.2019

D.C. No.
D.C. Date

Consignee Delivery Address:
M/S : VISAKHA SOLVENTS LIMITED
Plot No: 84 A. CETP Premises
Parwada Mandal,
Visakhapatnam - 531021.
GST: 37AADCV069J1Z5

Transport Details :
Carrier Name
Vehicle No. / L.R.No.

S.No.	Description and Specification of goods	HSN/SAC	Unit	Total Quantity of Goods	Rate per Unit	Total Assessable Value Rs.
1	2" Pressure Relief Valve SS 316 Flange Type With with 7kg Pressure.		No	1no	24,000.00	24,000.00

Bank Details
ICICI Bank
Muralinagar Branch, Visakhapatnam
A/C No : 333505500210
IFC Code : ICIC0003335

Total Taxable Value :	24,000.00
Less Discount @	
Total :	
CGST @ 9%	2,160.00
SGST @ 9%	2,160.00
IGST @	
GRAND TOTAL Rs. :	28,320.00

Certified that the particulars given above are true and correct and the amount indicated represents the price actually charged and that there is no other additional consideration directly or indirectly for the buyer.

Total Invoice Value(Inwords) Rupees - Twenty Eight Thousand Three Hundred Twenty Rupees Only

Notes :
1. All Payments to be made only by account payee cheques/DD in favour of Company payable at Visakhapatnam (AP) India
2. Interest will be charged @ 24% p.a. if the payments are not made on or before due date.
3. All disputes are subject to Visakhapatnam, Jurisdiction.

For HARINI ENTERPRISES

Authorised Signatory

Annexure R-6 (Colly.)

Visakha Solvents Limited

FireDrill conducted on 09.04.2019 at beside of the back side of the production block & Storage tank farm front side areas.

Brief description of the drill :

Around 15:30 Hrs conducted the fire drill in the organization as a part of the schedule.

As a part of the fire drill initiate the activity for fire like burn the cloth pieces and dumped in to the cutted MS Drum.

To start the ignite the fire by using the outside source & Immediately production operator start the control the fire by using the fire extinguisher.

Production Incharge was observe the mistakes & Explain the usage of the fire extinguisher in the emergency time.

QC incharege extingushed the fire by using the carbon dioxide fire extingusher.

Security person also trained on the usages of fire extinguisher.

Fire controlled by the usages of the sand bucket by the production senior operators.

After that completation of the fire drill trained on the operation of the fire hydrant system. Operating the water foam monitor in front of the storage tanks.

Visakha Solvents Limited

Emergency Mock Drill conducted on 26.05.2020 in Storage tank form area.

Fire Incident

Brief description of the incident :

Mr. V. Mahesh Babu (Employee Id-1077) around 16:10 hrs. start the solvent pumping from Reactor to receiver during pumping time pump seal started leakage gradually increase the leakage due to static electricity spark generate produce fire in the spillage solvent stagnated area bottom of the pump.

Mr. Mahesh Babu observe the fire & immediately he was stop the activity, shouting fire fire occurred at Production block Ground floor.

Observer immediately inform to the Area in charge Mr.Nanaji(Employee id:1002) & Security person about the incident through the intercom.

Received emergency phone call , Mr. Ravendra security guard in security office and emergency communication given to site controller, emergency coordinator's ,EHS Department & All department peoples through telecom.

Area in charge Mr.Nanaji receive the information & immediately reached the location.

ERT members after getting the information reaching to the incident location ERT members operate the hydrant system.

After getting emergency phone People's are attend the assemble point & ERT Members are start the fire controlling operation.

All department's attend in assemble point after controlling the emergency. After that head count taken by HR department, EHS person explain the mock drill senario to all the employees.

Mock drill observations sharing at assembly point with all department employees.

Observations…

1.Fire hydrant point leakage was observed at near the rotating valve.

2.Emergency Dial telephone not available in the Security gate.

3. ERT members area not check the wind direction before operations the hydrant system

4.Some peoples are lack of knowledge on the fire hydrant system.

After that immediately retraining given to the all the department peoples by site EHS person.

Explain the fire hydrant operation & how to handle the emergency.

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Fire hydrant operation practically done by every employee and contract workmens.

S.No	Observation	Action plan	Target date	Status
1.	Fire hydrant point leakage was observed at near the rotating valve.	Leakages are arrested immediately	26.05.2020	Close
2.	Emergency Dial telephone not available in the Security gate.	Emergency phone will be arrange at the security gate.	30.06.2020	Close
3.	ERT members area not check the wind direction before operations the hydrant system	Training given to all the peoples at assembly point area.	26.05.2020	Close
4	Some peoples are lack of knowledge on the fire hydrant system.	Training given to all the peoples at assembly point area.	26.05.2020	Close