Initial Environmental Examination

Document Stage: Final
Project Number: 48434-003
February 2019

IND: Visakhapatnam Chennai Industrial Corridor Development Program – Naidupeta Economic Zone Subproject – Providing Bulk Water Facility and Summer Storage in Naidupeta Industrial Cluster

Package No: VCICDP/APIIC/04

Prepared by Andhra Pradesh Industrial Infrastructure Corporation Limited, Government of Andhra Pradesh for the Asian Development Bank.

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Naidupeta Economic Zone Subproject – Providing Bulk Water Facility and Summer Storage in Naidupeta Industrial Cluster - VCICDP-04

Prepared for Andhra Pradesh Industrial Infrastructure Corporation Limited

This initial environmental examination is prepared based on available data, detailed design of sub project components and earlier IEE of Tranche 1. Some of the standard content included in the IEE prepared for VCICDP -03 Project has been included appropriately in the present IEE

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CURRENCY EQUIVALENTS
(as of 08 March 2016)

Currency unit	–	Indian rupee (Rs)
Rs1.00	=	$0.0149
$1.00	=	INR66.9940

ABBREVIATIONS

ADB	-	Asian Development Bank
APIIC	-	Andhra Pradesh Industrial and Infrastructure Corporation Limited
BGL	-	Below Ground Level
BOD	-	Biological Oxygen Demand
BIS	-	Bureau of Indian Standard
CPCB	-	Central Pollution Control Board
DO	-	Dissolved Oxygen
DoE	-	Department of Environment
PMC	-	Project Management Consultant
EA	-	Executing Agency
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EMoP	-	Environmental Monitoring Plan
ESO	-	Environmental and Safety Officer
GoAP	-	Government of Andhra Pradesh
GoI	-	Government of India
IEE	-	Initial Environmental Examination
IMD	-	Indian Meteorological Department
IS	-	Indian Standard
MFF	-	Multi Tranche Financial Facility
MoEF	-	Ministry of Environment and Forests
MSL	-	Mean Sea Level
MW	-	Mega Watt
NGO	-	Non - Government Organization
NOx	-	Oxides of Nitrogen
APIIC	-	Project Implementation Unit
RF	-	Reserve Forest
ROW	-	Right of Way
PMSC	-	Project Management and Supervision Consultant
SPCB	-	State Pollution Control Board
SPM	-	Suspended Particulate Matter
SO2	-	Sulphur Dioxide
SSI	-	Small Scale Industries

NOTES

(i) In this report, "$" refers to US dollars.
(ii) “INR” and “Rs” refer to Indian rupees

1 Introduction

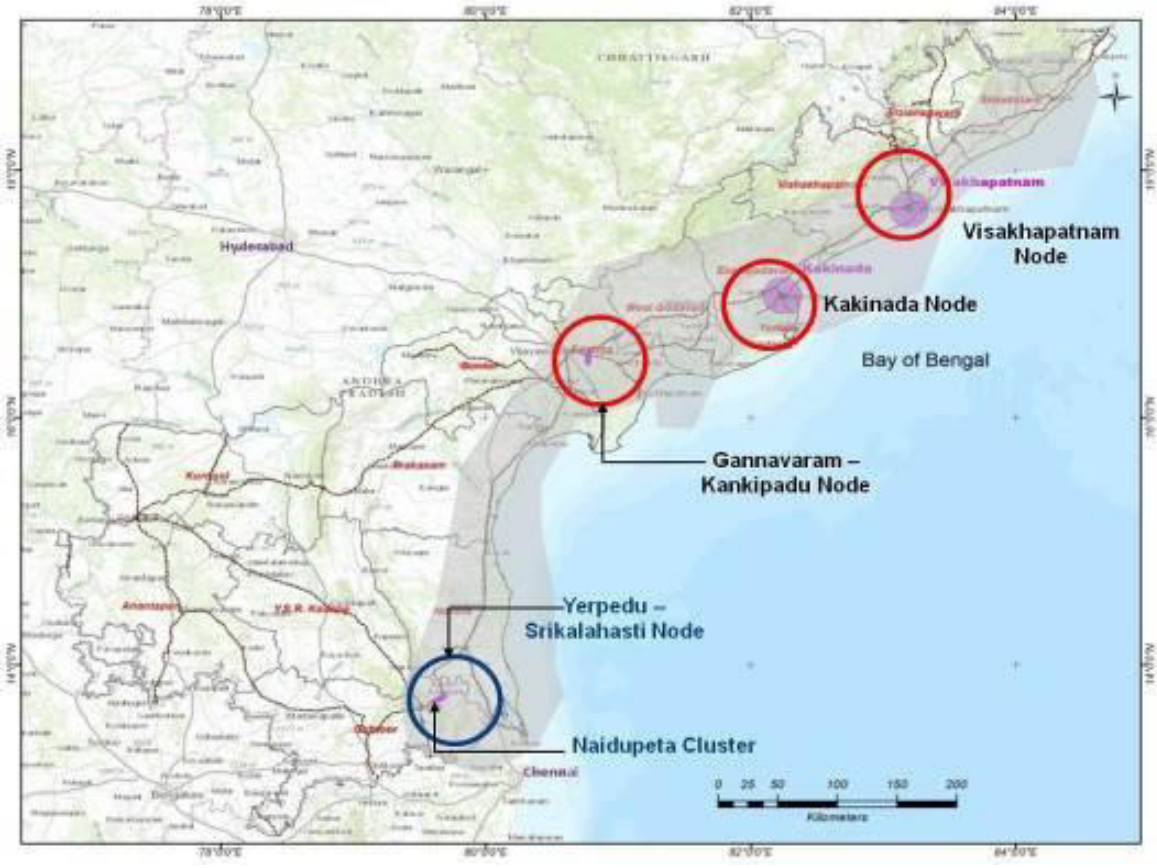
1.1 Preamble

Andhra Pradesh Industrial Infrastructure Corporation Limited (APIIC) a wholly owned undertaking of Government of Andhra Pradesh (GoAP) has a mandate to develop industrial areas across the state. APIIC has developed around 300 Industrial Parks spread over an extent of 121,655 acres and in addition it has also developed sector specific industrial parks and special economic zones at strategic locations across the state.

The proposed project is providing bulk water and summer storage in Naidupeta Industrial Cluster

Naidupeta Cluster Overview: APIIC developed the Naidupeta Cluster comprising of a Multiproduct SEZ (2,549 acres), Naidupeta Industrial Park (1,244 acres) and Attivaram Industrial park (406 acres). Naidupeta Cluster comes under the proposed Vizag – Chennai Industrial Corridor (VCIC) within the Yerpedu – Srikalahasti Node.

Figure 1: Map location of Industrial Clusters and Nodes of Visakhapatnam Chennai Industrial Corridor (VCIC)



In view of the proposed VCIC and the envisaged developments, the demand for industrial land especially from engineering, pharma, textile sectors is expected to increase and in order to cope up with the developments; APIIC is planning to upgrade the infrastructure in these Industrial clusters as per market needs. Naidupeta cluster is located 8 km west `of Naidupeta town in Nellore district of Andhra Pradesh. The cluster comprises of the following estates.

Name of the Estate	Extent (in Acres)
Multiproduct SEZ	2,549
Naidupeta Industrial Park	1,244
Attivaram Industrial Park	406

Table 1-1: Major Industries in Naidupeta Cluster

S. No	Name of the Industry	Type of Industry	Extent (in acres)	Remarks
	Multiproduct SEZ (MPSEZ)			
1	M/s Greentech Industries	Manufacture of automobiles components, automobile engines & machinery	210	In operation
2	M/s Prime Electricals Pvt. Ltd.	Manufacture and export of power transformers	100	In operation
3	M/s Hemair Systems India Ltd.	Clean room technology equipment and HVAC equipment and other accessories	25	In operation
4	M/s Aurobindo Pharma Ltd.	Pharmaceuticals and Formulations	32	Commissioned
	IP Naiduepta			
1	Hindustan National Glass and Industries	Manufacture of Container Glass	200	In operation
2	SKI Carbon Black (India) Pvt Limited	Manufacture of carbon black and power (byproduct)	60	In operation
3	Loyala Textiles Limited	Manufacture of Yarn and Fabric	54	In operation
4	BASF India Pvt Limited	Manufacture of Additive Mixtures	5	In operation
5	Chemsynth Laboratories	Manufacture of Bulk drugs	50	Yet to commence construction
	IP Attivaram			
1	DRA Industries	Manufacture of MS Billets and Construction Steel	100	In operation
2	Nithya Steels and Alloys	Steel Melting and Steel Rolling	20	In operation

1.2 Purpose and objective of the study

The initial environmental assessment study is carried out as a part of the DPR preparation to meet the ADB requirements. The present IEE has been prepared based on the earlier EIA reports, available primary and secondary data prepared for Naidupeta Industrial cluster. The bulk water and summer storage is one of the packages in the APIIC Infrastructure development subprojects under the Tranche 2 of VCICDP prior to initiation of civil works. It has been categorized as **Category 'B'** and hence an initial environmental examination (IEE) has been conducted.

The IEE report covers the general environmental profile of the study area and includes an overview of the potential environmental impacts and their magnitude on physical, ecological, economic, and social and cultural resources within the project's influence area during design, construction, and operation stages. The report also includes an EMP that includes the mitigation measures that are required to be followed during the construction and operation

phase of the project followed by environment monitoring program along with details of entities that are responsible for implementing the mitigation measures and environmental monitoring

1.3 Extent of the IEE study

This IEE report has been prepared on the basis ofDPR, field investigations and surveys, stakeholder consultations and meetings to meet the requirements for environmental assessment process and documentation as per ADB's Safeguard Policy Statement (SPS, 2009) and based on detailed design of the components of the subproject. The extent of the IEE was decided considering all likely impacts and risks analysed in the context of the project's area of influence encompassing:

(i) The primary project site(s) and related facilities like site clearance, laying of pipeline, construction of summer storage tank. (ii) Associated facilities project viz. management and handling, disposal of debris, construction camp etc. (iii) areas and communities potentially affected by cumulative impacts, and (iv) potential impact from unplanned but predictable developments caused by the project that may occur at later stage or at a different location.

The proposed subproject includes the following components.

S.No	Project Component
1	Head Works
	Off-take structure
	Gravity main – 600mm DI Class K7
	Raw water sump – 1000 KL
	Pump House – 12x10m RCC structure
2	Pumping main – 21 KM
3	Summer Storage Tank – 1000 ML
	Pump House – 12x10m RCC structure
	Pumping main – 600mm DI Class K7
4	Water Treatment Plant – 10MLD capacity
5	Transmission Main
	Clear Water Sump – 1000 KL
	Pump House – 12x10m RCC structure
	Feeder Main to ELSR
	Transformer
6	Commissioning of works

1.4 IEE Methodology

IEE commenced with site visit and review of the technical details in the DPR and preceding environmental assessment reports conducted for the project sites. This was followed by a reconnaissance site visit discussion with the Irrigation department, Roads and Buildings department. This helped identify environmental attributes which may get altered due to the project and incorporate additional information to the baseline environmental scenario/environmental setting of the project to meet the ADB Safeguard requirements. Further steps followed for IEE has been concisely described in following paragraphs.

1.4.1 Primary Data Collection

Inventory of all environmental features viz. terrain, geologically unstable areas, waterways/water bodies, road side vegetation, sensitive receptors, common property resources, utilities, flooding/water logging, and industries was conducted for the project sites. Since the proposed project site (summer storage tank) is located within MPSEZ and the pumping main is located within RoW of the Roads and Buildings department, it does not impact forest area and hence no bio-diversity study was undertaken.

1.4.2 Secondary Data Collection

Secondary data was collected from published reports, survey of India Toposheet of the project influence area. The information on ambient air quality, soil quality, background noise level, surface and groundwater quality, was gathered from the earlier EIA reports prepared for Naidupeta cluster.

1.4.3 Public Consultation

Consultations with the government agencies and local people/beneficiary population from the habitations in the project area were held to collect baseline information to better understand of potential impacts and appreciate the perspectives/concerns of the stakeholders. Public hearing process has already been conducted for the Naidupeta Industrial Estate as a part of the EIA approval process and the Information gathered from this were integrated in project design and formulating of the EMP. Information collected from both primary and secondary sources has been summarized in **Table below**

Table 1-2: Primary and Secondary Information sources

Information	Sources
Technical details of proposed components under the package	Site visits to Naidupeta industrial estate and proposed component locations. DPR
Climatic condition	Indian Meteorological Department Websites
Geology, Seismicity, Soil and Topography	State of Environment Report, Pollution Control Board, DPR and Primary Surveys
Land Use/ Land Cover	State of the Environment Report, Satellite Imagery based land use analysis
Drainage Pattern	Google Image, Detail Project Report and onsite observations
Forest/Vegetation	Forest Range Offices/State Forest Department, Andhra Pradesh
Archaeological /Cultural Heritage sites	Archaeological Survey of India
Air quality Noise, Soil and Water	Earlier EIA Reports
Socio-economic environment	Different Govt. agencies/civic bodies, official websites maintained by state govt., census of India 2011, and public Consultation during the Field survey

1.4.4 Assessment of Potential Impacts

Potential significant impacts were identified on the basis of: analytical review of baseline data; review of environmental conditions at site; analytical review of the underlying socioeconomic conditions with the project influence area.

1.4.5 Preparation of the Environment Management Plan

An EMP for the project was prepared to specify the steps required to ensure that the necessary measures will be taken. The EMP includes the monitoring plan giving details of the resources budgeted and the implementation arrangements.

1.5 Structure of the report

An introduction section has been included to have a general overview of the project. Executive Summary describing critical facts, significant findings, and recommended actions has been presented in the beginning of the report. The report has been compiled and presented as follows.

Chapter 1	:	Introduction
Chapter 2	:	Policy, Legal and Administrative Framework
Chapter 3	:	Project Description
Chapter 4	:	Description of Environmental and Social Conditions
Chapter 5	:	Anticipated Impacts and Mitigation Measures
Chapter 6	:	Public Consultation and Information disclosure
Chapter 7	:	Institutional Arrangements and Responsibilities
Chapter 8	:	Institutional Capacity and Development
Chapter 9	:	Environmental Management Plan
Chapter 10	:	Resettlement Plan

2 Policy Legal and Administrative Framework

2.1 Relevant Environmental Regulations

The most important environmental regulations relevant to the project are listed in **Table 2-1**.

Table 2-1 Relevant Environmental Regulations

No.	Legislation	Requirements for the Project	Applicability	NoC / License / Permission requirement
1	National Environment Policy (NEP), 2006	Project should adhere to the NEP principle of: enhancing and conservation of environmental resources and abatement of pollution	The policy governing the environmental rules and legislations and is applicable to all the subprojects.	Non
2	EIA Notification, 2006	Environmental clearances (EC)	The Industrial Parks mentioned earlier in Naidupet Industrial zone have been granted Environmental Clearance by the MoEF	Non
3	Water (Prevention and Control of Pollution) Act, 1974 amended 1988 and its Rules, 1975	Consent for establishment (CFE) and consent for operation (CFO) from APPCB Compliance to conditions and disposal standards stipulated in the CFE and CFO	As Applicable to proposed subproject components.	Non
4	Air (Prevention and Control of Pollution) Act, 1981, amended 1987 and its Rules, 1982	CFE and CFO from APPCB as applicable Compliance to conditions and emissions standards stipulated in the CFE and CFO.	As applicable to proposed subproject components CFE and CFO: (i) diesel generators; (ii) hot mix plants; and (iii) vehicles emitting air pollutants.	Non
5	ronmental (Protection) Act, 1986 amended 1991 and the following rules/notifications: • Environment (Protection) Rules, 1986 including amendments • Solid Waste Management Rules, 2016 • Construction and Demolition Waste Management Rules, 2016 • Noise Pollution (Regulation and Control) Rules, 2000 • Environmental Standards	Solid waste and sludge generated at proposed facilities shall be disposed in accordance with the MSWM Rules. Compliance with noise standards Compliance to environmental standards (discharge of effluents) Restriction of activities (including construction, tree cutting, etc.) in the notified zones. There are no eco	As Applicable to proposed subproject components.	Non is condition precedence to start the work

	of Central Pollution Control Board (CPCB) • Notification of Eco Sensitive Zones • Wetland (Conservation and Management) Rules, 2010 Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016	sensitive zones in or near the subproject locations. Applies to protected wetlands (Ramsar sites, wetlands in eco sensitive areas and UNESCO heritage sites & in high altitudes, and wetlands notified by Government of India) - Prohibits/ regulates activities within and near the wetlands. None of the subproject locations has protected wetlands. Rules defines and classifies hazardous waste provides procedures for handling hazardous waste. Requires Pollution Control Board's consent for handling hazardous waste. Procedure for storage of Hazardous wastes and provides procedures for recycling, reprocessing or reuse, important and export of hazardous waste.		
6	Contract Labour (Regulation and Abolition) Act, 1970; The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979	Department of Labour, GoAP as principle employer. Contractor shall register with Labour Department, GoAP if inter-state migrant workmen are engaged. Adequate and appropriate amenities and facilities shall be provided to workers including housing, medical aid, travelling expenses from home and back, etc.,	Applicable to all construction/civil works. APIICs to obtain Certificate of Registration. Contractors to obtain license from designated labour officer	Labour license is requried
7	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996	Cess should be paid at rate not exceeding 2% of the cost of construction as may be notified The employer is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation for	Applicable to any building or other construction work and employ 10 or more workers	Non

		workers near the workplace etc. The employer has to obtain a registration certificate from the Registering Officer.		
8	The Child Labour (Prohibition and Regulation) Act, 1986	No child below 14 years of age will be employed or permitted to work in all the subprojects.	No child below 14 years of age will be employed or permitted to work in all the subprojects.	Non
9	Minimum Wages Act, 1948	All construction workers should be paid not less than the prescribed minimum wage	Applicable	Non
10	Workmen Compensation Act, 1923	Compensation for workers in case of injury by accident	Applicable	Non
11	Equal Remuneration Act, 1979	Equal wages for work of equal nature to male and female workers	Applicable	Non
12	AP State Environment Policy	Follows the National Environment Policy, 2006 Project implementation should adhere to the policy aims	Applicable	Non
12	AP State Environment Policy	Follows the National Environment Policy, 2006 Project implementation should adhere to the policy aims	Applicable	Non
13	The Motor Vehicles Act, 1988	Standards for vehicular pollution and prevention control. The authority also checks emission standards of Registered vehicles, collects road taxes, and issues licenses. In August 1997, the Pollution under Control Certificate (PUC) program was launched in an attempt to crackdown on the vehicular emissions in the States. the vehicles that will be used in construction of the subprojects will have to comply with the PUC norms set down under this act.	Applicable	Pollution under control certificate is required for construction vehicle

14	Coastal Regulation Zone (CRZ) Notification 6th January 2011 Central Government have declared the coastal stretches of seas, bays, estuaries, creeks, rivers and back waters which are influenced by tidal action (in the landward side) up to 500m from the High Tide Line (HTL) and the land between the Low Tide Line (LTL) & High Tide Line (HTL) as "Coastal Regulation Zone" (CRZ), as per the provisions of the CRZ Notification 6th January 2011.	The main objectives of the Coastal Regulation Zone Notification, 2011 are: to ensure livelihood security to the fishing communities and other local communities living in the coastal areas; to conserve and protect coastal stretches and; to promote development in a sustainable manner based on Scientific principles, taking into account the dangers of natural hazards in the coastal areas and sea level rise due to global warming.	Naidupeta Industrial Estate does not attract requirements under CRZ	Non
15	Minor Mineral and concession Rules	For opening new quarries. Regulate use of minor minerals like stone, soil, river sand etc.	Applicable	Non
16	The Mining Act (1952)	The mining act has been notified for safe and sound mining activity. The construction of road subprojects will require aggregates. These will be procured through mining from riverbeds and quarries	Applicable	Non
17	Notification for use of fly ash from thermal power plants within 100km reaches of the project.	The MoEF had issued in 2009 a notification that all brick units within 100km radius of thermal power plants were required to use fly ash for making bricks as well as using it for construction activities like building or roads.	Applicable .	Non
18	Public Liability and Insurance Act 1991	Protection from hazardous materials and accident.	Applicable	Non
19	National Environment Appellate Authority Act (NEAA) 1997	Grievances process and how they will be dealt with.	Applicable	Non
20	Explosive Act 1984 - For transporting and storing diesel, bitumen etc.	Safe transportation, storage and use of explosive material.	Applicable	Non

21	The Factories Act, 1948 - The Andhra Pradesh Factory Rules	The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours and rendering information-regarding accidents or dangerous occurrences to designated authorities.	Applicable	Non
22	Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.	The Rules provide for mandatory preparation of On-Site Emergency Plans by the industry and Off-Site Plans by the district collector and the constitution of four tier crisis groups at the center, district, and local levels for the management of chemical disaster.	Applicable	Non
23	Permission for extraction of ground water for use in road construction activities from State Ground Water Board.	Extraction of groundwater.	Applicable to rehabilitation and improvement of water supply. To be obtained prior to initiation of any work involving abstraction of groundwater	It is obligatory in case of ground water is abstracted
24	Permission for use of water for construction purpose from irrigation department	Use of surface water for construction	Applicable. To be obtained prior to initiation of any work involving use of surface water for construction	It is obligatory in case of irrigation channel is abstracted

The proposed SEZ/IPs and its facilities attract the Environment Impact Assessment (EIA) Notification, 2006 (as amended). The proposed development project falls under Project Activity **7 (c)** "[Industrial Estates/ Parks/ Complexes/ Areas, Export Processing Zones (EPZs), SEZs, Biotech Parks and Leather Complexes]" of the EIA Notification, 2006 (as amended).The Environmental Clearance (EC) and Consent for Establishment (CFE) for MPSEZ, IP-Naidupeta and IP-Attivaram has been granted by the Ministry of Environment, Forest and Climate Change (MoEF) .Public hearing / consultations have been carried out as a part of the Environmental Clearance.

2.1.1 ADB Safeguard Policy/Categories - Environment

As per the ADB safeguards policy proposed projects are screened according to type, location, scale, and sensitivity and the magnitude of their potential environmental impacts, including

direct, indirect, induced, and cumulative impacts. Based on this, the projects are classified into the following four categories:

Category A: A proposed project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment (EIA), including an environmental management plan (EMP), is required.

Category B: The proposed project's potential adverse environmental impacts are site specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE), including an EMP, is required.

Category C: A proposed project is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required, although environmental implications need to be reviewed.

Category FI: A proposed project involves the investment of ADB funds to or through a financial intermediary. The financial intermediary must apply and maintain an environmental and social management system, unless all of the financial intermediary's business activities have minimal or no environmental impacts or risks.

2.2 Social Regulations/Policies

2.2.1 ADB's Policy on Involuntary Resettlement, 1995

The three important elements of ADB's involuntary resettlement policy are (i) compensation to replace lost assets, livelihood, and income; (ii) assistance for relocation, including provision of relocation sites with appropriate facilities and services; and (iii) assistance for rehabilitation to achieve at least the same level of well-being with the project as without it.

For any ADB operation requiring involuntary resettlement, resettlement planning is an integral part of project design, to be dealt with from the earliest stages of the project cycle, taking into account the following basic principles:

- Involuntary resettlement will be avoided whenever feasible.
- Where population displacement is unavoidable, it should be minimized.
- All lost assets acquired or affected will be compensated. Compensation is based on the principle of replacement cost.
- Each involuntary resettlement is conceived and executed as part of a development project or program. Affected Persons (APs) need to be provided with sufficient resources to re-establish their livelihoods and homes with time-bound action in co-ordination with civil works.
- APs are to be fully informed and closely consulted.
- APs are to be assisted to integrate economically and socially into host communities so that adverse impacts on the host communities are minimized and social harmony is promoted.
- The absence of a formal title to land is not a bar to ADB policy entitlements.
- APs are to be identified and recorded as early as possible to establish their eligibility, through a census which serves as a cut-off date, and prevents subsequent influx of encroachers.
- Particular attention will be paid to vulnerable groups including those without legal title to land or other assets; households headed by women; the elderly or disabled; and indigenous groups. Assistance must be provided to help them improve their socio-economic status.

- The full resettlement costs will be included in the presentation of project costs and benefits.

2.2.2 ADB Safeguard Policy/Categories – Involuntary Resettlement

The involuntary resettlement impacts of an ADB supported project are considered significant if 200 or more persons will be physically displaced from home or lose 10% or more of their productive or income generating assets.

For those involving involuntary resettlement, a resettlement plan is prepared that is commensurate with the extent and degree of the impacts: the scope of physical and economic displacement and the vulnerability of the affected persons.

Based on this, the projects are classified into the following four categories:

Category A: A proposed project is likely to have significant involuntary resettlement impacts. A resettlement plan, which includes assessment of social impacts, is required.

Category B: A proposed project includes involuntary resettlement impacts that are not deemed significant. A resettlement plan, which includes assessment of social impacts, is required.

Category C: A proposed project has no involuntary resettlement impacts. No further action is required.

Category FI: A proposed project involves the investment of ADB funds to or through a financial intermediary. The financial intermediary must apply and maintain an environmental and social management system, unless all of the financial intermediary's business activities are unlikely to generate involuntary impacts.

2.2.3 ADB Safeguard Policy/Categories – Indigenous People

The impacts of an ADB supported project on indigenous peoples is determined by assessing

- The magnitude of impact in terms of
    - customary rights of use and access to land and natural resources
    - socioeconomic status
    - cultural and communal integrity
    - health, education, livelihood, and social security status, and
    - The recognition of indigenous knowledge; and
- The level of vulnerability of the affected Indigenous Peoples community.

Projects are classified into the following four categories:

Category A: A proposed project is likely to have significant impacts on indigenous peoples. An indigenous peoples plan (IPP), including assessment of social impacts, is required.

Category B: A proposed project is likely to have limited impacts on indigenous peoples. An IPP, including assessment of social impacts, is required.

Category C: A proposed project is not expected to have impacts on indigenous peoples. No further action is required.

Category FI: A proposed project involves the investment of ADB funds to or through a financial intermediary. The financial intermediary must apply and maintain an environmental and social management system, unless all of the financial intermediary's business activities unlikely to have impacts on indigenous peoples.

3 Project Description

The bulk water system proposed for Naidupeta cluster include the following components

a) Intake works

b) Pumping Main

c) Summer Storage Tank

d) Water Treatment Plant

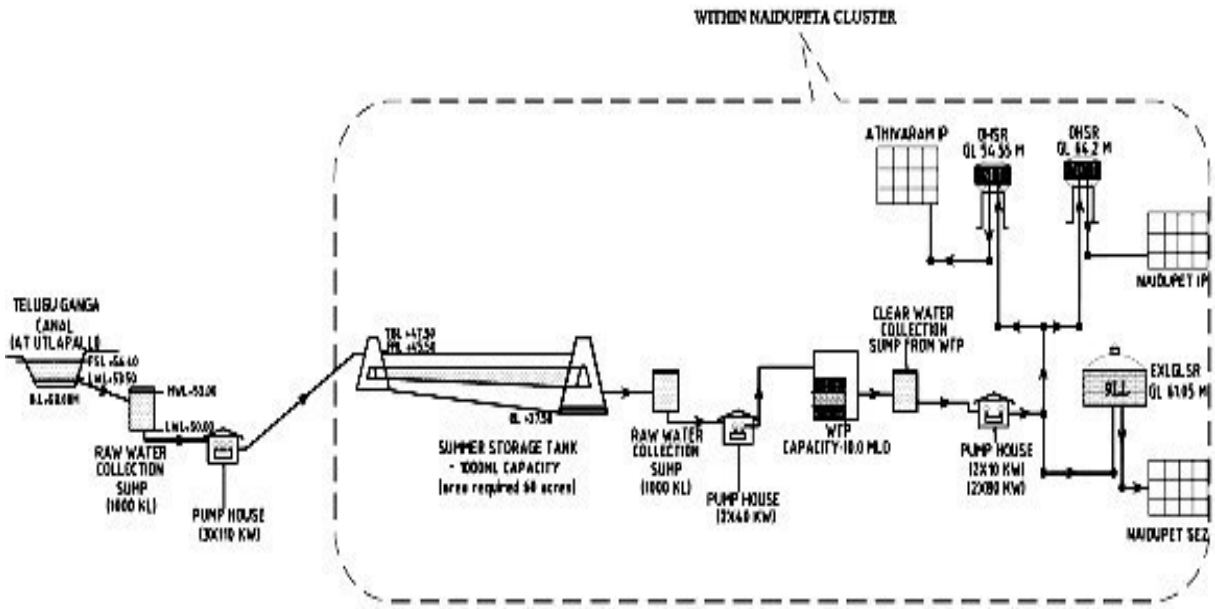
e) Transmission Main

f) Commissioning of the works (intake works, pumping main, summer storage tank, water treatment plant and feeder mains).

The proposed subproject includes the following components..

S.No	Project Component
1	Head Works
	Off-take structure
	Gravity main – 600mm DI Class K7
	Raw water sump – 1000 KL
	Pump House – 12x10m RCC structure
2	Pumping main – 21 KM
3	Summer Storage Tank – 1000 ML
	Pump House – 12x10m RCC structure
	Pumping main – 600mm DI Class K7
4	Water Treatment Plant – 10MLD capacity
5	Transmission Main
	Clear Water Sump – 1000 KL
	Pump House – 12x10m RCC structure
	Feeder Main to ELSR
	Transformer
6	Commissioning of works

The water source is Telugu-Ganga canal, Water supply is drawn by gravity to a sump and from there the water is pumped to summer storage tank. The water is treated in a water treatment plant and distributed to industries. A schematic representation and the details of the scheme are given below



3.1 Water Source

The bulk water for the Naidupeta cluster will be sourced from Kandaleru-Poondi Canal, also known as Satya Sai Ganga Canal developed under Telugu Ganga Project and the intake location is identified near Utlapalli village, which 20km west of Naidupeta Cluster. Earlier in year 2007, the department of industries had made a representation to Government of Andhra Pradesh (GoAP) to allocate 1.75 TMC water for meeting the industrial demands in Chittoor and Nellore districts. As per the policy of GoAP, 10% of water in each reservoir is allocated for industrial purpose. Therefore considering the policy as well as the water availability in Kandaleru Reservoir, GoAP has issued an allocation of 1 TMC water on proportionate acreage basis under industrial use to meet the industrial demands in Nellore and Chittoor districts. A copy of the Government order is included as Annexure 1.

The total water demand estimated to Naidupeta cluster is 21 MLD (0.27 TMC) and therefore APIIC has proposed to draw water from Kandaleru reservoir and accordingly identified the intake location near Utlapalli village, 20km west of Naidupeta cluster. Further APIIC submitted a request to Water Resources department, GoAP to release the 0.27 TMC water from the KP canal near Utlapalli. The water resources department considered the request of APIIC and issued Government Order for release of water. A copy of the order is included as Annexure 2 TG Canal Water.

The raw water characteristics of KP canal are given below (source EIA Report of IP Attivaram prepared by Hubert Envirocare systems private limited in April 2016).

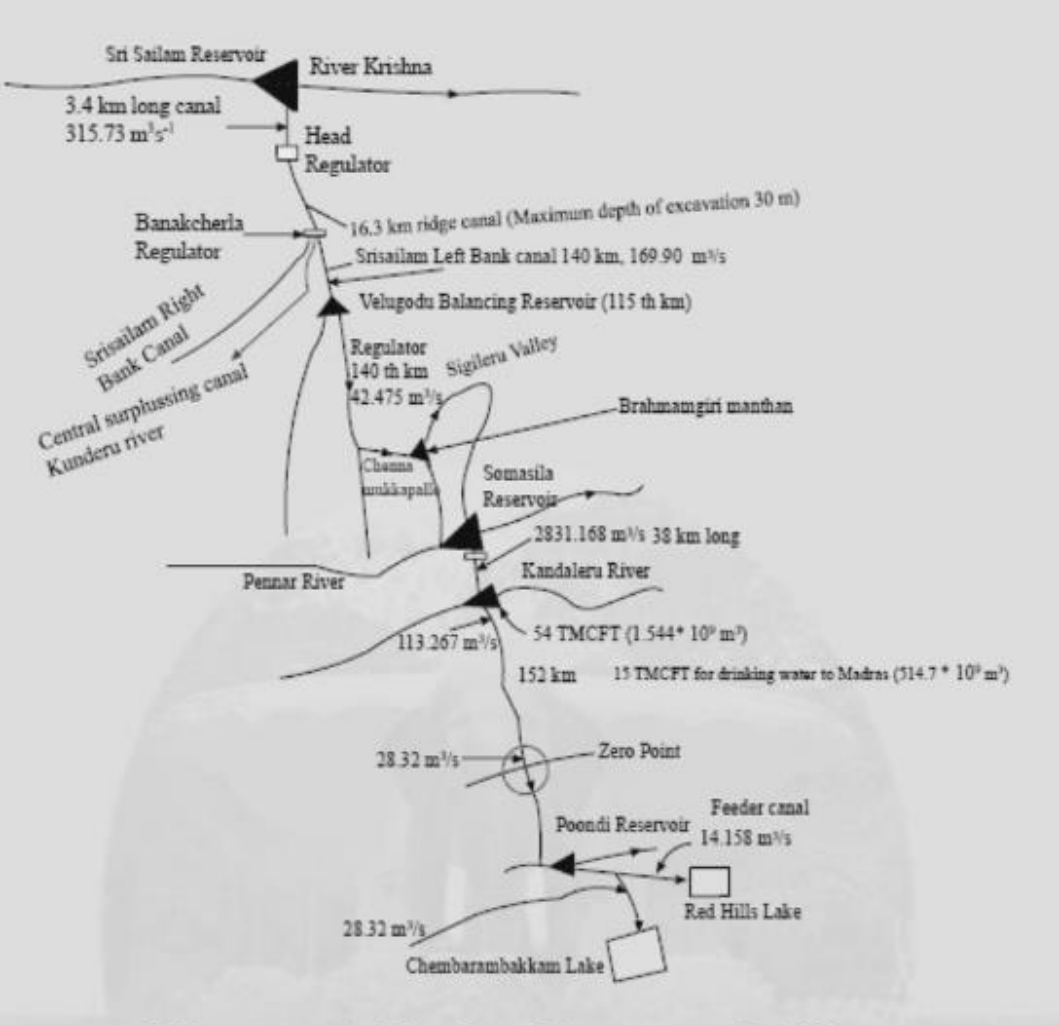
S. No.	Parameter (s)	Raw Water from Canal	Desirable Standards
1	pH	8.27	6.5-8.5
2	Turbidity	7	5 max
3	Total Hardness(TH),as CaCo3 mg/l	125	<125
4	Chemical Oxygen Demand mg/l	-	-
5	Bio-chemical Oxygen Demand, (3d,270c)mg/l	Nil	NIL
6	Fluorides as F-, mg/l	0.027	<0.027
7	Total Coliform, MPN/100ml	NIL	NIL
8	Fecal coliform , MPN/100ml	NIL	NIL

All the parameters for water samples are within the limits specified of Class B, Outdoor bathing (organized), as per Guidelines for Water Quality Management – CPCB 2008.

3.1.1 Hydrological Aspects[1]

Telugu Ganga Project is an interstate project commenced in 1983 to meet the irrigation needs in Kurnool, Cuddapah, and Chittoor Districts of Andhra Pradesh as well as the drinking water needs of Chennai City (15 TMC). The project is conceptualised to utilise the flood flows from Krishna River and Pennar River The total irrigation command area under the project is 5.75 lakh acres. The three Krishna basin states, Maharashtra, Karnataka including Andhra Pradesh have contributed 5 TMC each to meet the drinking water needs of Chennai City.

A Schematic Representation of the project is given below.



Krishna water supply Telugu Ganga Scheme as proposed in 1983

As stated above, the water for the Naidupeta cluster will be drawn from the Kandaleru – Poondi canal which is originating from the Kandaleru Reservoir. The hydrological details of Kandaleru Reservoir are given for reference. The Kandaleru – Poondi canal (KP Canal), also known as Satyasai Ganga Canal, starts at Head Regulator (R/S) of Kandaleru Reservoir and ends into

[1]Source of Information : Water Resources Department, Government of Andhra Pradesh and Technical Note prepared by Professor B S Thandaveswara

Poondi Reservoir in Tamilnadu State with 1 to 9 Branch Canals. This main canal is intended to carry 15.00 TMC drinking water to Chennai City and to Irrigate about 3.00 Lakh acres under 1 to 9 Branch Canal taking off from this canal in SPSR Nellore and Chittoor Districts.

Full Reservoir level(FRL)	**278.89**
Capacity (TMC)	68.03
Minimum Draw Down Level(MDDL)	209.98
Capacity At MDDL	8.42
Dead Storage Level(DSL)	196.86
Dead Storage Level Capacity (TMC)	4.73

The total length of the canal is 152 km out of which 120 Km downstream of the Kandaleru reservoir till the state borders is meant for Agricultural and Drinking water purpose and thereafter the section in Tamil Nadu is only for drinking water purpose only. The discharge at the Kandaleru reservoir is 113.267 cu.m/ sec whereas the discharge at the zero point (state border is 28.32 cu.m/sec. The entire canal is lined with concrete and hence no seepage.

The capacity of the reservoir during the last two years is given below. Perusal of the data it is evident that the dead storage level is noticed between July to October.

In addition the status of water availability for the last two years from the Kandaleru reservoir is included as Annexure 3. Since the reservoir is dependent on the flood flows from Krishna River and Penna River, the water is available only in two spells each having duration of 4 months considering the storage levels in the reservoir. Therefore to ensure the year round availability of water to the users in the Naidupeta Cluster, a Summer Storage Tank of 75 days capacity is propose as part of the project.

3.1.2 Intake Works

i. Intake Location

The intake works are proposed near Utlapalli, 19 km west of Naidupeta Cluster. The location has been finalised in consultation with Department of irrigation. The Department of Irrigation provided the approval for drawing water from Telugu Ganga Canal near Utlapalli. (Ref Annexure 2)

ii .Proposed structures at Intake location

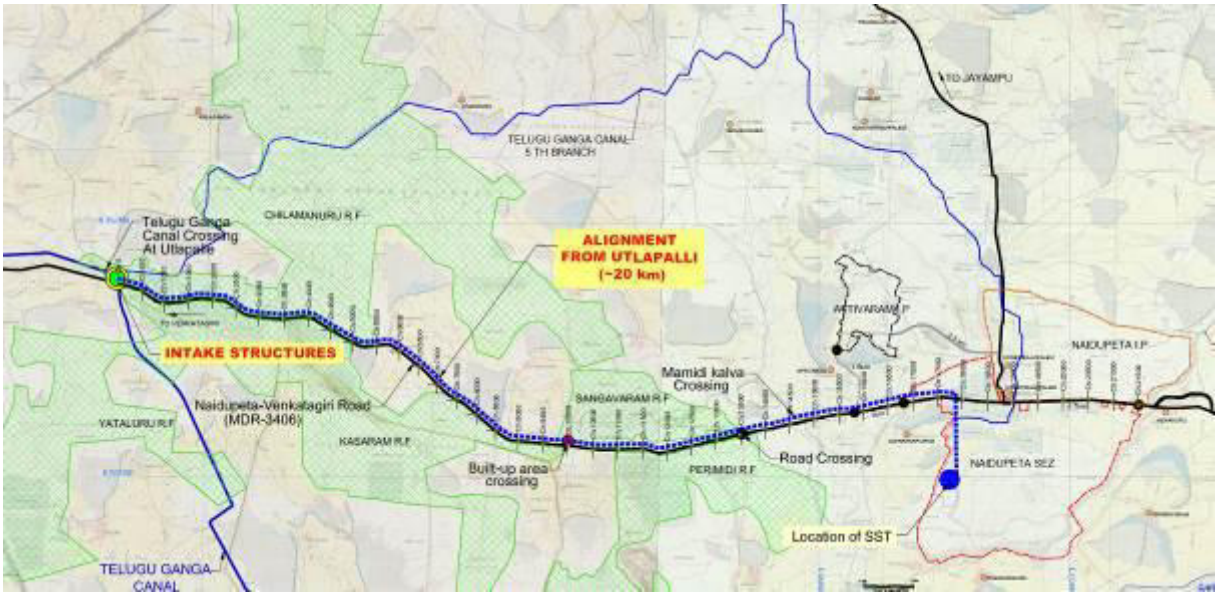
I&CAD officials shall be providing the off take structure at an identified location with an agreement between I&CAD and APIIC. Further, the raw water from canal through off take structure shall be taken care by APIIC. Accordingly, It is proposed to lay a gravity pipe of 700mm Dia. DI Class K7 pipe, from off take structure to proposed new sump of 1000KL capacity (30min. retention time), there by the water is proposed to be pumped to proposed Summer Storage tank location as identified within the Naidupeta Cluster.

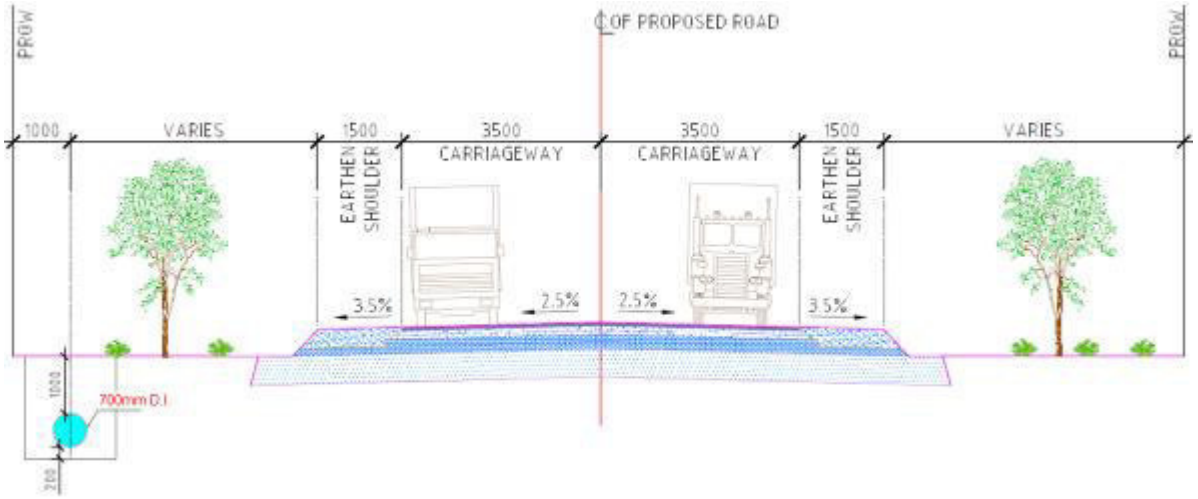
3.1.3 Pumping Main

Based on the water demand, it is proposed to have 700mm diameter DI Pipe pumping main.

i. Pumping Main Alignment

The pumping main is aligned along the Venkatagiri – Naidupeta Road. It is proposed to lay the line along the RoW of the Venkatagiri – Naidupeta Road. APIIC has submitted a request to the Roads and Buildings Department to according permission for using the RoW. Various valves such as sluice valve, drain valve, PRV, air valve, and thrust blocks will be provided based on the routing of the pipe alignment, elevations and based on analysis of L-section of pumping main.





ii.. **Pipe Material**

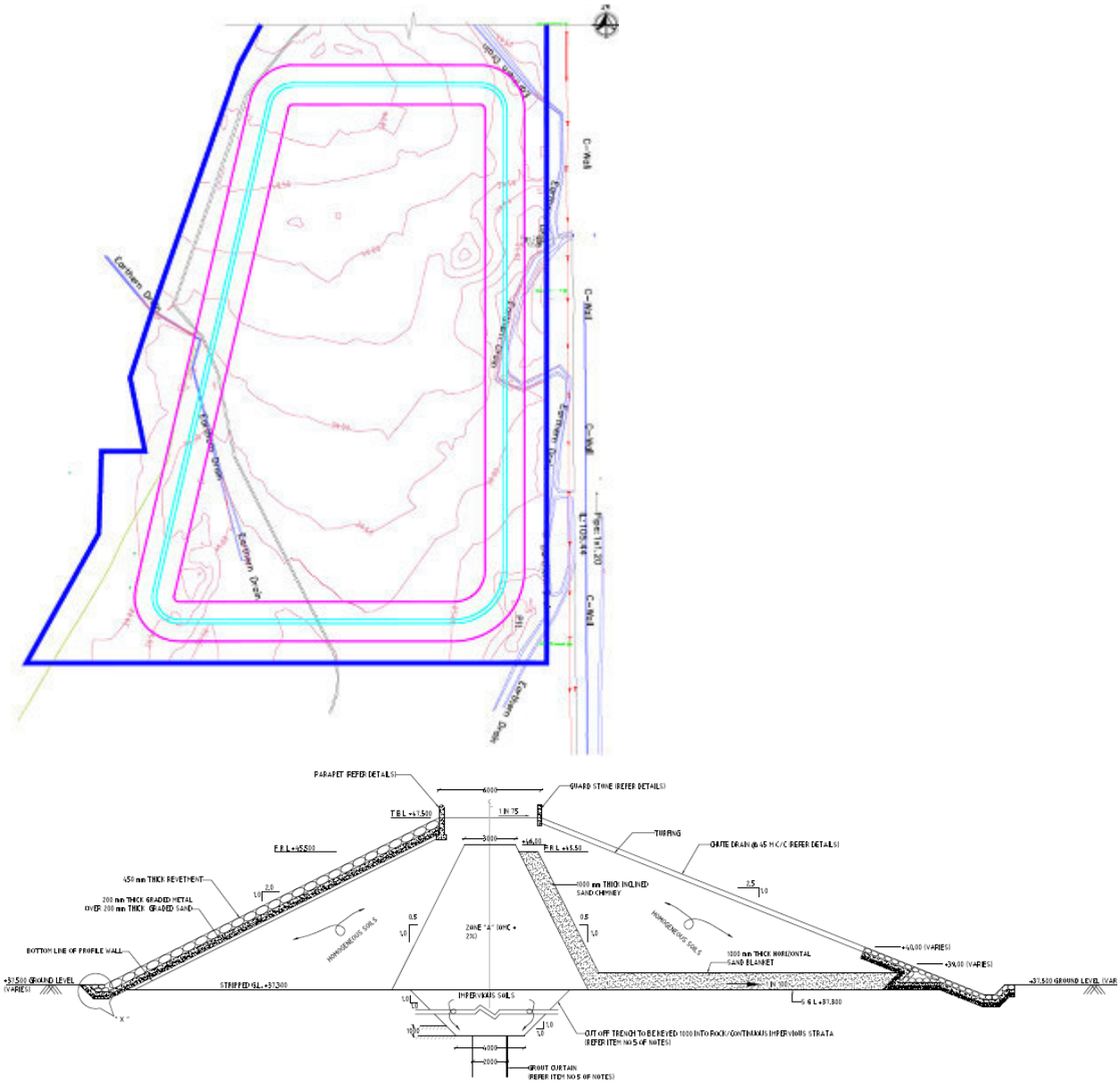
The pipe material for the proposed pumping main is DI- Class K9. Material for pumping mains is chosen based on techno economic considerations such as hydraulic smoothness, strength, resistance to corrosion etc. As per the techno-economic analysis, it was observed that DI pipe is the best option for rising mains.

3.1.4 Summer Storage Tank

The water from the Telugu Ganga canal is available in two spells, i.e. 4 months in each spell. Therefore to meet the demand during the canal closure period, it is proposed to have a summer storage tank to ensure a continuous water supply during the canal closure period. APIIC has earmarked around 100 acres of land for developing the Summer Storage Tank. Since there are proposal by APIIC to promote the use of treated waste water and therefore the ultimate water demand will be 10 Mld. Keep the above objective in view, APIIC is proposing a 10 Mld Summer storage tank.

Gross water demand	10 MLD
Storage period required for SS Tank	75 Days

Based on the site boundary the total area required is worked to be approximately 60 acres. The Layout of the SST is given below



The design criteria of the SST is given below

Table 3-1: Summer Storage Tank Details

S. No.	Description	Design Criteria
1.	Type of SST	Homogeneous Embankment type
2.	Total demand	To be designed for immediate water requirement to minimize the land as possible.
3.	Storage period	75 days storage
4.	TBL	47.5m
5.	FRL	45.5m
6.	Total height of bund	10.3m from TBL

7.	Evaporation losses in SST assumed	33% of the total demand
8.	Inner slope of embankment	1:2
9.	Outer slope of embankment	1:25
10.	Walkway width assumed on embankment	4.5m
11.	Type of pumps for lifting the water from SST	Vertical turbine pumps
12.	Width of approach bridge to Inlet pump house	2m

Stability analysis

Stability analysis has been carried out by Slip circle method as this the most accurate method and also recommended by IS: 7894-1975. The analysis is appended in separate sheets. The stability for D/S is checked for steady seepage condition with water at FRL and U/S is checked for sudden draw down condition when there is rapid draw down on U/S side. Both the conditions are checked under earth quake also.

Internal drainage system

The earth dam is provided with 1000mm thick inclined sand filter and 1000mm thick Horizontal sand blanket to collect and to dissipate the pore water pressure in the embankment. 1000mm thick horizontal blanket & vertical sand filter is proposed for the hydraulic head is less than 10m height

Rock Toe

This is provided on the D/S to collect seepage from horizontal blanket to the toe drain. The max height of rock toe is 20% of h, where h is the hydraulic head of the dam.

Toe drain

Toe Drains are proposed to collect water from the internal filers.

Guard stones

Guard stones on D/S are proposed at 3.00 m c/c interval for entire length of the dam

Foundation seepage control

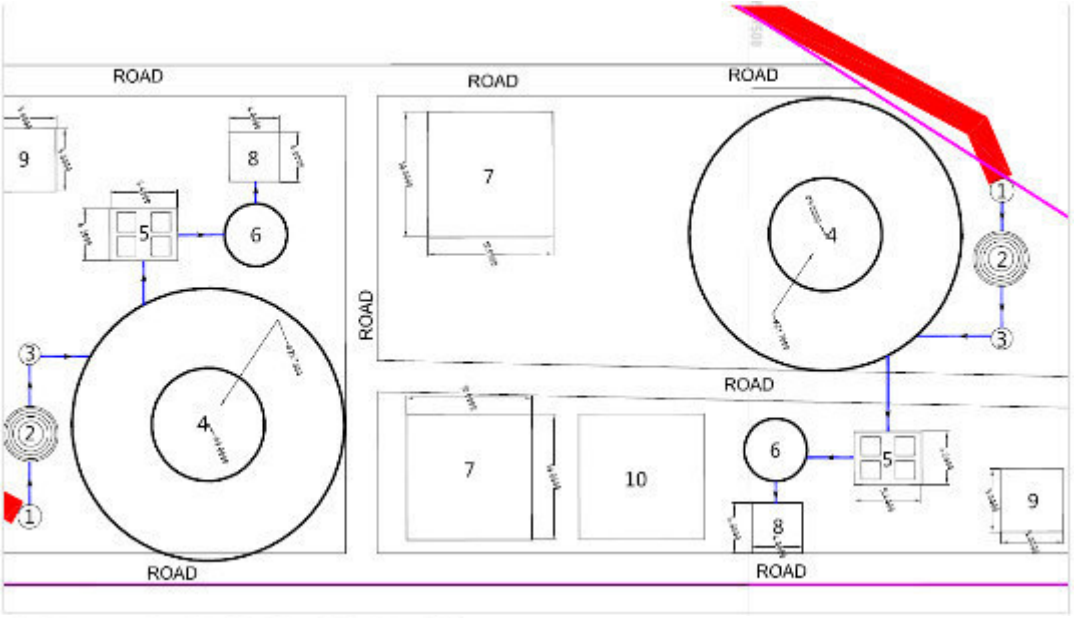
The seepage through foundation is controlled by providing positive cut-off back filling with impervious soils. The actual method shall finalize after cut open of the foundations in consultation with Geologist.

3.1.5 Water Treatment Plant

The raw water shall be transported from Main canal near Utlapalli Village which at about 19km from the project area. A water treatment plant is proposed to meet the acceptable standards of potable water as prescribed by CPHEEO manual on “Water Supply and Treatment”. Further, it is also proposed to construct the WTP in two modules of 10MLD each considering the phase wise growth of Naidupeta Industrial Cluster. The raw water is fed to a stilling chamber and is subjected to cascade aeration. Alum is added in flash mixer chamber. The coagulated sludge

is separated from treated water in tube settler and flocculator. The filtered clear water is chlorinated before supplying to industries.

Water treatment plant layout is shown in the figure below



1.INLET CHAMBER 1.5 X 1.5
2.CASCADE AERATION 4.4 m DIA TOP AND BOTTOM 5.4M DIA 5TRAYS
3.FLASH MIXER 1.7 m DIA
4.FLOCCULATOR 9 m DIA AND CLARIFIER DIA
5.FILTERTION UNIT 5.4 X 4.2 4NO'S
6.CLEAR WATER SUMP 5 m DIA
7.CHEMICAL ROOM 10 X 10
8.CLORINATION UNIT 4 X 4
9.PUMP HOUSE 5 X 5
10.OFFICE 10 X 10
11.WATCHMAN ROOM 6 X 5

All units in meters.

Figure 3-1: Water Treatment Plan Layout

WTP Sludge Disposal mechanism

The chemical added in the treatment is only alum. The alum and chlorine gas are stored in chemical room. The used chemical containers will be disposed to authorised vendors. No hazardous waste material is expected from the water treatment plant. The sources of sludge in WTP are precipitate removed from a sedimentation basin, settling tank, or clarifier and backwash water sludge. About 0.15 to 0.20% of sludge is envisaged from the Water Treatment Plant. The unit operations in sludge disposal are sludge conditioning, thickening, dewatering and ultimate disposal. The major concern in backwash/ sludge is presence of aluminum or iron salts with a mixture of organic and inorganic materials and hydroxide precipitates. For alum sludge having more than 25% of solids requires an effective land filling and alum sludge having less than 25% of solids can be directly used in crop land, marginal land, forests land etc.

In view of the observations, the proposed WTP is envisaged that it generates only less than 25 % solids in the WTP; hence, the same can be used for landfill applications.

The operation and maintenance of the WTP will be through a private agency selected through competitive bidding process.

3.1.6 **Transmission Main**

Transmission mains are proposed from the clear water pump house to the GLSR located in MPSEZ and Elevate Storage Reservoirs proposed in IP Naidupeta and IP Attivaram.

The scope of work involves development of bulk water system from Telugu Ganga Canal project near Utlapalli to Naidupeta Cluster. It also includes construction of a summer storage tank. None of the project components does not fall under environmentally sensitive sites and can be considered as Category B project .Further no downstream users shall be affected as the allocation is made after considering the downstream requirements by Government of Andhra Pradesh.

4 Description of Environment and Social Conditions

4.1 Environmental

The proposed Naidupeta Cluster comprises of the Naidupeta MPSEZ, IP-Naidupeta and IP-Attivaram. Environmental Clearance (EC) is being applied individually for each component of the cluster. The process for obtaining Environmental clearance for MPSEZ, IP Naidupeta and IP Attivaram has been completed and Environmental clearance has been issued by Ministry of Environment and Forest (MoEF) .Public hearing / consultations have been carried out as a part of the Environmental Clearance. Consent for Establishment also obtained for MPSEZ Naidupeta, IP-Naidupeta and IP-Attivaram from APPCB.

Statutory Clearances obtained

S.No	Name of the Industrial Park	Environmental Clearance	Consent for Establishment
1	MPSEZ Naidupeta	F.No.21-61/2010-IA.III Dated: 26.02.2016	Order No. 230 /APPCB/CFE/RO-NLR/HO/2016 Dt.28.12.2016
2	IP-Naidupeta	F.No.21-140/2015-IA-111 Dated:30.05.2017	Order No. 235 /APPCB/CFE/RO-NLR/HO/2017 Dt: 06.09.2017
3	IP-Attivaram	F.No.21-93/2014-IA-III Dated: 09.03.2017	Order No. 236 /AP PCB/CFE/RO-NLR/HO/2017 Dt: 03.11.2017

*The above Environmental Clearances can be downloaded from http://www.apiic.in/Envirnoment+Clearance

4.2 Social

The area identified for the proposed summer storage tank is coming within MPSEZ and the entire land is in possession of APIIC. The land is devoid of any settlements and as such there will be no Land Acquisition and Resettlement or Rehabilitation

Further for constructing the intake works, government land (irrigation department) has been identified and APIIC has been given advance possession. Whereas the proposed pumping main from the Intake works to the summer storage tank will be laid in the available RoW of Venkatagiri – Naidupeta Stage highway.

APIIC has submitted a request to Roads and Buildings department to according permission for laying the pipeline. A copy of the above communications is included under Annexure 4.The contractor has provided Bank Guarantee for restoration works on the ROW as desired by R&B department.

4.3 Project Influence Area (PIA)/Project Study Area

Nellore district is considered as the Project Influenced Area (PIA) District /General Study Area. As a primary requirement of the environmental and social screening process, the Core Study Area (CSA) will be intake works area, pumping main alignment and MPSEZ area

4.3.1 District Profile[2]

Nellore is the southernmost district of Andhra Pradesh bordering Tamil Nadu. It lies between $13^0$14' and $15^0$07' N Latitudes and $70^0$05' and $80^0$05' E Longitudes. The district is bounded on the east by the Bay of Bengal, on the south by the Tamil Nadu state and partly the Chittoor district and on the west by Veligonda Hill range which separates it from Cuddapa District and on the north by Prakasam District.

The eastern portions of the district are fairly fertile and prosperous. The western portion comprises wide stretches of wasteland containing lesser number of villages. The sandy coastal belt extends for 5 to 6 km interior from sea. There are numerous backwaters along the coast and the best known among them is the Pulicat Lake. Towards the extreme southeast is the island of Sriharikota, a rocket launching station of Indian Space Research Organisation, which is a low sandy track lying between Pulicat Lake and the sea.

Agriculture is the main occupation in the district. About 70 percent of the work force is dependent upon agriculture either as a farmer or as agriculture labour. Nellore is also famous for quality rice and aquaculture. The district is called the "shrimp capital of India" due to its high production of cultured shrimp.

4.3.2 Relief and Slope

The district is generally flat with low elevation and is a part of the Carnatic plain. It generally rises from the Bay of Bengal to Veligonda hills which runs in northwest direction from south of Venkatagiri. The Mean Sea Level varies from 32 to 52 m.

[2]District Planning Map Series for Nellore District prepared by the National Atlas and Thematic Mapping Organisation, Department of Science and Technology, Government of India, is referenced for preparing the sections of District Profile, Relief and Slope, Geological Profile, Hydrogeology, Soils and Land Use/Land Cover.

4.3.3 Geological Profile

A major portion of the district is underlain by Dharwar Super Group. Peninsular Gneissic Complex and Older Metamorphic of Archaean Age consisting of granite gneisses, schists intruded by basic dykes and pegmatite reefs. The Baironkonda Quartzites, Cumbum shales of Nallamalai series of Upper Cuddapah Group occur in western margins of the district. Veligonda hills have been subjected to strong compressional forces. Laterite capping of sub-recent age are seen over the crystallines in Kavali, Naidupeta and Sullurupet areas.

4.3.4 Hydrogeology

Hydro-geologically, the rock types occurring in the district are classified as consolidated, semi-consolidated and unconsolidated formations. Ground water occurs in almost all the formations and potentially depends on nature of geological formation, structure, topography, rainfall etc. The yields of wells depend on the recharge conditions and will reduce drastically in drought situations.

4.3.5 Soils

The soils of the district are classified as black, red and sandy. The soils range from somewhat excessively drained to moderately drained. The red soil is predominant with 40% of the area in the district whereas a belt of sand runs along the sea coast. The black cotton soil and sandy looms occupy 23% and 34% of the area respectively.

4.3.6 Land Use/Land Cover

The general land use and cropping pattern shows that out of the total geographical area, 43.42% alone is arable land whereas 18.7% of the area is covered by forests. The rest is barren and uncultivable land. The net sown area is 25.75% while cultivable wasteland and fallow land constitute 17.67%. Nearly 35% of the area is irrigated by canal, tank, tube well and lift irrigation. Important crops grown in the district are paddy, bajra, sugarcane, groundnut, fruit, vegetable, chilly, cotton and tobacco. Sunflower is gradually gaining importance and is preferred by most farmers.

4.3.7 Regional Meteorology

The nearest Indian Meteorological Department (IMD) station is Nellore. The climatological data for Nellore published by the IMD, based on daily observations at 08:30 and 17:30 hour IST for a 30 year period (1970-2000), is presented in **Table 4-1**. The monthly variations of the relevant meteorological parameters are reproduced in the table.

Table 4-1 Climatological Summary – Nellore Region

Month	Temp (°C)		Rainfall (mm)		Relative Humidity (%)		Station Level Pressure hPa		Mean Wind Speed (km/h)	Predominant Wind Directions (From)	
	Daily Max.	Daily Min.	Total	No. of days	08:30	17:30	08:30	17:30		08:30	17:30
Jan	29.9	20.3	9.7	0.9	86	65	1013.3	1010.1	5.0	NW	NE
Feb	32.4	21.8	1.7	0.2	82	62	1011.6	1008.3	6.3	SE	SE
Mar	35.0	23.4	1.5	0.2	77	61	1009.8	1006.2	7.6	SE	SE
Apr	37.9	26.1	11.0	0.4	71	63	1007.1	1003.2	9.0	SE	SE
May	39.8	28.1	30.1	1.3	63	55	1003.9	1000.2	9.2	W	SE

Month	Temp (°C)		Rainfall (mm)		Relative Humidity (%)		Station Level Pressure hPa		Mean Wind Speed (km/h)	Predominant Wind Directions (From)	
	Daily Max.	Daily Min.	Total	No. of days	08:30	17:30	08:30	17:30		08:30	17:30
Jun	38.1	28.3	31.1	3.5	63	51	1002.4	998.6	10.1	W	W
Jul	35.9	26.9	75.4	6.0	70	56	1003.1	999.5	9.4	W	W
Aug	35.1	26.7	85.2	6.4	70	56	1003.8	1000.2	9.5	W	W
Sep	35.2	26.3	91.6	5.6	74	63	1005.7	1001.9	7.5	W	W
Oct	32.6	25.0	265.9	8.9	82	72	1008.2	1005.0	5.6	NW	NE
Nov	29.9	23.0	316.6	9.1	85	75	1010.7	1007.9	5.8	NW	NE
Dec	28.9	21.2	102.5	4.0	87	71	1013.3	1010.3	5.8	NW	NE

The Climatalogical data for temperature, rainfall, relative humidity and mean wind speed are presented in **Figure 4-1** to **Figure 4-4**.

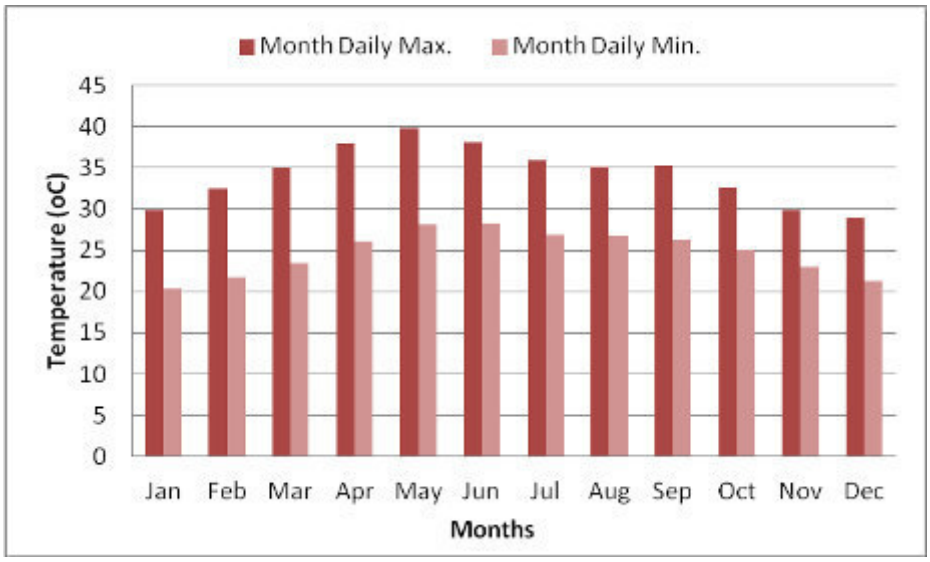


Figure 4-1: Variations in Temperature

Hottest month is May and average daily temperature is 39˚. Temperature gradually increases from January; with onset of the southwest monsoon the temperature gradually decreases.

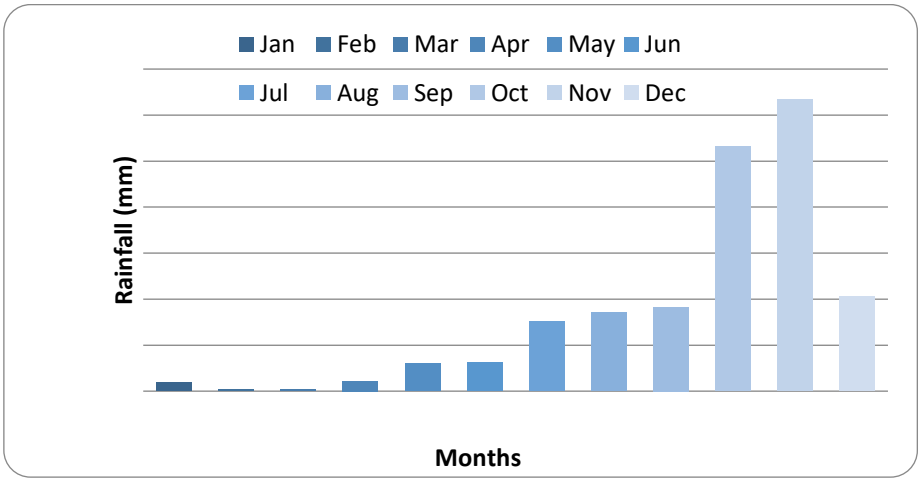


Figure 4-2: Annual Rainfall

The district lies in an area of precarious and uncertain rainfall. As such, the climate of the district is generally dry and salubrious. The average normal rainfall is 1,000 mm. Both the

southwest and northeast monsoons contribute to the rainfall in the district. The rain from former monsoon is received between June and September. The principal rainfall is received during the latter monsoon that is between October and December

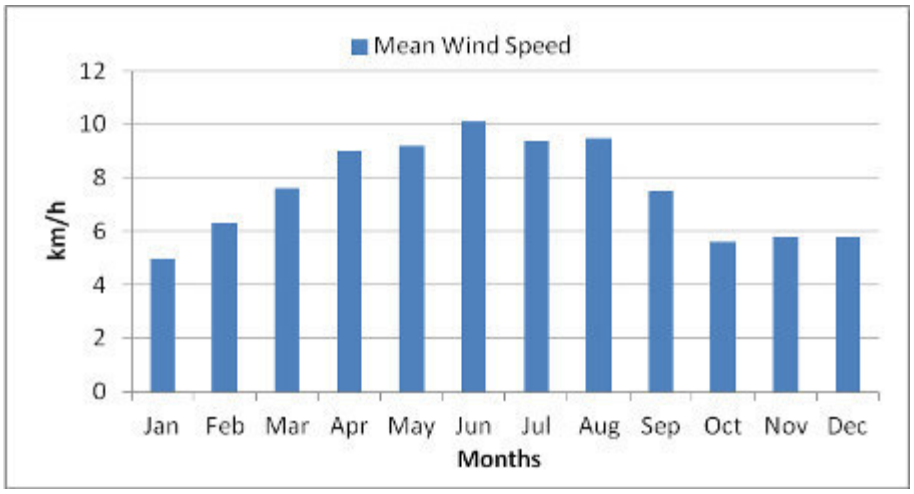


Figure 4-3: Variations in Mean Wind Speed

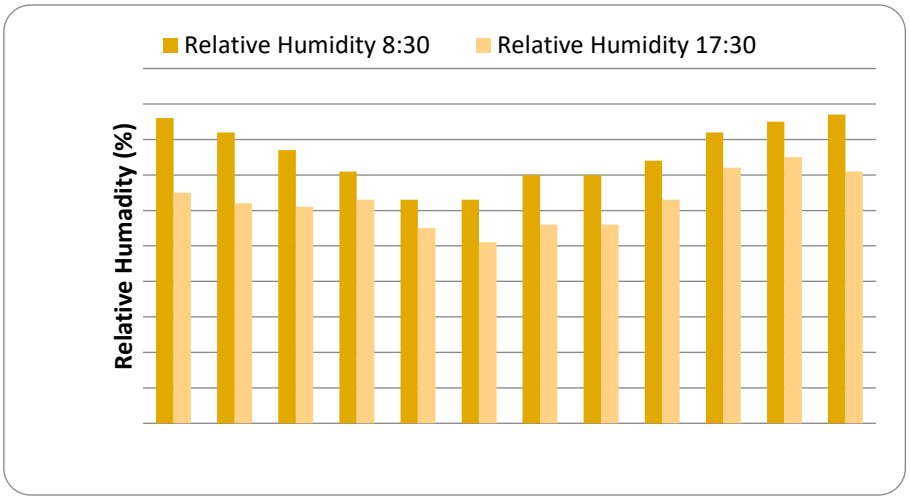


Figure 4-4: Variations in Relative Humidity

4.3.8 Seismic Zone Characteristics

As per the IS:1893 (Part 1) 2002 of Bureau of Indian Standards (BIS), the project location/study area falls in Zone III, which is categorised as a moderate risk zone. The seismic zoning map of Andhra region is shown in **Figure 4-5**.

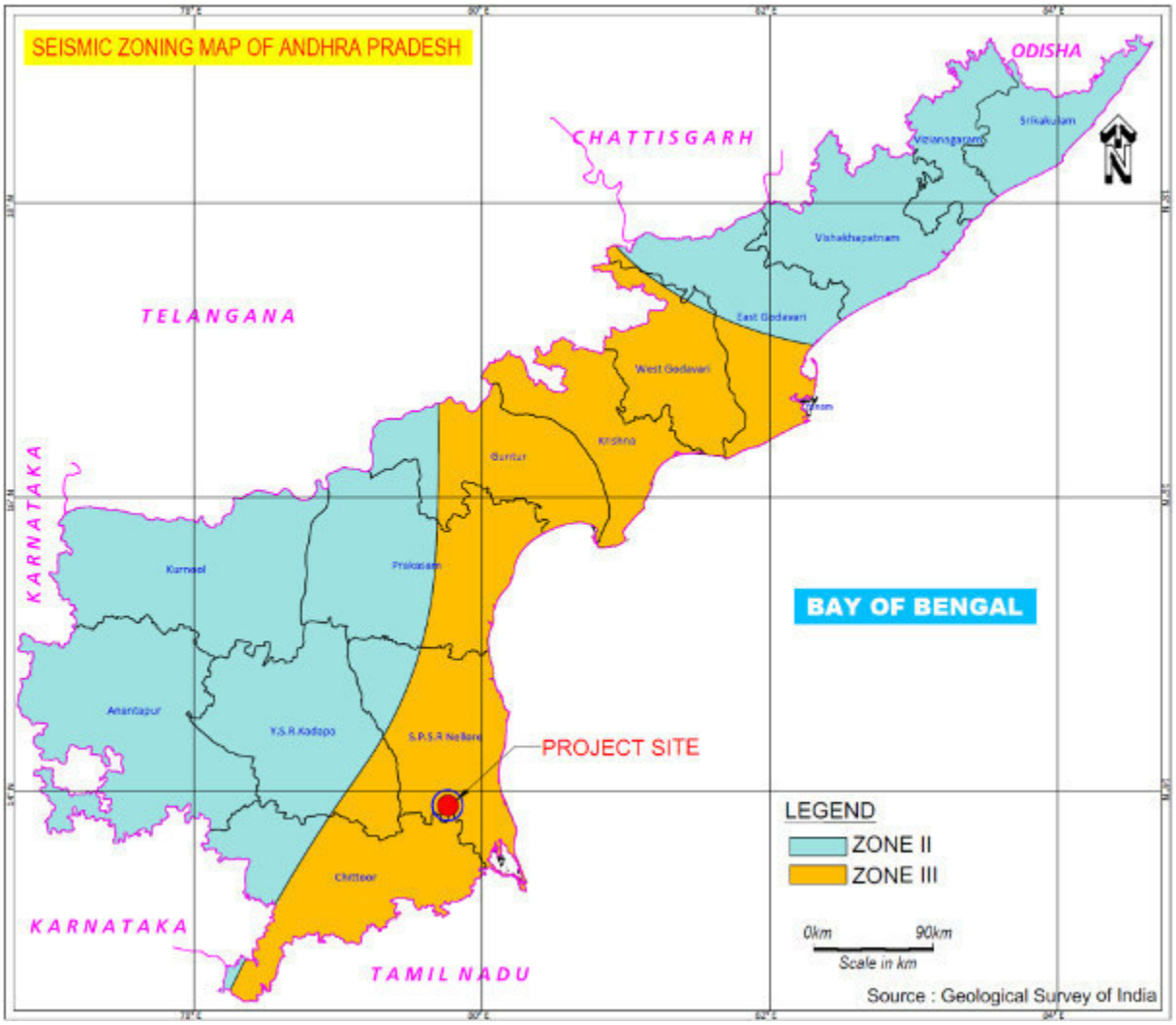


Figure 4-5: Seismic Zoning Map

4.3.9 Cyclone

The coastal areas face the problem of cyclones almost every year. Near about 108 villages fall under the cyclone prone area, of which 65 villages are under marooned area and 43 villages are under inundation. According to government sources, there are 175 cyclone shelters established in Nellore District.

4.3.10 Reserved Forests

From discussions with the officials from Forest Block Office, Naidupeta, we understand that the Naidupeta Cluster abuts the Attivaram and Sangavaram Reserve Forests having Reserve Forest Block # 154 and 152 respectively. As per the information from Forest Department officials, these forest are territorial in nature and do not have any endangered species or animals of concern. Further the Industrial cluster is away from the RF block.

4.4 Socio-economic Profile of Naidupeta Cluster

4.4.1 Demographic Profile

Naidupeta Cluster falls under three mandals i.e., Naidupeta, Pellakur and Ojili Mandals comprising six (6) villages. As per Census 2011, the villages comprises of total population of 7,234 persons with 1,967 number of households. Total male population is 3,655 persons and female population is 3,579. This reveals that female population is less than males in the study area villages. Scheduled Caste and Scheduled Tribe population in the study area villages comprises of 2377 and 640 persons, which is 32.85 % and 8.84% of the total population.

4.4.2 Occupational Profile

The workforce population in the study area villages comprises of 3,645 persons which is 50.38% of the total population. Male workforce comprises of 2,185 persons whereas female workforce comprises of 1,460 persons. 2,966 persons come under the category of Main workers and 679 persons consist of Marginal workers. Around 3,589 persons fall under the category of non-workers who are not engaged in any gainful employment activities. This shows that nearly half of the population forms the dependants' category in the study area villages which is thereby putting more burdens on the working population.

4.4.3 Literacy Rate

The study area villages have a population of 4155 persons as literates which is 57.43% of the total population. Male literacy rate is 57.08% and female literacy is 42.91% of the total literate population. This shows that the female literacy rate is less as compared to the male literacy rate in the study area. 3079 are illiterates in the study area with 1283 persons comprising of male illiterates and 1796 persons comprising of female illiterates

4.5 Baseline Environmental Conditions

The baseline environmental conditions in the project region have been established based on the earlier data generated in the region. The source of the data presented in the following sections is reproduced from the EIA Report *prepared for IP Naidupeta by L&T Infrastructure Engineering Limited* in year 2016. The IP Naidupeta has received the Environmental Clearance.

4.5.1 Site Specific Meteorology

Site-specific meteorological data of wind speed, wind direction, temperature and solar radiation pertaining to summer season (March – May), 2016 was collected and presented below.

Temperature: The minimum and maximum temperatures observed are 20.65^0C to 37.85^0C

Relative Humidity: The minimum and maximum relative humidity recorded is 37% to 100% respectively.

Rainfall: Total rainfall recorded was 79.2 mm/hr and average is 0.04 mm/hr.

Wind Frequencies: The wind frequencies during the study (24 hourly interval) are presented below as **Figure 4-6.**

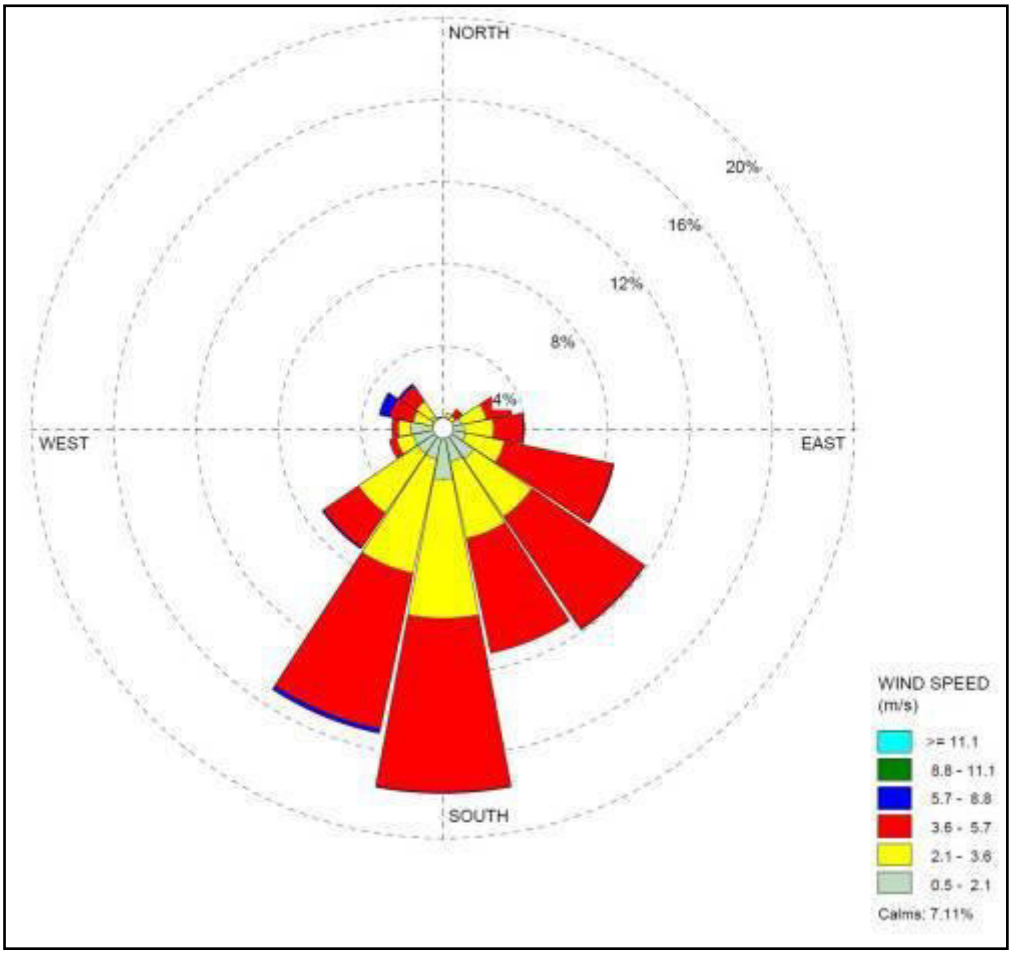


Figure 4-6 : Windrose Diagram

4.5.2 Ambient Air Quality

Ambient air quality was monitored twice in a week for **One *(01)* season** (12 weeks), i.e. during Pre Monsoon/Summer season (March to May, 2016). PM_{10}, $PM_{2.5}$, SO_2&NO_x were monitored on 24 hourly basis and O_3 and CO were monitored on eight hourly basis. Sampling was carried out as per Central Pollution Control Board (CPCB) monitoring guidelines at each location. Details of the monitoring/sampling locations are provided in **Table 4-2**.

Table 4-2: Monitoring Locations

Station Code	Location	Distance (km) from I.P boundary	Azimuth Directions
A1	Project Site		
A2	Manavali	1.4	NE
A3	Dwarakapuram	2.0	SW
A4	Graddagunta	2.3	E
A5	Mummayapalem	2.4	NW
A6	Attivaram	3.2	W
A7	Chigurupadu	4.0	SE
A8	Kundam	4.6	NW
A9	KappaguntaKandriga	5.0	S
A10	Saguturu	5.7	N

A map showing the Air monitoring locations is shown as **Figure 4-7**.

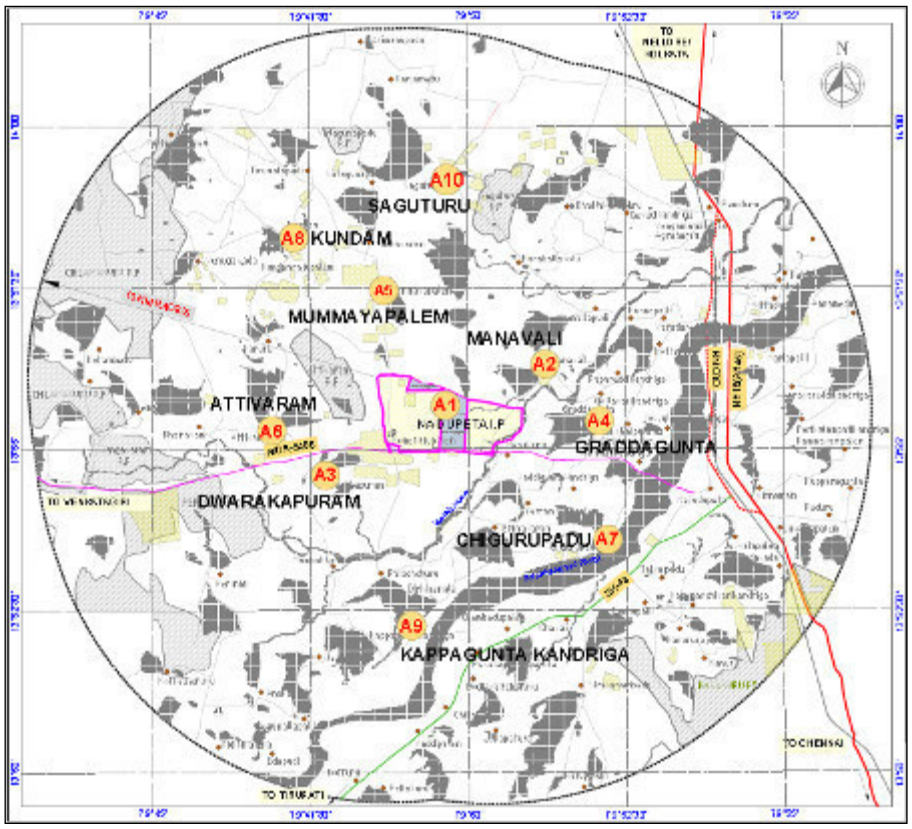


Figure 4-7 Monitoring Locations Map

The variations of PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, and O_3have been compared with National Ambient Air Quality Standards (NAAQS), MoEF Notification, November, 2009. Ambient Air Quality status in the project region as reported in the report is reproduced below Monitoring Data (March to May, 2016) is given in **Table 4-3** to **Table 4-5** and also graphically presented in **Figure 4-8** to **Figure 4-13**.

Table 4-3: Ambient PM10, PM2.5, SO2 and NO2 Monitoring Data

S. No.	Location	PM_{10} (µg/m³)				NAAQ Standard for PM_{10} (µg/m³) (24 hr)
		Max.	Min.	Mean	98th Percentile	
1.	Project Site	61	31	45	59.6	100
2.	Manavali	47	22	32	46.1	100
3.	Dwarakapuram	46	26	36	45.1	100
4.	Graddagunta	44	25	32	42.6	100
5.	Mummayapalem	44	26	34	43.1	100
6.	Attivaram	44	22	32	43.1	100
7.	Chigurupadu	41	22	32	41.0	100
8.	Kundam	44	25	31	42.6	100
9.	KappaguntaKandriga	44	22	33	43.1	100
10.	Saguturu	44	22	34	44.0	100
S. No.	Location	$PM_{2.5}$ (µg/m³)				NAAQ Standard for $PM_{2.5}$ (µg/m³) (24 hr)
		Max.	Min.	Mean	98th Percentile	
1.	Project Site	29	13	28.2	38.6	60
2.	Manavali	23	10	15.8	22.5	60
3.	Dwarakapuram	22	12	16.7	22.0	60
4.	Graddagunta	23	11	14.8	20.7	60
5.	Mummayapalem	23	11	15.8	23.0	60
6.	Attivaram	22	10	14.8	22.0	60

7.	Chigurupadu	23	10	14.8	22.1	60
8.	Kundam	23	11	14.4	21.6	60
9.	KappaguntaKandriga	23	10	14.8	22.1	60
10.	Saguturu	23	10	15.9	22.1	60
S. No	**Location**	**SO_2 (µg/m³)**				**NAAQ Standard for SO_2 (µg/m³) (24 hr)**
		Max.	**Min.**	**Mean**	**98th Percentile**	
1.	Project Site	14	10	12	14	80
2.	Manavali	13	9	11	13	80
3.	Dwarakapuram	13	9	11	13	80
4.	Graddagunta	13	9	11	13	80
5.	Mummayapalem	13	9	11	13	80
6.	Attivaram	13	9	11	13	80
7.	Chigurupadu	13	9	11	13	80
8.	Kundam	13	9	11	13	80
9.	KappaguntaKandriga	13	9	11	13	80
10.	Saguturu	13	9	11	13	80
S. No	**Location**	**NO_2 (µg/m³)**				**NAAQ Standard for NO_2 (µg/m³) (24 hr)**
		Max.	**Min.**	**Mean**	**98th Percentile**	
1.	Project Site	17	12	15	17	80
2.	Manavali	15	11	13	15	80
3.	Dwarakapuram	15	1	12	15	80
4.	Graddagunta	15	11	13	15	80
5.	Mummayapalem	15	11	13	15	80
6.	Attivaram	15	11	13	15	80
7.	Chigurupadu	15	11	13	15	80
8.	Kundam	15	11	13	15	80
9.	KappaguntaKandriga	15	11	13	15	80
10.	Saguturu	15	11	13	15	80

Table 4-4: Ambient O_3 Monitoring Data

S. No	**Location**	**O_3 (µg/m³)**		**NAAQ Standard for O_3 (µg/m³) (8 hr)**
		Max.	**Min.**	
1.	Project Site	50.00	30.67	100
2.	Manavali	35.33	20.00	100
3.	Dwarakapuram	35.33	20.67	100
4.	Graddagunta	32.67	24.67	100
5.	Mummayapalem	34.67	24.67	100
6.	Attivaram	32.00	22.67	100
7.	Chigurupadu	32.00	22.00	100
8.	Kundam	38.00	24.67	100
9.	KappaguntaKandriga	40.00	23.33	100
10.	Saguturu	34.67	23.33	100

Table 4-5: Ambient CO Monitoring Data

S. No	**Location**	**CO (mg/m³)**		**NAAQ Standard for CO (mg/m³) (8 hr)**
		Max.	**Min.**	
1.	Project Site	1.61	1.15	2
2.	Manavali	1.38	1.26	2
3.	Dwarakapuram	1.38	1.27	2
4.	Graddagunta	1.38	1.27	2
5.	Mummayapalem	1.38	1.27	2
6.	Attivaram	1.38	1.27	2
7.	Chigurupadu	1.38	1.27	2
8.	Kundam	1.38	1.27	2
9.	KappaguntaKandriga	1.38	1.27	2
10.	Saguturu	1.38	1.27	2

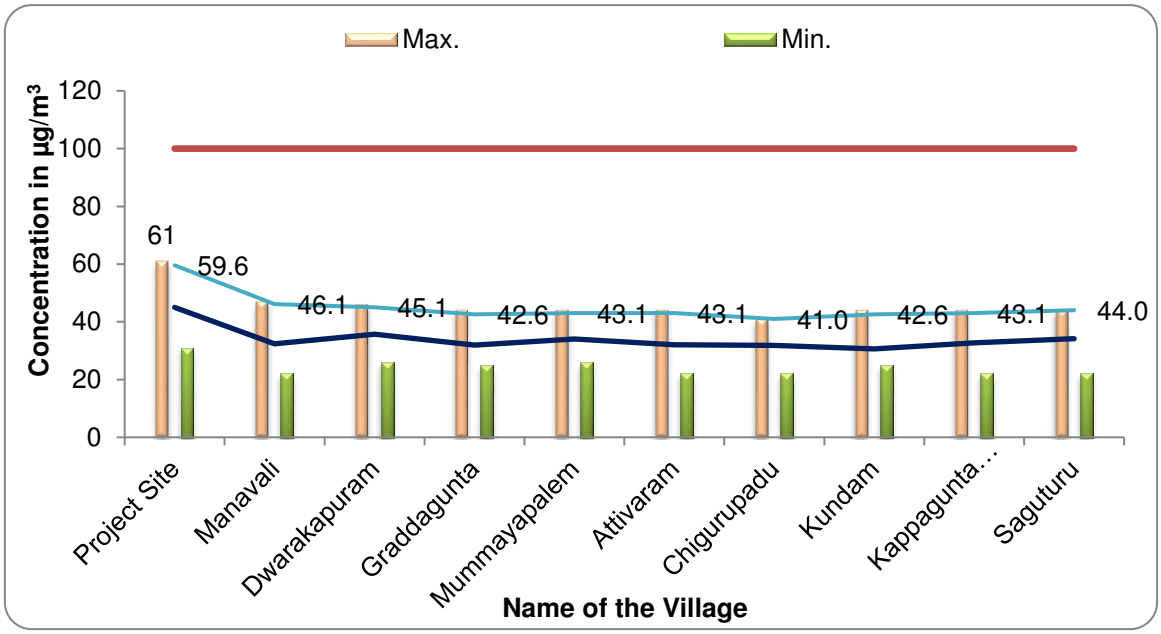


Figure 4-8: Ambient PM_{10} Levels

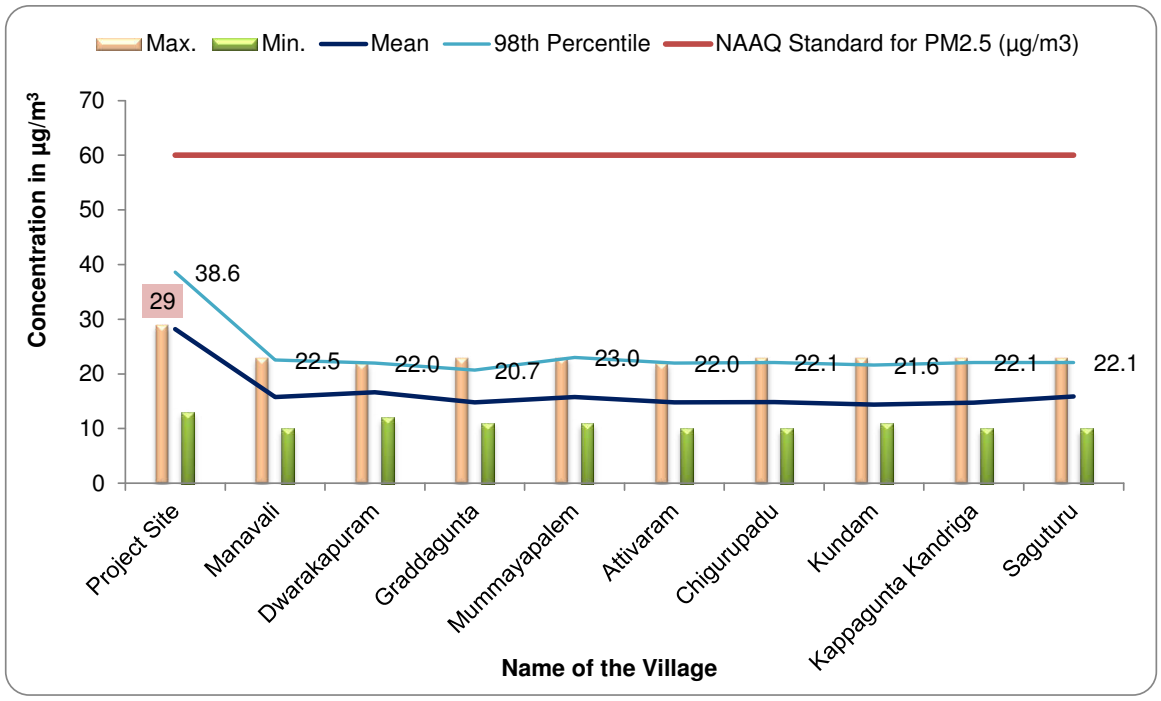


Figure 4-9: Ambient $PM_{2.5}$ Levels

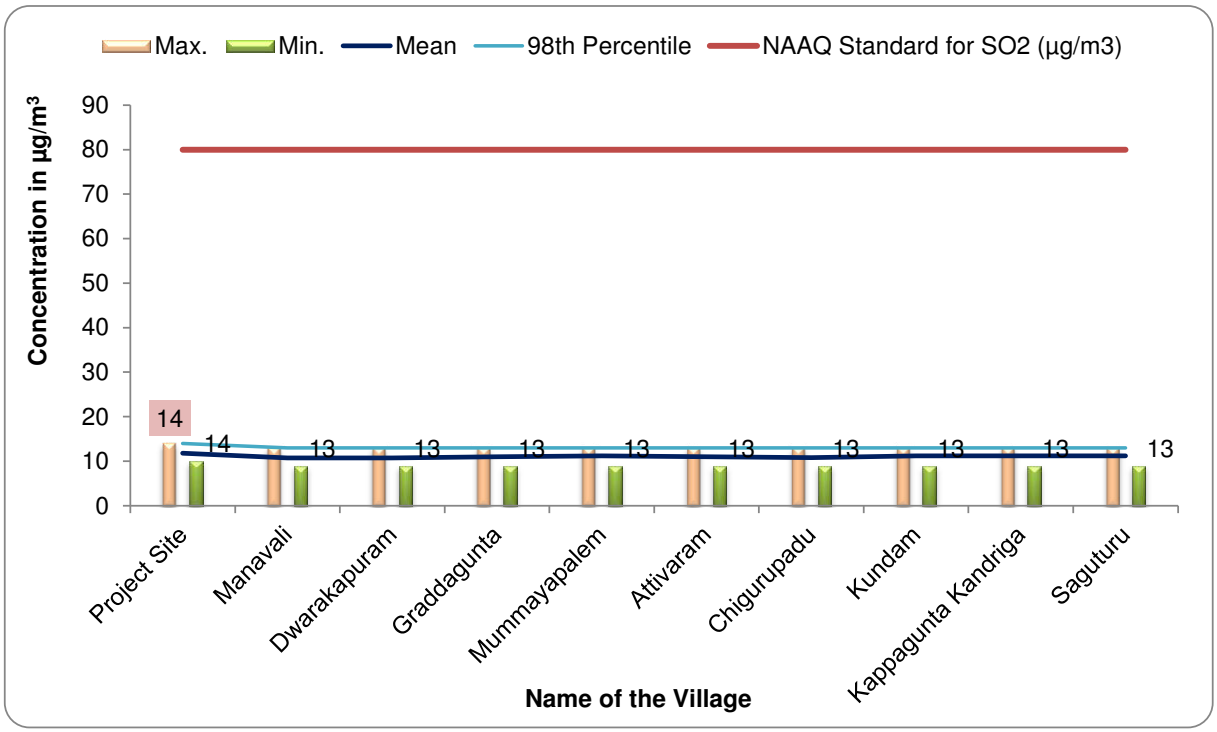


Figure 4-10: Ambient SO_2 Levels

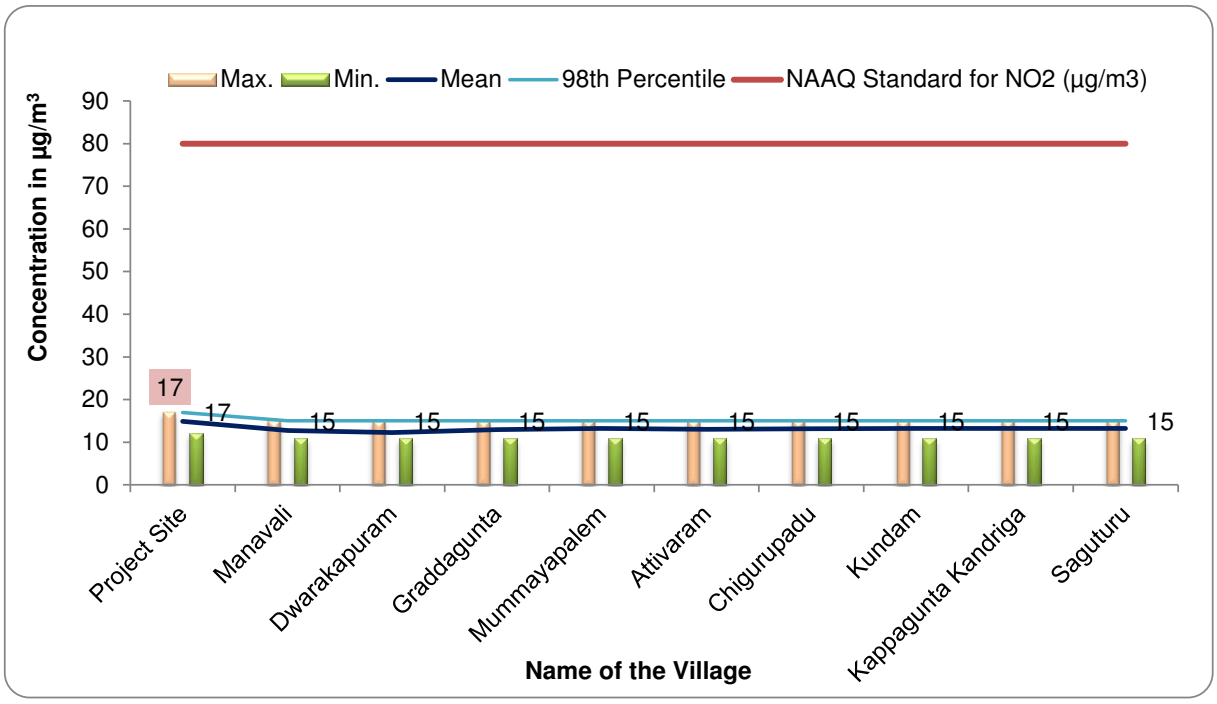


Figure 4-11: Ambient NO_2 Levels

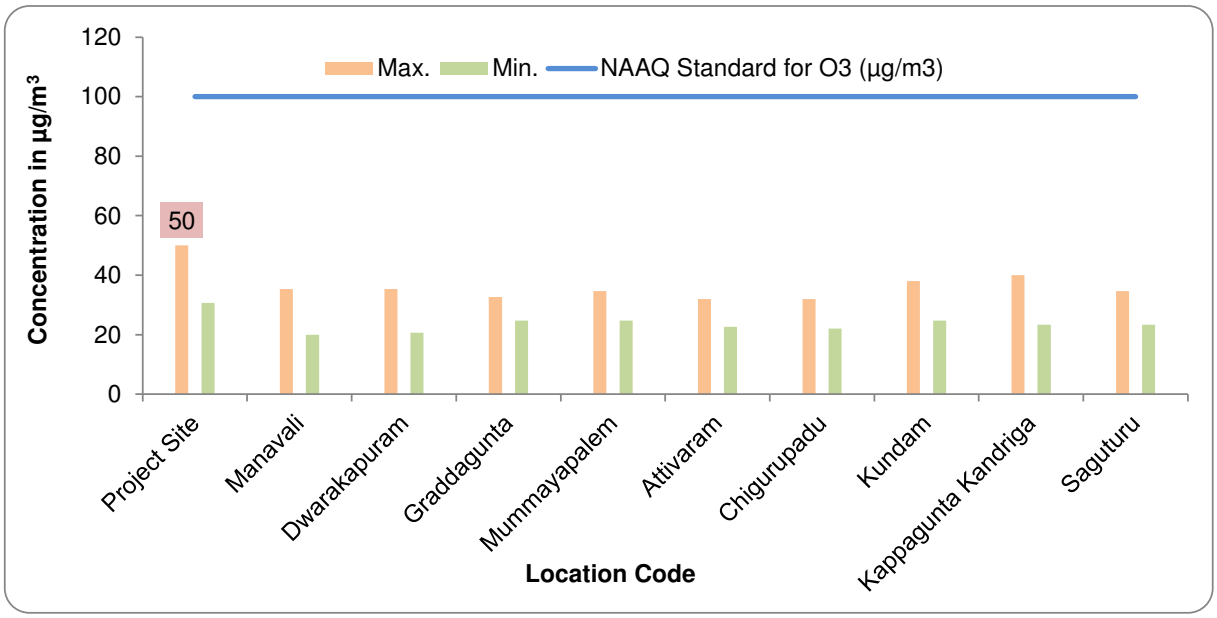


Figure 4-12: Ambient O_3 Levels.

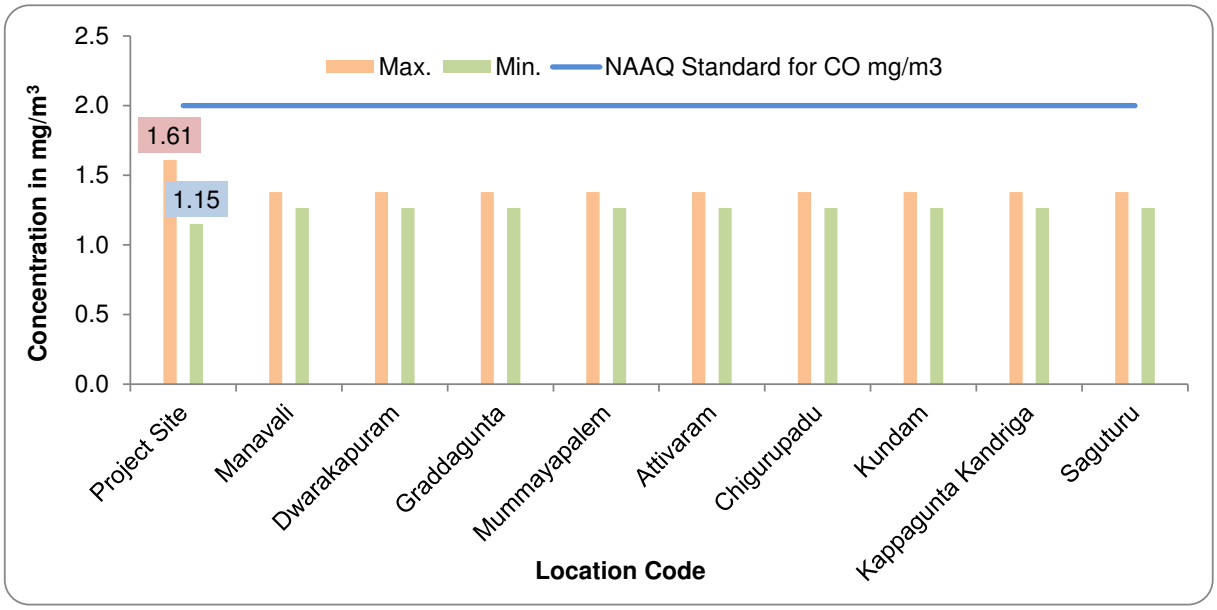


Figure 4-13: Ambient CO levels

Baseline data when compared to existing National Ambient Air Quality Standards (NAAQS); were found to be within the applicable limits of the NAAQS.

4.5.3 Noise

Ambient noise levels have been established by monitoring noise levels at **Ten (10)** locations in and around 10Km distance from Naidupeta I.P using precision noise level meter. The comparison of day equivalent noise levels (L_d) and night equivalent noise levels (L_n) with the respective CPCB stipulated noise standards for various land use categories are shown in the **Table 4-6** and presented in **Figure 4-14** to **Figure 4-15**.

Table 4-6: Day and Night Equivalent Noise Levels

S. No	Location	Distance (km) from Project boundary	Azimuth Directions	Noise level in dB(A) Leq		CPCB Standard		Environmental Setting
				Day	Night	L_{day} (L_d)	L_{Night} (L_n)	
1.	Project Site			66.51	54.96	75	70	Industrial
2.	Manavali	1.4	NE	48.72	44.96	55	45	Residential
3.	Dwarakapuram	2.0	SW	53.28	46.41	55	45	
4.	Graddagunta	2.3	E	48.93	44.98	55	45	
5.	Mummayapalem	2.4	NW	45.67	46.58	55	45	
6.	Attivaram	3.2	W	56.08	53.73	55	45	
7.	Chigurupadu	4.0	SE	57.51	52.23	55	45	
8.	Kundam	4.6	NW	51.54	43.68	55	45	
9.	KappaguntaKandriga	5.0	S	48.00	45.59	55	45	
10.	Sanguturu	5.7	N	53.23	46.84	55	45	

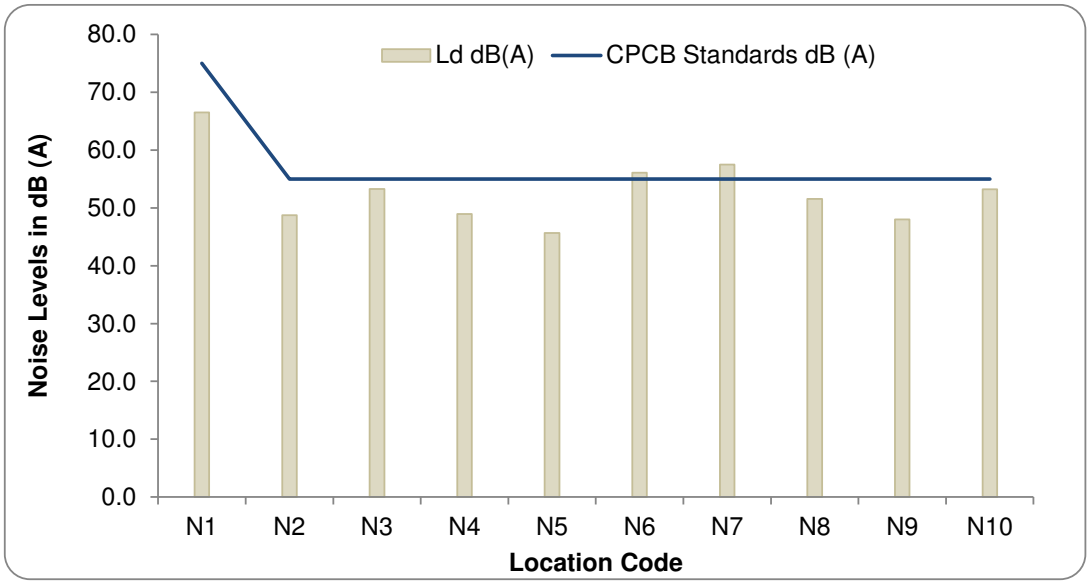


Figure 4-14: Ambient Day time Noice levels

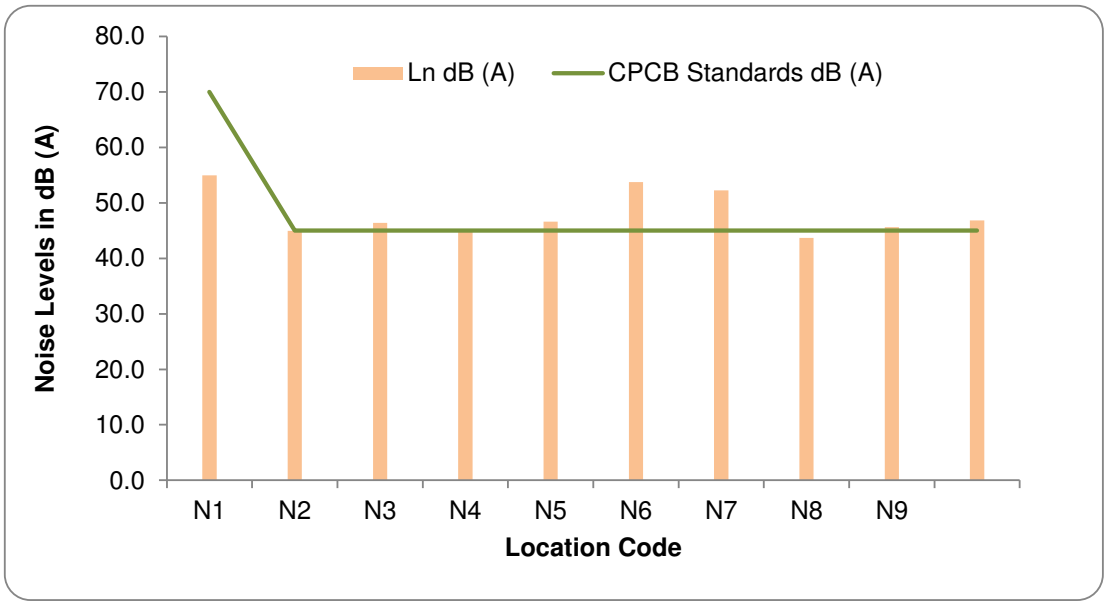


Figure 4-15: Ambient Night equivalent noise levels

The recorded noise levels when compared to the prescribed standards (AAQ Standards in respect of Noise SO 123 (E), dated 14thFebruary, 2000) was noted that the noise levels were within the prescribed standards for industrial Zones. The noise levels were also predominantly within standards for Residential Zones, barring few locations where the recorded levels were slightly exceeding the standards.

4.5.4 Soil Quality

- pH was reported to be varying from 6.96to 7.84 indicating that the soils are falling in normal saline class
- The Electrical Conductivity varied from 210to 491µmhos/cm indicating that the soils are falling in the normal category
- Nitrates (NO_3) varied between 6 mg/100 gm and 14 mg/100 gm
- Phosphate (PO_4^{-2}) varied between 8 mg/100 gm and 15 mg/100 gm
- Potassium (K) varied between 7 mg/100 gm and 18 mg/100 gm

4.5.5 Water Quality

Summary of the results of water quality analysis as reproduced from Naidupeta I.P EIA report is presented below:

Ground Water

- pH is varying from 6.99 to 8.01 indicating the results are within the limits for drinking water samples (i.e. 6.5 to 8.5).
- Total Dissolved Solids are varying from 540mg/l to 5050mg/l; results indicated that TDS levels are above the acceptable limits (500 mg/l) and permissible limits (2000 mg/l).
- Chloride levels were reporting ranging from 106mg/l to a maximum of 1531.2 mg/l; results indicate that Chloride levels are mostly above the acceptable limits (250 mg/l) and permissible limits (1000 mg/l).
- Hardness is varying from 104mg/l to 1020mg/l; results indicate that Hardness in some samples were below the acceptable limit (300 mg/l), some samples is having value above the acceptable limit but within the permissible limit (600 mg/l).
- Fluoride values were in the range of 0.57 mg/l to 1.66 mg/l; results show that most of the samples Fluoride levels in all samples were within the acceptable limit (1 mg/l) except few.

Surface Water

- pH was found varying between 7.61 and 8.74which are meeting the IS: 2296-1982 standard for inland surface water
- Total Dissolved Solids were in the range between 266 mg/l and 1280 mg/l
- Chlorides ranged between 49.6 mg/l and 368.8 mg/l
- Total Hardness (as $CaCO_3$) ranged between 125 mg/l and 378 mg/l

4.5.6 Ecology

The initial reconnaissance survey suggests that the proposed location for development of the Naidupeta Cluster is predominantly barren land and devoid of large trees and mainly consists of scattered and sparse vegetation, i.e. *Prosopisjuliflora,* a few scattered individuals of *Casuarina equisifoliata*and *Cocos nucifera.* Agricultural fields are also observed in the surrounding areas of the project site. As per the information from department, no rare or sensitive / endangered flora or fauna are reported in the project region .No records were found of rare or sensitive flora and fauna species in the study area.

5 Anticipated Environmental and Social Impacts/Issues

The anticipated environmental and social impacts issues due to proposed bulk water system during construction and operation stages are presented in this section. An environmental impacts matrix is provided as**Table 5-1**which presents a summary of the potential impacts due to the various project activities during construction and operational stages of the project.

Table 5-1: Potential Impacts Screening Matrix

Project Activities	Concerns	Significance			
		Not Significant	Small	Moderate	Major
Pre-Construction					
Construction Site Clearance	Clearing of vegetation/ impact on landscape		●		
	Loss of Top soil and change in characteristics		●		
	Loss of trees & vegetable cover	●			
	Noise, vibration and dust nuisance from site clearance activity			●	
Construction camp establishment & operation	Friction between construction personnel and local population	●			
	Increased pressure on local services	●			
	Water pollution from sanitary and other wastes		●		
	Reduction in land quality on abandonment	●			
Construction Stage					
Construction of structures	Inducement of traffic congestion delays		●		
	Disturbance of sediments in water quality		●		
	Air pollution		●		
	Noise & vibration impacts from construction machinery			●	
Operation Stage					
Operation	Pollution from spillage's/surface run-off		●		
	Impacts to air quality due to industrial activities, vehicular movements, etc.		●		
	Increase in congestion on connecting roads	●			

Project Activities	Concerns	Significance			
		Not Significant	Small	Moderate	Major
	Increased access threatening traditional communities	•			

A. Beneficial Impacts

The beneficial impact from the proposed subproject is the direct and indirect employment opportunities during construction and operation phase of the project. The proposed project will help in attracting different sectors of industries to the industrial estate due to availability of adequate water and increased employment opportunities for people. The influx of industrial sectors such as manufacturing, food processing will help in overall economic development of the state, resulting in attracting skilled workforce and enable improvement of quality of life of people.

The long-term effects of these developed industrial clusters on poverty reduction are, consequently, expected to be significantly positive.

During operation stage, economic activities supporting ancillary industries, trade, transport, etc. will increase due to increase in industrial activities is also expected to improve development of urban centers with amenities like housing, educational institutions, hospitals, etc.

B. Adverse Impacts

Generally developmental activity in its wake will bring about some adverse impacts associated with its activities. For an Industrial Cluster based on the possible worst case emissions and waste generation scenario, prediction of impacts helps in the preparation of a sound environmental management plan which has to be executed during the on-going activities for the proposed project to minimize the adverse impacts on the environmental quality. Provision of effective connectivity through internal transport and efficient management of industrial cluster operations will be important to manage any adverse impacts due to sub-project operations.

Further the water is being drawn as per the allocation given by Government of Andhra Pradesh .The Government has provided the allocation after considering all the users hence no adverse impacts are envisaged by withdrawal of water on the downstream users. Further the proposals of APIIC to reuse the treated water will reduce the withdrawal to a certain extent, which in turn is beneficial impact.

C. Potential Impacts during Construction Phase:

1. Impact on Air Quality

The proposed subproject involves construction of intake works, laying of pumping main and construction of summer storage tank during the development phase. Air quality in the immediate vicinity is likely to be marginally affected due to movement of vehicles carrying the construction materials and heavy earth movement works.The air quality is likely to get affected through fugitive dust emissions and particulate matter. In addition the emissions from the construction machinery and vehicles involved in transportation are also envisaged. Mitigation measures such as

- sprinkling of water shall be followed to limit the dust emissions at the respective construction sites
- use of enclosure as Screens to localise the dust emissions within the construction area

2. Potential Impact on Water

During the construction phase water will be used for varies construction activities. To fulfill the water requirement, water is to be supplied from the nearest source with the prior permission of APIIC. Mitigation measures such prevention of runoff from the summer storage site into the nearest surface water body should be adopted.

3. Impact on noise levels

The prime source of noise pollution during the construction phase is the machinery involved in construction such as dozers, front end loaders, JCBs. Apart from this other source of noise pollution. There are no dense habitations / settlements along the pumping main alignment and the SST area and hence the additional noise from the construction activity will not have any impact on the immediate receptors.

4. Impact on the existing traffic system

The proposed subprojects will involve minimal and temporary increase in traffic for transportation of the construction material.

5. Impact on Topography and land use

The proposed summer storage tank is being located within MPSEZ and the pumping main along the Venkatagiri – Naidupeta Road. Therefore the impact on the topography is marginal and no impact on the land use.

6. Impact on soil quality

The impact on the soils is localised and restricted to the construction area. Hence the impact on the soils can be termed as temporary and minimal.

7. Impact on ecology/Biodiversity Conservation

There are no rare or endangered species of national or global importance and there is no critical habitats found in the project influence area and hence the impacts on ecology due to the proposed subproject are insignificant. The greenbelt and the open spaces proposed in the industrial cluster will enhance the ecology of the region.

8. Impact on Land and Private Properties

The industrial estate land is already acquired by APIIC and subprojects will be placed in the industrial estate only. No new land acquisition is required for the subprojects or for the water supply pipeline.

9. Impact on historical monuments / religious structures

There are no adverse impacts expected on historical places/monuments.

10. Physical Cultural Resources (PCR)

There is no community property resources like temples, Churches, Masjids or community halls available within the project influence area. Subproject is in an industrial estate free from PCR.

Borrow Areas and Quarries: There is a requirement of impervious soils for the summer storage tank. The soils will be sourced from approved borrow areas and the same shall be rehabilitated to ensure that there is no risk to the habitants / animals located in the area. Borrow area if left rehabilitated could also become breeding grounds for mosquitoes resulting in vector borne diseases. Borrow area will be rehabilitated after closure of the borrow pits as per the requirement of the owner of the borrow area.

D. Potential Impacts during operation phase

The potential significant environmental impacts associated with the project during the operation phase are discussed below.

1. Impact on Air Quality

The proposed subproject will not have any impact on the air quality

2. Impact on Occupational health

The construction related occupational health and safety impacts may be significant particularly for personnel working on pipeline laying, and summer storage tank construction Regular rotation of employees conducting similar different tasks and efficient use of PPE's will help reduce the impact.Mitigation measure shall include provision of Personal Protective Equipment's (PPEs) to the personnel involved in construction activity

E. Solid Waste Management

The solid waste from subprojects comprises of construction debris, bitumen waste, oil soaked soil and cotton waste, empty oil and other hazardous waste materials. The solid waste may be used filling purposes and brick manufacturing and sold to brick manufacturer.

F. EHS guidelines of World Bank and Good International Industry Practice (GIIP)

World Bank and IFC formulates the general EHS guidelines and specific water supply EHS guidelines. The general EHS guidelines is available online. it can be accessed at website address
https://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES.

The compliance to the specific EHS guidelines is given below.

World Bank EHS guidelines

World Bank EHS Requirements	Compliance and Action Plan
Water Withdrawal	

World Bank EHS Requirements	Compliance and Action Plan
Evaluate potential adverse effects of surface water withdrawal on the downstream ecosystems and use appropriate environmental flow assessment to determine acceptable withdrawal rates.	The surface water withdrawal will be taken after permission from water resources (Reforms) department.
Design structures related to surface water withdrawal, including dams and water intake structures, to minimize impacts on aquatic life. For example • Limit maximum through-screen design intake velocity to limit entrainment of aquatic organisms • Avoid construction of water intake structures in sensitive ecosystems. If there are threatened, endangered, or other protected species within the hydraulic zone of influence of the surface water intake, ensure reduction of impingement and entrainment of fish and shellfish by the installation of technologies such as barrier nets (seasonal or year-round), screens, and aquatic filter barrier systems • Design water containment and diversion structures to allow unimpeded movement of fish and other aquatic organisms and to prevent adverse impacts on water quality • Design dam outlet valves with sufficient capacities for releasing the appropriate environmental flows	The sensitive ecosystem has been avoided and the intake design has been made by providing inlet screens.
Avoid construction of water supply wells and water intake structures in sensitive ecosystems	Sensitive ecosystem has been avoided.
Evaluate potential adverse effects of groundwater withdrawal, including modeling of groundwater level changes and resulting impacts to surface water flows, potential land subsidence, contaminant mobilization and saltwater intrusion. Modify extraction rates and locations as necessary to prevent unacceptable adverse current and future impacts, considering realistic future increases in demand.	No ground water withdrawal has been planned.
Water Treatment	
Minimize the quantity of solids generated by the water treatment process through optimizing coagulation processes	Coagulant will be used based on the TSS, excess coagulant will not be used.

World Bank EHS Requirements	Compliance and Action Plan
Dispose of lime sludge by land application if allowed, limiting application rates to about 20 dry metric tons per hectare (9 dry tons per acre) to minimize the potential for mobilization of metals into plant tissue and groundwater	Lime sludge will be disposed off in designated landfill.
Dispose of ferric and alum sludge by land application, if allowed and if such application can be shown through modeling and sampling to have no adverse impacts on groundwater or surface water (e.g. from nutrient runoff). Balance use of ferric and alum sludge to bind phosphorous (e.g. from manure application at livestock operations) without causing aluminum phytotoxicity (from alum), iron levels in excess of adulteration levels for metals in fertilizers, or excessively low available phosphorous levels	Sludge will be disposed off in landfill.
Potential impact on soil, groundwater, and surface water, in the context of protection, conservation and long-term sustainability of water and land resources, should be assessed when land is used as part of any waste or wastewater treatment system	No disposal of solid waste and liquid waste will be done on land. So there will not be soil contamination. However regular monitoring will be conducted for any accidental discharge or disposal of sludge.
Sludge may require special disposal if the source water contains elevated levels of toxic metals, such as arsenic, radionuclides, etc.	Water is good condition and no contamination of toxic metals expected. However water testing will be conducted prior to design of the system.
Regenerate activated carbon (e.g. by returning spent carbon to the supplier)	Activated carbon will not be used as the source water is surface water and no smell is there.
Wastewater from Water Treatment Plant	
Land application of wastes with high dissolved solids concentrations is generally preferred over discharge to surface water subject to an evaluation of potential impact on soil, groundwater, and surface water resulting from such application	No wastewater will be generated from the water treatment plant
Recycle filter backwash into the process if possible	Backwash will be added to raw water for treatment.
Treat and dispose of reject streams, including brine, consistent with national and local requirements. Disposal options include return to	There will not be reject stream while source water is good quality and it will be treated and supplied.

World Bank EHS Requirements	Compliance and Action Plan
original source (e.g. ocean, brackish water source, etc.) or discharge to a municipal sewerage system, evaporation, and underground injection.	
Hazardous Chemicals	
For systems that use gas chlorination • Install alarm and safety systems, including automatic shutoff valves, that are automatically activated when a chlorine release is detected • Install containment and scrubber systems to capture and neutralize chlorine should a leak occur • Use corrosion-resistant piping, valves, metering equipment, and any other equipment coming in contact with gaseous or liquid chlorine, and keep this equipment free from contaminants, including oil and grease • Store chlorine away from all sources of organic chemicals, and protect from sunlight, moisture, and high temperatures	All measures of management of chlorine will be part of the operation and maintenance manual of operator.
Store sodium hypochlorite in cool, dry, and dark conditions for no more than one month, and use equipment constructed of corrosion-resistant materials	All measures of management of chlorine will be part of the operation and maintenance manual of operator.
Store calcium hypochlorite away from any organic materials and protect from moisture; fully empty or re-seal shipping containers to exclude moisture. Calcium hypochlorite can be stored for up to one year	All measures of management of chlorine will be part of the operation and maintenance manual of operator.
Isolate ammonia storage and feed areas from chlorine and hypochlorite storage and feed areas	All measures of management of chlorine will be part of the operation and maintenance manual of operator.
Minimize the amount of chlorination chemicals stored on site while maintaining a sufficient inventory to cover intermittent disruptions in supply	All measures of management of chlorine will be part of the operation and maintenance manual of operator.
Develop and implement a prevention program that includes identification of potential hazards, written operating procedures, training, maintenance, and accident investigation procedures	All measures of management of chlorine will be part of the operation and maintenance manual of operator.

World Bank EHS Requirements	Compliance and Action Plan
Develop and implement a plan for responding to accidental releases	All measures of management of chlorine will be part of the operation and maintenance manual of operator.
Air Emissions	
Air emissions from water treatment operations may include ozone (in the case of ozone disinfection) and gaseous or volatile chemicals used for disinfection processes (e.g., chlorine and ammonia). Measures related to hazardous chemicals discussed above will mitigate risks of chlorine and ammonia releases. In addition, specific recommended measures to manage air emissions include installation of an ozone-destroying device at the exhaust of the ozone-reactor (e.g., catalytic oxidation, thermal oxidation, or GAC).	Ozone will not be used for disinfection. Other chemical will be used efficiently to prevent any leakage or wastage.

Occupational Health and Safety

World Bank EHS Requirements	Compliance and Action Plan
Install railing around all process tanks and pits. Require use of a life line and personal flotation device (PFD) when workers are inside the railing, and ensure rescue buoys and throw bags are readily available	Railing will be provided where risk of falling in water is assessed. However personal flotation device will be used.
Use PFDs when working near waterways	Personal flotation device will be used.
Implement a confined spaces entry program that is consistent with applicable national requirements and internationally accepted standards, if any. Valves to process tanks should be locked to prevent accidental flooding during maintenance	No confined space is expected.
Use fall protection equipment when working at heights	This will form part of operation and maintenance manual of operator
Maintain work areas to minimize slipping and tripping hazards	This forms part of construction methodology of contractor.
Use proper techniques for trenching and shoring	This forms part of construction methodology of contractor.

World Bank EHS Requirements	Compliance and Action Plan
Implement fire and explosion prevention measures in accordance with internationally accepted standards	This forms part of construction methodology of contractor.
Locate all underground utilities before digging	Test pits will be dug and under ground utilities will be identified
Chemical Exposure and Hazardous Atmospheres	
Implement a training program for operators who work with chlorine and ammonia regarding safe handling practices and emergency response procedures	This will form part of operation and maintenance manual of operator
Provide appropriate personal protective equipment (including, for example, self-contained breathing apparatus) and training on its proper use and maintenance	This will form part of operation and maintenance manual of operator
Prepare escape plans from areas where there might be a chlorine or ammonia emission	This will form part of operation and maintenance manual of operator
Install safety showers and eye wash stations near the chlorine and ammonia equipment and other areas where hazardous chemicals are stored or used	This will form part of operation and maintenance manual of operator
If source water contains radioactive substances, locate water treatment units and water treatment sludge areas as far as possible from common areas (e.g., offices)	This will form part of operation and maintenance manual of operator
Conduct radiation surveys at least annually, especially in areas where radionuclides are removed	This will form part of operation and maintenance manual of operator
Ventilate enclosed processing areas and ventilate equipment, such as pump stations, prior to maintenance	This will form part of operation and maintenance manual of operator
Use personal gas detection equipment while working in a wastewater facility	This will form part of operation and maintenance manual of operator

World Bank EHS Requirements	Compliance and Action Plan
Continuously monitor air quality in work areas for hazardous conditions (e.g. explosive atmosphere, oxygen deficiency)	This will form part of operation and maintenance manual of operator
Periodically sample air quality in work areas for hazardous chemicals. If needed to meet applicable occupational health national requirements or internationally accepted standards, install engineering controls to limit worker exposure, for example collection and treatment of off-gases from air stripping	This will form part of operation and maintenance manual of operator
Prohibit eating, smoking, and drinking except in designated areas	This will form part of operation and maintenance manual of operator
Rotate personnel among the various treatment plant operations to reduce inhalation of air-stripped chemicals, aerosols, and other potentially hazardous materials	This will form part of operation and maintenance manual of operator

6 Public Consultation and Information Disclosure

A. Public Consultation and Information Disclosure

Detailed consultations and public hearing in the presence of District Collector were conducted as per the Environmental Clearance requirements. Details are available in the IEE prepared for Tranche I sub projects.

B. Consultation with Downstream Users

The water allocation for the Naidupeta Industrial cluster has been provided by Government of Andhra Pradesh (Refer – Section 3.1 in chapter 3). Government of Andhra Pradesh has issued the water allocation under its policy after considering all the users under the Kandaleru – Poondi canal (Refer Annexure 1). Hence consultation is not applicable

C. Future Consultation

The future consultations are planned at Melchur and Gollagunta which are located enroute the pumping main alignment. The consultations shall be planned and executed by the PMSC Environmental and Social safeguard experts. The consultations will include (i) Public meetings to discuss and plan work programs and allow issues to be raised and addressed during the construction stage; (ii) the consultation will be conducted during contraction stage along and (iii) smaller-scale meetings to discuss and plan construction work with individual communities will be informed about the activities involved laying of the pumping main and the mitigation measures to be put in place to reduce disturbances due to the pipeline laying activities and other impacts if any and provide a mechanism through which stakeholders can participate in subproject monitoring and evaluation..

D. Information Disclosure

The EIA report for Naidupeta industrial estate including the subproject component are disclosed by the ministry of environment and forests. As indicated MPSEZ, IP-Naidupeta and IP-Attivaram has received the Environmental clearances. Information is disclosed through public consultation and making relevant documents available in the following public locations.

1. Office of Zonal Manager, APIIC, Nellore.
2. APIIC web site
3. Construction site office, MPSEZ Naidupeta
4. The Commissioner of Industries & Project Director
   V.C.I.C. D.P. PMU,
   1St floor, Govt. Printing Press, Muthyalapadu, Vijayawada.

The following documents will be submitted to ADB for disclosure on its website:

(i) final IEE;

(ii) a new or updated IEE and corrective action plan prepared during project implementation, if any; and

(iii) environmental monitoring reports.

VCICDP PMU will send written endorsement to ADB for disclosing these documents on ADB's website. VCICDP PMU will also provide relevant safeguards information in a timely manner, in an accessible place and in a form and languages understandable to affected people and other stakeholders. For illiterate people, other suitable communication methods will be used.

E. Grievance Redress Mechanism

Common Grievance Redress Mechanism. Project grievance redress mechanism will be established to evaluate, and facilitate the resolution of APs' concerns, complaints, and grievances related to social and environmental issues of the project. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project.

A common GRM will be in place for social, environmental, or any other grievances related to the project. Every grievance shall be registered and careful documentation of process with regard to each grievance undertaken, as explained below. The APIIC environmental and social safeguards officers will have the overall responsibility for timely grievance redress on environmental and social safeguards issues, including keeping and maintaining the complaint and redress records. Public awareness campaign will be conducted to ensure that awareness on the project and its grievance redress procedures is generated.

Affected persons will have the flexibility of conveying grievances/suggestions by sending grievance redress/suggestion in writing, through telephone call to APIIC safeguards officer or by filling forms for complaints/suggestion by email in the VCICDP Project site to be installed under the APIIC websites. Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved will be undertaken. The APIIC's safeguard officers will have the overall responsibility for timely grievance redressal on environmental and social safeguards issues and for registration of grievances, related disclosure, and communication with the aggrieved party.

Grievance Redressal Committee. Grievance Redressal Committee (GRC) will be established at two-levels, one at APIIC level and another at PMU level, to receive, evaluate and facilitate the resolution of displaced persons concerns, complaints and grievances. The GRC will provide an opportunity to the APs to have their grievances redressed prior to approaching the jurisdictional sub court. The GRC is aimed to provide a trusted way to voice and resolve concerns linked to the project, and to be an effective way to address affected person's concerns without allowing it to escalate resulting in delays in project implementation.

The GRC will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. The GRC is not intended to bypass the government's inbuilt redressal process, nor the provisions of the statute, but rather it is intended to address displaced persons concerns and complaints promptly, making it readily accessible to all segments of the displaced persons and is scaled to the risks and impacts of the project.

The APIIC level GRCs will function out of each District where the subproject is being implemented. The GRC will be Chaired by Joint Collector and comprising of the Divisional Engineer acting as its member secretary and the following members: (i) RDO/Sub Collector of the division; (ii) Project Director, DRDA; (iii) Chief Executive Officer, Zilla Parishad; (iv) District Panchayat Officer; (v) District Education Officer; (vi) District Medical and Health Officer; (vii)

District Level representative of DISCOM; and (viii) Superintendent, RWS Panchayat Raj Department.

The Project Director, PMU will be the appellate authority who will be supported by the PMSC and Safeguard Officer of PMU, and APIIC to make final decisions on the unresolved issues. Government of Andhra Pradesh has already issued a Government Order No GO.RT.No. 163 dated 08-06-2018 constituting GRC (Annexure 5).

Grievance redresses process. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor and PMSC on-site personnel will provide the most easily accessible or first level of contact for quick resolution of grievances. Contact phone numbers and names of the concerned APIIC safeguard officers and contractors will be posted at all construction sites at visible locations. The APIIC safeguard officers will be responsible to see through the process of redressal of each grievance.

(i) **1st Level Grievance.** The phone number of the APIIC office should be made available at the construction site signboards. The contractors engineer and APIIC safeguard officers can immediately resolve on-site in consultation with each other, and will be required to do so within 7 days of receipt of a complaint/grievance.

(ii) **2nd Level Grievance.** All grievances that cannot be redressed within 7 days at field/ward level will be reviewed by the APIIC level grievance redress committee (GRC) with support from APIIC safeguard officers and PMSC environment and resettlement specialists. APIIC level GRC will attempt to resolve them within 15 days.

(iii) **3rd Level Grievance.** The APIIC safeguards officers will refer any unresolved or major issues to the PMU/State-level GRC, who in consultation with APIIC will resolve them within 15 days.

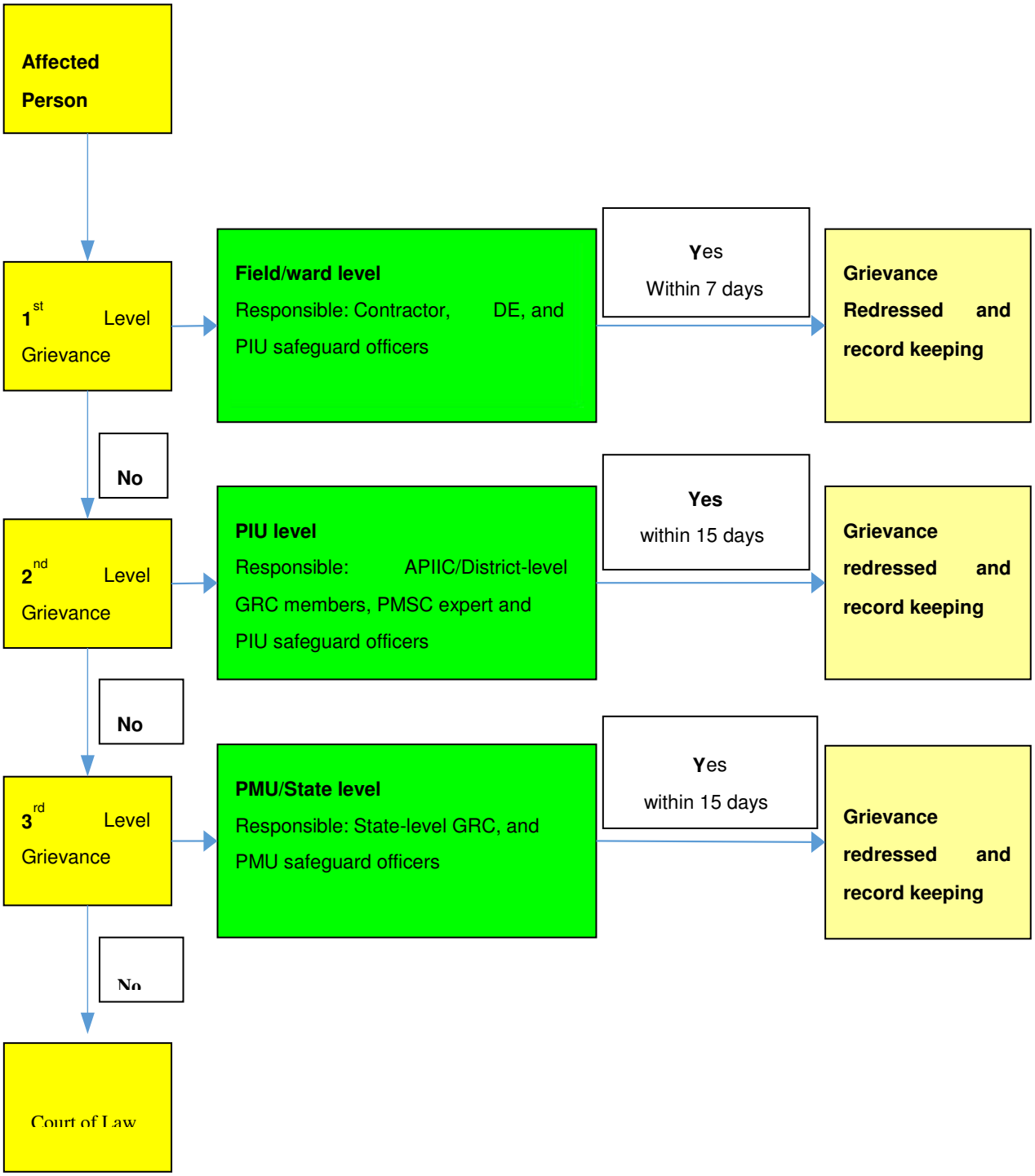
Despite the project GRM, an aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM. In the event that the established GRM is not in a position to resolve the issue, the affected person also can use the ADB Accountability Mechanism through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters or the ADB India Resident Mission (INRM). The complaint can be submitted in any of the official languages of ADB's developing member countries. TheADB Accountability Mechanism information will be included in the project-relevant information to be distributed to the affected communities, as part of the project GRM.

Record keeping. Records of all grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective action the date by these were effected and final outcome will be kept by PMU. The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the PMU office, and on the web, as well as reported in the semi-annual social and environmental monitoring reports to be submitted to ADB.

Periodic review and documentation of lessons learned. The PMU, and APIIC supported by the PMSC specialist will periodically review the functioning of the GRM and record information on the effectiveness of the mechanism, especially on the APIIC's ability to prevent and address grievances.

Costs: All costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by APIIC; while costs related to escalated grievances will be met by the PMU. Cost estimates for grievance redress are included in resettlement cost estimates.

The grievance redress process is given below



Note: GRC = Grievance Redressal Committee; PMU = Program Management Unit; PMSC = Project Management and Supervision Consultants

The GRCs will continue to function throughout the project duration.

7 Institutional Arrangements and Responsibilities

DOI will be the executing agency. A PMU established within the Directorate of Industries, which is under the DOI is responsible for planning, implementation, monitoring and supervision, and coordination for subproject under VCICDP. APIIC will be responsible for implementing the subproject. PMU will recruit PMSC to provide support in implementation of VCICDP.

PMU will support APIIC in implementation, management and monitoring of the project. PMU and APIIC will be assisted by PMSC respectively. APIIC will appoint construction contractors to build infrastructure. Once the infrastructure is built and commissioned, the APIIC will operate and maintain the infrastructure. At state -level a Project Steering Committee (PSC) will be established to provide overall policy direction for the implementation of VCICDP.

A. Safeguard Implementation Arrangement

Project Management Unit. The PMU structure is as provided in the Table below. PMU will be supported by PSMC. PMU will appoint a safeguards coordinator as a part of the PMSC team to collect information and progress on environmental and social safeguards compliance.

Table 7-1: Tentative PMU Structure

Position	Tasks
Project Director	Overall Project Management
Project Director (Department of Industries)	Management of land-related issues
Procurement Officer	Procurement of consultants, civil works, goods, and NGOs, etc.
PMSC (Senior Engineer)	Technical officer with engineering background and preferably experience of multilateral projects
Institutional Coordination and Policy Reforms officer	Policy and Institutional support
Investment Promotion Officer	Coordination of VCICDP promotion, marketing
Monitoring and Evaluation Officer	Monitoring project results
PMSC (Environmental Safeguards Officer)	Environmental safeguards compliance
PMSC (Social Safeguards and Gender Officer)	Resettlement compliance, social, gender
Chief Accountant and Financial Management Officer	Project accounting, audit and reporting
Accountant	Accounting
Office Manager	Office management

Key tasks and responsibilities of the PMU environmental safeguards officer are as follows:

(i) confirm existing IEEs/EMPs are updated based on detailed designs and that new IEEs/EMPs are prepared in accordance with the EARF and subproject selection criteria related to safeguards;
(ii) confirm whether IEEs/EMPs are included in bidding documents and civil works contracts;
(iii) provide oversight on environmental management aspects of subprojects;
(iv) ensure SEMPs prepared by contractors are cleared by APIICs prior to commencement of civil works;
(v) establish a system to monitor environmental safeguards of the project including monitoring the indicators set out in the monitoring plan of the SEMPs;
(vi) facilitate and confirm overall compliance with all Government rules and regulations regarding site and environmental clearances as well as any other environmental requirements (e.g., Location Clearance Certificates, Environmental Clearance Certificates etc.), as relevant;
(vii) supervise and provide guidance to the APIIC to properly carry out the environmental monitoring and assessments as per the EARF;
(viii) review, monitor and evaluate the effectiveness with which the SEMPs are implemented, and recommend necessary corrective actions to be taken as necessary;
(ix) consolidate monthly environmental monitoring reports from APIIC and submit semi-annual monitoring reports to ADB;
(x) ensure timely disclosure of final IEEs/SEMPs in locations and in a form and language accessible to the public and local communities; and
(xi) address any grievances brought about through the Grievance Redress Mechanism (GRM) in a timely manner.

APIIC: In APIIC, the Senior Engineer will be deputed/designated as Environmental Safeguard Officer in addition to the environmental engineer.

Table 7-2: APIIC Environmental Safeguard Officer Tasks and Responsibilities

APIIC Environmental Safeguard Officer	**Tasks and Responsibilities**
Senior Engineer Cum Compliance Officer – APIIC	(i) include IEEs/EMPs in bidding documents and civil works contracts; (ii) review and approve SEMPs prepared by contractors; (iii) oversee day-to-day implementation of SEMPs by contractors including compliance with all government rules and regulations; (iv) take necessary action for obtaining rights of way; (v) oversee environmental monitoring by contractors; (vi) take corrective actions when necessary; (vii) submit monthly environmental monitoring reports to PMU; (viii) conduct continuous public outreach and awareness building related to environmental management; (ix) address grievances brought about through the GRM in a timely manner; and (x) organize an induction course for the training of contractors in environmental management to be delivered by PMSC consultants
	(i) Ensure complete payment and other resettlement assistants provided to the affected people prior to displacements (physical and economical) and starts of civil works in the affected areas; (ii) Coordinate with Safeguard Manager of PMU and ensure all social/environmental requirements if any are met.

Project Management and Supervision Consultants. The PMU and APIIC will be assisted by PMSC which will be staffed with environmental and social safeguard specialists to provide required assistance and regular progress report on safeguards implementation. The environmental specialist will have overall responsibility in implementation of environmental safeguards, including appropriate monitoring and reporting responsibilities. Key tasks and responsibilities of the PSMC environmental specialists are as follows:

(i) Update the IEEs including site- and subproject-specific EMP;
(ii) Supervise EMP implementation;
(iii) Prepare a monitoring report of final site- and subproject-specific EMPs and communicate with the stakeholders, including ADB on the progress, of the subprojects including environmental safeguards compliance; and
(iv) Prepare semi-annual environmental safeguards compliance reports.
(v) Establish a system to monitor environmental safeguards of the Project; prepare indicators for monitoring important parameters of safeguards;
(vi) Ensure all requisite approvals and no objection certificates are in place to allow implementation, and that these are renewed in a timely manner where required;
(vii) Ensure that provisions and conditions of all necessary permits, consents, NOCs, etc., are incorporated in the IEEs;
(viii) Take proactive action to anticipate the potential environmental impacts of the Project to avoid delays in implementation;
(ix) Assist APIIC in the establishment of GRC for IEE implementation;
(x) Support the APIICs and PMU in the GRM implementation to address any grievances submitted in a timely manner and establish record keeping system for complaint and redressal status of the project;
(xi) Assist APIIC and PMU in the project GRM mechanism and complaint solution;
(xii) Assist APIIC and PMU for GRM record keeping for first tier complaint and redressed actions;
(xiii) Ensure that the relevant environmental mitigation measures specified in the updated EMP will be incorporated into bidding documents and approved by the ADB prior to the issuance of the invitation for bidding;
(xiv) Closely monitor and supervise to ensure that all mitigation measures and monitoring requirements set out in the EMP are implemented and complied with throughout the project implementation, and when required, prepare or recommend necessary corrective actions to be taken and monitor its implementation;
(xv) Provide on-the-job training programs to APIIC staff involved in Project implementation for strengthening their capacity in managing and monitoring environmental safeguards; and
(xvi) Assist the APIIC safeguards officer to sensitize the turnkey contractors on ADB SPS, EARF, and GRM during detailed design and civil works implementation.

Civil works contracts and contractors. EMPs (IEE) are included in bidding and contract documents and verified by the APIIC and PMU. The contractor is required to designate an Environment, Health and Safety (EHS) supervisor to ensure implementation of EMP during civil works. Contractors are to carry out all environmental mitigation and monitoring measures outlined in their contract. The contractor has to submit and use a Site-specific Environment Management Plan (SEMP) and reported in SEMR.

The APIIC and PMU will ensure that bidding and contract documents include specific provisions requiring contractors to comply with: (i) all applicable labor laws and core labor standards on (a) prohibition of child labour as defined in national legislation for construction and maintenance activities; (b) equal pay for equal work of equal value regardless of gender,

ethnicity, or caste; and (c) elimination of forced labour; and with (ii) the requirement to disseminate information on sexually transmitted diseases, including HIV/AIDS, to employees and local communities surrounding the project sites.

Table 7-3: Institutional Roles and Responsibility: Environmental Safeguards

Phase	PMU / APIIC	PMSC	ADB
Appraisal stage of all Subprojects under the investment program	PMU / APIICs to review the REA checklists and draft EIA/IEE. PMU / APIICs to submit draft EIA/IEE to ADB for review and approval. PMU / APIICs to disclose on its website the approved EIA/IEE. PMU / APIICs to ensure disclosure of information throughout the duration of the subproject.	PMSC to conduct REA for each subproject using checklists and to prepare EIA/IEE	ADB to review the REA checklists and reconfirm the categorization. ADB will review and approve EIA reports (Category A) and IEE reports (Category B) subprojects. ADB to disclose on its website the submitted EIA/IEE report.
Detailed Design Phase of all Subprojects under the investment program	PMU / APIICs with the assistance of PMSC to incorporate the EMP, environmental mitigation and monitoring measures into contract documents. PMU / APIICs to obtain all applicable consents/permits/clearances PMU to submit to ADB final IEE for approval and disclosure at ADB website.	PMSC to revise the IEE and EMP in accordance with detailed design changes if warranted. PMSC to ensure incorporation of EMP in bid documents and contracts. PMSC to prepare inventory of utilities to be affected by the subproject.	ADB will review and approve updated EIA reports (Category A) and IEE reports (Category B) subprojects. ADB to disclose on its website updated EIA/IEE report.
Pre-construction Phase of all Subprojects under the investment program	PMU / APIICs to conduct public consultation and disclosure during IEE process and comments will be reflected in the IEE report. PMU / APIIC to monitor the disclosure and public consultation. APIIC and PMSC to approve contractor‘s proposed locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes. PMU to submit to ADB in prescribed format semi-annual Environment Monitoring Report 6 months after Loan effective date.	PMSC to ensure statutory clearances and permits from government agencies/other entities are obtained prior to start of civil works. PMSC to ensure disclosure of information prior to start of civil works and throughout the duration of the construction period. PMSC to approve contractor‘s site-specific environmental plan (such as traffic management plan, waste management plan, locations for camp sites, storage areas, lay down areas, and other sites/plans specified in the EMP). PMSC to conduct baseline environmental	

Phase	PMU / APIIC	PMSC	ADB
		conditions and inventory of affected trees	
Construction Phase of all Subprojects under the investment program	PMU / APIICs will review 6monthly monitoring and EMP implementation report including the status of Project compliance with statutory clearances and with relevant loan covenants and submit the 6-monthly report to ADB and seek permission to disclose the same in the investment program web site.	PMSC to monitor the implementation of mitigation measures by Contractor. PMSC to prepare monthly progress reports including a section on implementation of the mitigation measures (application of EMP and monitoring plan) PMSC (as per EMP) will conduct environmental quality monitoring during construction stage (ambient air and noise, and water quality). PMSC to prepare the six monthly monitoring reports on environment by focusing on the progress in implementation of the EMP and issues encountered and measures adopted, follow-up actions required, if any.	ADB to review the 6 monthly report, provide necessary advice if needed to the PMU and approve the same. ADB to disclose on its website environmental monitoring reports.
Pre-operation Phase (Commissioning and Defect Liability Period)	PMU / APIICs to review monitoring report of PMSC on post-construction activities by the contractors as specified in the EMP PMU / APIIC to review applicable consents requirements	PMSC to apply for the CTOs prior to commissioning. PMSC to monitor and approve post-construction activities by the contractors as specified in the EMP.	
Operation Phase of all Subprojects under the **investment program**	APIICs to conduct monitoring, as specified in the environmental monitoring plan. APPCB to monitor the compliance of the standards regarding drinking water quality, ground water, ambient air, effluent quality from treatment plant, noise, as applicable.		

Notes: APPCB = Andhra Pradesh State Pollution Control Board, PMSC = Project Management Supervisory Consultants, CTE = Consent to Establish, CTO = Consent to Operate, EIA = Environmental Impact Assessment, EMP = Environmental Management Plan, IEE = Initial Environmental Examination, PMU = Project Management Unit; APIIC = Project Implementation Unit; REA = Rapid Environmental Assessment

8 Institutional Capacity and Development

The PMSC environmental safeguards specialist will be responsible for training PMU and APIIC on environmental awareness and management in accordance with both ADB and government requirements. Typical modules would be as follows: (i) sensitization; (ii) introduction to environment and environmental considerations in water supply and wastewater projects; (iii) review of IEEs and integration into the project detailed design; (iv) improved coordination within nodal departments; and (v) monitoring and reporting system. Specific modules customized for the available skill set will be devised after assessing the capabilities of the target participants and the requirements of the project. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites. The proposed training project, along with the frequency of sessions, is presented in Table below.

Table 8-1: Training Program for Environmental Management

Description	Contents	Schedule	Participants
Pre-construction stage			
Orientation workshop	Module 1 – Orientation ADB Safeguard Policy Statement Government of India Environmental Laws and Regulations	1/2 day (at Vijayawada) (50 persons)	PMU, and APIIC's officials involved in project implementation
Description	**Contents**	**Schedule**	**Participants**
	Module 2 – Environmental Assessment Process ADB environmental process, identification of impacts and mitigation measures, formulation of an environmental management plan (EMP), implementation, and monitoring requirements - Review of environmental assessment report to comply with ADB requirements Incorporation of EMP into the project design and contracts	1/2 day (at Vijayawada) (50 persons)	PMU, and APIIC's officials involved in project implementation.
Construction stage			
Orientation program/ workshop for contractors and supervisory staff	Roles and responsibilities of officials/contractors/consultants towards protection of environment - Environmental issues during construction Implementation of EMP Monitoring of EMP implementation Reporting requirements	1 day (at Subproject locations) (15 persons)	PMU APIICs Contractors

Experiences and best practices sharing	Experiences on EMP implementation – issues and challenges Best practices followed	1 day on a regular period to be determined by PMU, APIICs, and PMSC (at Vijayawada / Naidupeta) (50 persons)	PMU APIICs Contractors

ADB = Asian Development Bank; EMP = Environmental Management Plan; APIIC = Project Implementation Unit; PMU = Project Management Unit; PMSC = Project Management Supervisory Consultant;

9 Environmental Management Plan

Environmental Management Plan (EMP) is an essential component of the Environmental Impact Assessment which gives a detailed activity programme for taking care of the environmental aspect during different stages of implementation of the project (viz. preconstruction, construction and operation). An effective EMP is essential to ensure sustainable development.

S.No	Description	Cost of the Budget (Rs)
1	EMP implementation to prevent and mitigate adverse impacts on Air, Water, Soil and Noise Levels, Health and Safety etc.	20,00,000
2	Monitoring Plan	Included in BOQ
3.	Training	15,00,000

9.1 Impact and Mitigation Matrix during Pre-Construction Phase

S. No.	Environmental Issue	Location/sources	Mitigation Measures	Implementing Agency	Supervising &Monitoring Agency
PRE-CONSTRUCTION PHASE					
1	EIA Approval	Undertake all necessary requirements to obtain EIA approval for Naidupeta industrial estate including the proposed subprojects	Necessary planning and coordination with concerned authorities Prior notice to and consultation with concerned authority, public to be affected so as to ensure that work does not get affected.	APIIC	APPCB / MoEF

S. No.	Environmental Issue	Location/sources	Mitigation Measures	Implementing Agency	Supervising &Monitoring Agency
2	Contractor Preparatory Works		The Contractor will complete the following activities no later than 30 days upon issuance of Notice to Proceed Submit appointment letter and resume of the Contractor's Environmental Officer (EO) to SC/APIIC EO will engage CSC-Environment Specialist and to a meeting to discuss in detail the EMP, seek clarification and recommend corresponding revisions if necessary. 3.) EO will request CSC-ES copy of monthly monitoring formats and establish deadlines for submission. 4.) EO will submit for CSC-ES approval an action plan to secure all permits and approvals needed to be secured during construction stage which include but not limited to: i) disposal of hazardous waste (e.g. sludge, toxic untreated wastewater), ii) temporary storage location, iii) water use, and iv) ditch that will be managed for the period of construction and after construction such ditches will be filled	Contractor	APIIC

S. No.	Environmental Issue	Location/sources	Mitigation Measures	Implementing Agency	Supervising &Monitoring Agency
			and restored to original condition.		

9.2 Impact and Mitigation Matrix during Pre-Construction Phase

S. No.	Activity	Relevant Environmental components likely to be impacted	Likely Impacts and their significance in the absence of Mitigation Measures	Proposed Mitigation Measures
Construction Phase				
1.	Site preparation/ Material transport and construction activities	Air Quality	– Exhaust emissions from vehicles – Windblown dust during material movement – Fugitive dust during material unloading – Dust suspension during site preparation, construction and trenching – Emissions from DG sets	– To reduce impacts from exhausts, emission control norms shall be enforced/adhered. – All the vehicles and construction machinery shall be periodically checked to ensure compliance to the emission standards – Construction equipment and transport vehicles shall be periodically washed to remove accumulated dirt – Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment, etc. – Provide enclosures on all sides of construction site – Water sprinkling shall be carried out to suppress fugitive dust in the project site – Environmental awareness program shall be provided to the personnel involved in developmental works – Use of tarpaulin covers and speed regulations for vehicles engaged in transportation
		Noise	Noise /Vibration from following activities – Vehicles transporting construction material – Diesel run engines of construction machinery – Drilling/Pile driving activities	– Noise levels shall be maintained below threshold levels stipulated by Central Pollution Control Board (CPCB) time to time – Procurement of machinery/construction equipment in accordance with specifications conforming to source noise levels less than 75 dB (A)

S. No.	Activity	Relevant Environmental components likely to be impacted	Likely Impacts and their significance in the absence of Mitigation Measures	Proposed Mitigation Measures
				– Well-maintained construction equipment, which meets the regulatory standards for source noise levels, shall be used – Any equipment emitting high noise, wherever possible, shall be oriented so that the noise is directed away from sensitive receptors – Noise attenuation shall be practised for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers – High noise generating activities such as piling and drilling shall be scheduled in day time – Personnel exposed to noise levels beyond threshold limits shall be provided with PPE.
		Disturbance to Natural Drainage pattern	– Impact to natural flow of runoff due to blockage and change of drainage course	– The drains passing through the area shall be rerouted as per the drain rerouting plan – Adequate storm water drainage system shall be provided. – The storm water system need to be properly connected to the natural drainage system of the area – Drainage system shall be provided at construction yard. Measures shall be taken to prevent silting of natural drainage due to runoff from construction areas
		Vegetation and Strain on existing infrastructure	– Loss of vegetation and strain on existing infrastructure.	– Commencement of greenbelt development during construction phase especially in terms of nursery development and identification of indigenous species – Temporary workers camp with self-sufficient infrastructure facilities.

9.3 Impact and Mitigation Matrix during Operation Phase

S. No.	Activity	Relevant Environmental components likely to be impacted	Likely Impacts and their significance in the absence of Mitigation Measures	Proposed Mitigation Measures
Operation Phase				
1.	Water Supply	Water resources	Impact on existing water resources	– Total water requirement will be met from TGP Canal – No dependent on Ground water

9.4 Site Specific Environmental Management Plan

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored	Location	Responsible for mitigation	Monitoring Method	Responsible for Monitoring	Frequency of monitoring
Pre-Construction Stage							
Undertake all necessary requirements to obtain EIA approval for Naidupeta industrial estate including the proposed subprojects	Necessary planning and coordination with concerned authorities Prior notice to and consultation with concerned authority, public to be affected so as to ensure that work does not get affected.	Environmental Clearance No public is affected in this package	Naidupeta industrial cluster	EC compliance is responsibility of APIIC	Documents check	APIIC/ PMU/ PMSC	Once
	The Contractor will complete the following activities no later than 30 days upon issuance of Notice to Proceed Submit appointment letter and resume of the Contractor's Environmental Officer (EO) to APIIC EO will engage CSC-Environment Specialist and to a meeting to discuss in detail the EMP, seek clarification and recommend corresponding revisions if necessary. 3.) EO will request CSC-ES copy of monthly monitoring formats and establish deadlines for submission. 4.) EO will submit for CSC-ES approval an action plan to secure all permits and approvals needed to be secured during construction stage which include but not limited to: i)	Letters and physical progress	Office of the contractor	Contractor	Document check	APIIC/ PMU/ PMSC	Once

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored	Location	Responsible for mitigation	Monitoring Method	Responsible for Monitoring	Frequency of monitoring
	disposal of hazardous waste (e.g. sludge, toxic untreated wastewater), ii) temporary storage location, iii) water use, and iv) ditch that will be managed for the period of construction and after construction such ditches will be filled and restored to original condition.						
Construction Stage							
– Exhaust emissions from vehicles – Windblown dust during material movement – Fugitive dust during material unloading – Dust suspension during site preparation, construction and trenching – Emissions from DG sets	– To reduce impacts from exhausts, emission control norms shall be enforced/adhered. – All the vehicles and construction machinery shall be periodically checked to ensure compliance to the emission standards – Construction equipment and transport vehicles shall be periodically washed to remove accumulated dirt – Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment, etc. – Provide enclosures on all sides of construction site – Water sprinkling shall be carried out to suppress fugitive dust in the project site – Environmental awareness program shall be provided to the personnel involved in developmental works	Ambient Air Quality Monitoring	Near Construction site	Contractor	Laboratory test	APIIC/ PMU/ PMSC	Visual monitoring by the PMSC specialist on following dates 9-11 July 2018 24-25 October 2018 29-30 November 2018

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored	Location	Responsible for mitigation	Monitoring Method	Responsible for Monitoring	Frequency of monitoring
	Use of tarpaulin covers and speed regulations for vehicles engaged in transportation						
Noise /Vibration from following activities – Vehicles transporting construction material – Diesel run engines of construction machinery Drilling/Pile driving activities	– Noise levels shall be maintained below threshold levels stipulated by Central Pollution Control Board (CPCB) time to time – Procurement of machinery/construction equipment in accordance with specifications conforming to source noise levels less than 75 dB (A) – Well-maintained construction equipment, which meets the regulatory standards for source noise levels, shall be used – Any equipment emitting high noise, wherever possible, shall be oriented so that the noise is directed away from sensitive receptors – Noise attenuation shall be practised for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers – High noise generating activities such as piling and drilling shall be scheduled in day time Personnel exposed to noise levels beyond threshold limits shall be provided with PPE.	Ambient Noise Level Monitoring	Near Construction site	Contractor	Laboratory test	Contractor	Monitoring during the construction period is being done.

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored	Location	Responsible for mitigation	Monitoring Method	Responsible for Monitoring	Frequency of monitoring
Disturbance to Natural Drainage pattern Impact to natural flow of runoff due to blockage and change of drainage course	– The drains passing through the area shall be rerouted as per the drain rerouting plan – Adequate storm water drainage system shall be provided. – The storm water system need to be properly connected to the natural drainage system of the area Drainage system shall be provided at construction yard. Measures shall be taken to prevent silting of natural drainage due to runoff from construction areas	Drains will be constructed first then existing drains will be closed and diverted to new drains	Near Construction site	Contractor	Visual inspection and record checking	APIIC/ PMU/ PMSC	9-11 July 2018 24-25 October 2018 29-30 November 2018
Vegetation and Strain on existing infrastructure – Loss of vegetation and strain on existing infrastructure.	– Commencement of greenbelt development during construction phase especially in terms of nursery development and identification of indigenous species Temporary workers camp with self-sufficient infrastructure facilities.	No of trees to be cut.	Near Construction site	Contractor	Visual inspection and	APIIC/ PMU/ PMSC	9-11 July 2018 24-25 October 2018 29-30 November 2018
Operation Stage							
Air Quality	Operation of DG sets – Dust generation from excavation and earth work	Downstream villages and habitations	APIIC/ Operatior	Consultation with community	APIIC/ Operator / PMU/ PMSC	Once a year	Downstream villages and habitations
Water Quality	– Ground water and water quality of the stream	Downstream villages and habitations	APIIC/ Operatior	Consultation with community	APIIC/ Operator / PMU/ PMSC	Once a year	Downstream villages and habitations

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored	Location	Responsible for mitigation	Monitoring Method	Responsible for Monitoring	Frequency of monitoring
Noise Level	– Noise generation from operation of maintance vehicles and dielsel generatior if requried	Downstream villages and habitations	APIIC/ Operatior	Consultation with community	APIIC/ Operator / PMU/ PMSC	Once a year	Downstream villages and habitations
Public grievances and consultation	– Public consultation in the near by villages and down stream villages	Concerns and complaint of the community for concerns and issues	Downstream villages and habitations	APIIC/ Operator	Consultation with community	APIIC/ Operator / PMU/ PMSC	Once a year

9.5 Environmental Monitoring Programme

Environmental monitoring is one of the important components of the Environmental Management Plan (EMP). The main aim of the monitoring is to establish the existing scenario to make informed decisions to ascertain the proper implementation.

The main objectives of the environmental monitoring are:

- To ensure the effective implementation of EMP
- To comply with all relevant environmental legislatives of Government of India
- To modify the mitigation measures and implementation arrangements, if any

For each environmental condition indicators, the monitoring plan shall specify the parameters to be monitored, location of the monitoring sites, frequency and duration of monitoring. A tentative/suggested Environmental Monitoring Programme is presented as **Table 9-1.**

Table 9-1: Environment Monitoring Plan – Construction Phase

Environmental Attributes	Parameters to be monitored	No. of Sampling Locations & Frequency	Standards Methods for Sampling & Analysis	Implementation/ Supervision
Construction Phase				
Air Quality	PM_{10}, $PM_{2.5}$, SO_2, NO_2, HC and CO	~3 Once a month	Fine Particulate Samplers for PM_{10}, $PM_{2.5}$, Respirable Dust Sampler for SO_2 and NO_X, CO analyser/portable CO meter for CO, and portable HC meter for HC	Contractor / PMSC &APIIC
Noise Levels	Day and night noise levels	~ 4; Once a Fortnight	Portable hand-held noise level meter	Contractor /PMSC &APIIC
Water Quality	Physical, Chemical and Biological characteristics	2 groundwater and 2 surface water; Once a month	Sampling and analysis by using standard methods.	Contractor /PMSC &APIIC
Soil	Soil texture, type, electrical conductivity, pH, infiltration, porosity, etc.,	2; Once during construction	Collection and analysis of samples as per IS 2720	Contractor /PMSC &APIIC

Table 9-2: Environment Monitoring Plan – Operation Phase

Environmental Attributes	Parameters to be monitored	No. of Sampling Locations & Frequency	Standards Methods for Sampling & Analysis	Implementation/ Supervision
Operation Phase				
Water Quality	Physical, Chemical and Biological characteristics	2 groundwater and 2 surface water; Once in six months	Sampling and analysis by using standard methods.	APIIC

Environmental Attributes	Parameters to be monitored	No. of Sampling Locations & Frequency	Standards Methods for Sampling & Analysis	Implementation/ Supervision
Operation Phase				
Soil	Soil texture, type, electrical conductivity, pH, infiltration, porosity, etc.,	2 ; Once in six months	Collection and analysis of samples as per IS 2720	APIIC

9.6 Environmental Monitoring

The budget for carrying out environmental monitoring and associated trainings shall be a part of contractor's budget.

10 Resettlement Plan(RP)

10.1 Land for Summer Storage Tank

The land identified for constructing the summer storage tank is located within MPSEZ. The entire land for MPSEZ is under the possession of APIIC. Reference is invited to the findings provided under Land Acquisition and Due Diligence report prepared by APIIC.

10.2

10.3 Land for Pumping Main Alignment

The pumping main is proposed from the intake works located at Utlapalli to the proposed SST along the Venkatagiri – Naidupeta State Highway. It is proposed to lay the pipeline along the RoW of the above highway. APIIC has submitted a request to the Roads and Buildings Department. Therefore there is no resettlement envisaged from the proposed pumping main

10.4 Land for Construction Works

Around 1.08 acres of land is required for construction of Intake works near the proposed tapping point near Utlapalli. The land is under the jurisdiction of the department of irrigations and advance position has been handed over to APIIC.As per the records the land comes under Papireddipalli village.

10.5 Consultation with Downstream Users

The water allocation for the Naidupeta Industrial cluster has been provided by Government of Andhra Pradesh considering the availability of water and its downstream demand. Considering the fact that the allocation has been taken into consideration of all the upstream and downstream users, no consultation are not applicable.

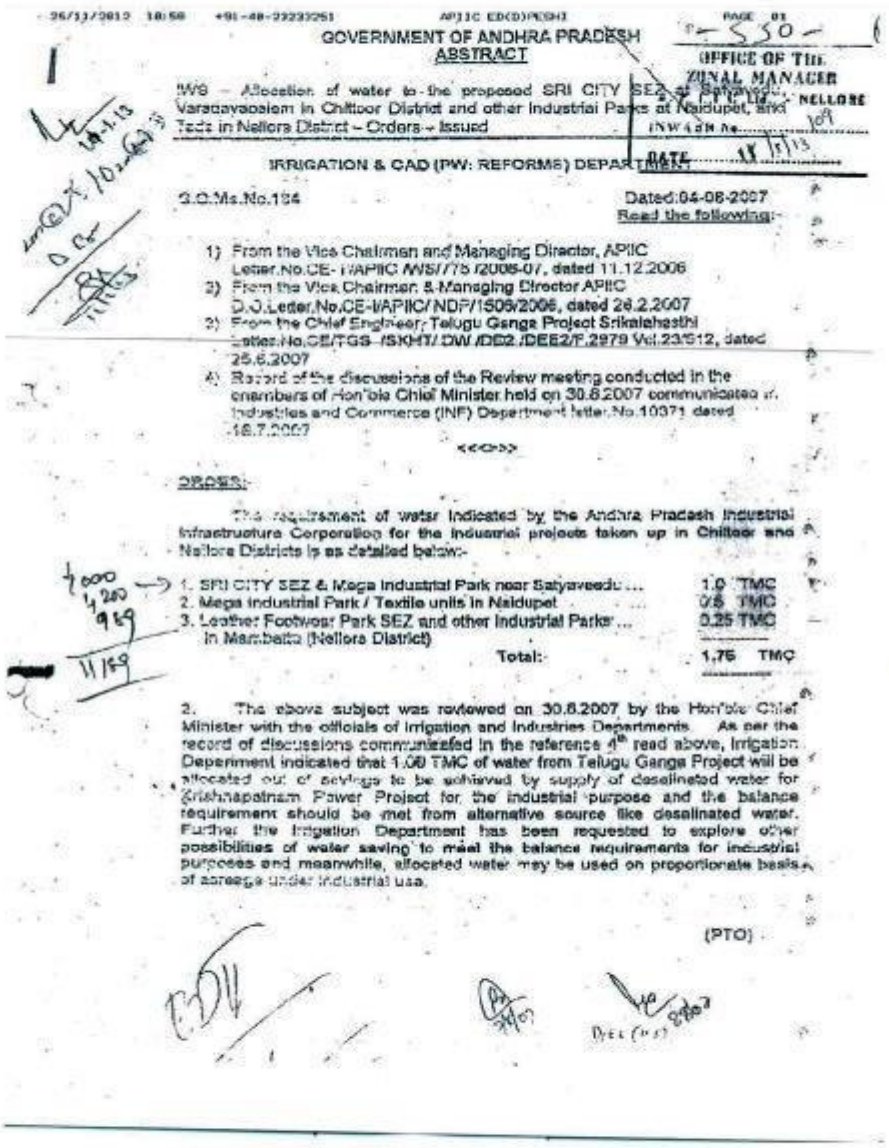
Annexures

Annexure 1 – Copy of GO issued by Government of Andhra Pradesh

30

Appendix-1

Water Allocation Government Order



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GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

OFFICE OF THE ZONAL MANAGER APIIC Ltd., NELLORE
INWARD No. 109
DATE 17/12/13

WS – Allocation of water to the proposed SRI CITY SEZ at Satyavedu, Varadavaipalem in Chittoor District and other Industrial Parks at Naidupet, and Tada in Nellore District – Orders – Issued

IRRIGATION & CAD (PW: REFORMS) DEPARTMENT

G.O.Ms.No.194 Dated:04-08-2007

Read the following:-

1) From the Vice Chairman and Managing Director, APIIC Letter.No.CE- I/APIIC/WS/775 /2005-07, dated 11.12.2006
2) From the Vice Chairman & Managing Director APIIC D.O.Letter.No.CE-I/APIIC/ NDF/1505/2006, dated 26.2.2007
3) From the Chief Engineer, Telugu Ganga Project Srikalahasthi Letter.No.CE/TGS /SKHT/ DW /DE2 /DEE2/F.2979 Vol.23/512, dated 25.6.2007
4) Record of the discussions of the Review meeting conducted in the chambers of Hon'ble Chief Minister held on 30.6.2007 communicated vr. Industries and Commerce (INF) Department letter.No.10371 dated 16.7.2007

<<<O>>>

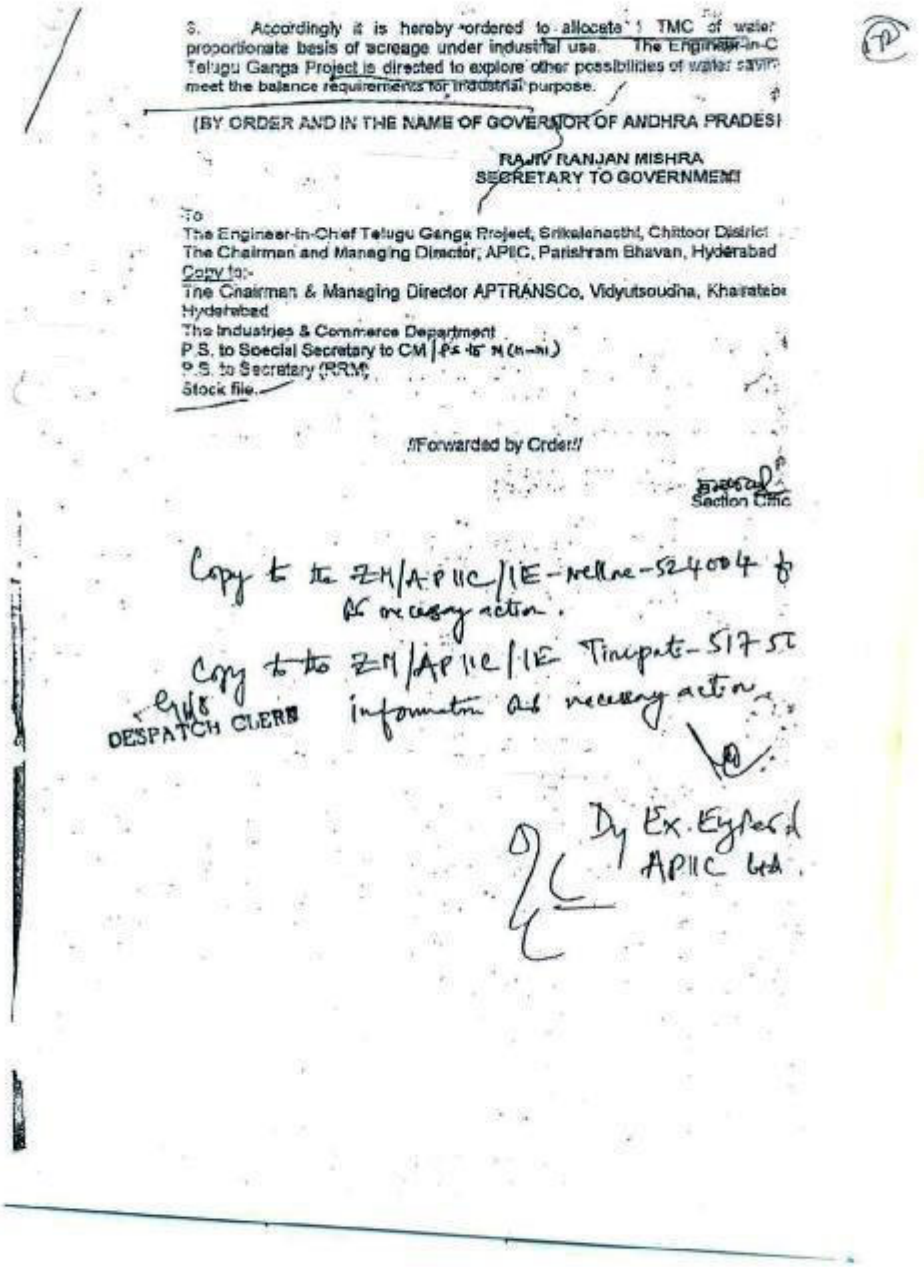
ORDER:-

The requirement of water indicated by the Andhra Pradesh Industrial Infrastructure Corporation for the industrial projects taken up in Chittoor and Nellore Districts is as detailed below:-

1. SRI CITY SEZ & Mega Industrial Park near Satyavedu ...	1.0 TMC
2. Mega Industrial Park / Textile units in Naidupet ...	0.5 TMC
3. Leather Footwear Park SEZ and other Industrial Parks ... in Manubolu (Nellore District)	0.25 TMC
Total:-	1.75 TMC

2. The above subject was reviewed on 30.6.2007 by the Hon'ble Chief Minister with the officials of Irrigation and Industries Departments. As per the record of discussions communicated in the reference 4th read above, Irrigation Department indicated that 1.00 TMC of water from Telugu Ganga Project will be allocated out of savings to be achieved by supply of desalinated water for Krishnapatnam Power Project for the industrial purpose and the balance requirement should be met from alternative source like desalinated water. Further the Irrigation Department has been requested to explore other possibilities of water saving to meet the balance requirements for industrial purposes and meanwhile, allocated water may be used on proportionate basis of acreage under industrial use.

(PTO)



5. Accordingly it is hereby ordered to allocate 1 TMC of water proportionate basis of acreage under industrial use. The Engineer-in-C Telugu Ganga Project is directed to explore other possibilities of water savin meet the balance requirements for industrial purpose.

(BY ORDER AND IN THE NAME OF GOVERNOR OF ANDHRA PRADESH

RAJIV RANJAN MISHRA
SECRETARY TO GOVERNMENT

To
The Engineer-in-Chief Telugu Ganga Project, Srikalahasthi, Chittoor District
The Chairman and Managing Director, APIIC, Parishram Bhavan, Hyderabad
Copy to:-
The Chairman & Managing Director APTRANSCo, Vidyutsoudha, Khairatabad Hydshebad
The Industries & Commerce Department
P.S. to Soecial Secretary to CM
P.S. to Secretary (RRM)
Stock file.

//Forwarded by Order//

Section Offic

Copy to the ZM/APIIC/IE-nellore-524004 for necessary action.

Copy to to ZM/APIIC/IE Tirupati-517501 information & necessary action.

DESPATCH CLERK

Dy Ex. Engineer
APIIC Ltd.

Annexure 2 – G.O. of Water resource Department

GOVERNMENT OF ANDHRA PRADESH
WATER RESOURCES (REFORMS) DEPARTMENT

Memo.No.94385/Reforms/A2/2015--1. Dated:28-11-2015.

Sub: Water Resources Deptt. – Vizag - Chennai Industrial Corridor Development Programme(VCICDP) – Development of Industrial Hub at Menakuru near Naidupet, Nellore District – Permission to tap the allocated water through Telugu Ganga near Utlampalli to APIIC – Accorded - Reg.

Ref: 1) G.O.Ms.No.184, I&CAD(PW:Reforms) Department, dated:04.08.2007.
2) From the Director of Industries, A.P., Hyderabad, Lr.No.15/1/2014/11427, dated 27.10.2015.

>><<.

In the reference 1st cited, Government have issued orders to allocate 1.00 TMC of water on proportionate basis of acreage under industrial projects taken up in Chittoor and Nellore Districts as indicated by the APIIC.

2. In the reference 2nd cited, the Director of Industries has requested the Government to accord permission to APIIC to tap the allocated water of 0.27 TMC from Telugu Ganga canal near Utlampalli village of Nellore District, since the existing IP/MSEZ., Menakur is one of the identified Infrastructure Projects under Vizag – Chennai Industrial Corridor Development Programme (VCICDP).

3. Government after careful examination of the proposal hereby accord permission to Chief Engineer, NTR TGP., Tirupathi to release the allocated water of 0.27 TMC from Telugu Ganga canal near Utlampalli Village of Nellore District for use of the existing IP/MSEZ., Menakur which is one of the identified Infrastructure Projects under Vizag – Chennai Industrial Corridor Development Programme (VCICDP), as recommended by APIIC.

4. The Chief Engineer, NTR TGP., Tirupathi is requested to take necessary action subject to availability of 10% reserved water for industrial purpose.

ADITYA NATH DAS,
PRINCIPAL SECRETARY TO GOVERNMENT.

To
The Chief Engineer, NTR TGP., Tirupathi, Chittoor District.
The Vice Chairman & Managing Director, APIIC Limited, Hyderabad.
Copy to:
The Engineer-in-Chief(Irrigation), Water Resources Department, Jalasoudha Building, Errum Manzil, A.P., Hyderabad.
The Industries & Commerce (Infra)Department.
The Director of Industries, Chirag Ali Lane, Abids, A.P., Hyderabad.
SF/SC.

//FORWARDED :: BY ORDER//

I. Satyanarayana

SECTION OFFICER

Annexure 3 – Water Availability in Kandaleru Reservoir for the last two years

Data Available from : 01/Jan/2007

Project Name: KANDALERU(022-KNDLR)

Date	Time	Level (Feet)	Capacity (TMC)	Inflow (Cusecs)	HeadSluiceCanal (Cusecs)	River (Cusecs)	Lowlevelsluice (Cusecs)	Highlevelsluice (Cusecs)	Industries (Cusecs)	Evaporation Losses (Cusecs)	Total Outflow
04-Sep-2017	10:33	191.48	3.64	2000	215	0	10	28	0	0	253
03-Sep-2017	10:11	190.69	3.49	0	195	0	10	0	0	28	233
02-Sep-2017	09:53	190.79	3.5	0	195	0	10	0	0	28	233
01-Sep-2017	09:57	190.89	3.52	0	150	0	10	0	0	25	185
31-Aug-2017	10:27	190.95	3.54	150	140	0	10	0	0	30	180
30-Aug-2017	09:51	190.95	3.54	0	150	0	10	0	0	32	192
29-Aug-2017	09:55	191.05	3.56	150	260	0	10	0	0	30	300
28-Aug-2017	09:39	191.09	3.56	0	240	0	10	0	0	35	285
27-Aug-2017	09:25	191.22	3.59	300	250	0	10	0	0	35	295
26-Aug-2017	09:47	191.22	3.59	0	255	0	10	0	0	35	300
25-Aug-2017	09:42	191.35	3.61	300	280	0	10	0	0	35	325
24-Aug-2017	10:14	191.35	3.61	0	290	0	10	0	0	38	338
23-Aug-2017	10:47	191.51	3.64	0	280	0	10	0	0	38	328
22-Aug-2017	09:43	191.68	3.68	150	265	0	10	0	0	38	313
21-Aug-2017	10:21	191.74	3.69	0	265	0	10	0	0	40	315
20-Aug-2017	09:44	191.87	3.71	250	265	0	10	0	0	40	315
19-Aug-2017	09:02	191.91	3.72	0	230	0	10	0	0	45	285
18-Aug-2017	09:51	192.04	3.74	0	280	0	10	0	0	40	330
17-Aug-2017	10:05	192.2	3.78	0	130	0	10	0	0	45	185
16-Aug-2017	09:55	192.27	3.79	0	260	0	10	0	0	45	315
15-Aug-2017	10:33	192.43	3.82	0	260	0	10	0	0	40	310
14-Aug-2017	10:11	192.6	3.85	0	230	0	10	0	0	42	282
13-Aug-2017	09:53	192.69	3.87	0	230	0	10	0	0	42	282
12-Aug-2017	09:57	192.79	3.89	0	235	0	10	0	0	40	285
11-Aug-2017	10:27	192.96	3.92	0	190	0	10	0	0	40	240
10-Aug-2017	09:51	193.05	3.94	0	190	0	10	0	0	42	242
09-Aug-2017	09:55	193.19	3.96	0	220	0	10	0	0	40	270

08-Aug-2017	09:32	193.32	3.99	0	190	0	10	0	0	41	241
07-Aug-2017	10:39	193.42	4.01	220	190	0	10	0	0	40	240
06-Aug-2017	09:26	193.42	4.01	0	215	0	10	0	0	40	265
05-Aug-2017	09:58	193.51	4.03	0	220	0	10	0	0	45	275
04-Aug-2017	09:54	193.65	4.05	0	210	0	10	0	0	48	268
03-Aug-2017	10:26	193.74	4.08	0	230	0	10	0	0	245	485
02-Aug-2017	09:46	193.87	4.1	0	235	0	10	0	0	45	290
01-Aug-2017	06:00	193.973	4.124	0	215	0	10	0	0	48	273
31-Jul-2017	10:46	194.08	4.15	0	160	0	10	0	0	50	220
30-Jul-2017	09:58	194.17	4.17	0	210	0	10	0	0	50	270
29-Jul-2017	10:06	194.3	4.2	0	175	0	10	0	0	52	237
28-Jul-2017	10:59	194.4	4.22	0	230	0	10	0	0	51	291
27-Jul-2017	10:03	194.5	4.24	0	185	0	10	0	0	52	247
26-Jul-2017	10:01	194.6	4.26	0	230	0	10	0	0	50	290
25-Jul-2017	09:38	194.73	4.29	0	235	0	10	0	0	50	295
24-Jul-2017	09:59	194.86	4.32	0	205	0	10	0	0	53	268
23-Jul-2017	09:51	194.96	4.34	0	205	0	10	0	0	58	273
22-Jul-2017	09:52	195.06	4.36	0	245	0	10	0	0	56	311
21-Jul-2017	09:23	195.19	4.38	0	240	0	10	0	0	55	305
20-Jul-2017	10:42	195.32	4.41	0	225	0	10	0	0	56	291
19-Jul-2017	09:49	195.42	4.43	0	250	0	10	0	0	56	316
18-Jul-2017	10:16	195.55	4.46	0	235	0	10	0	0	55	300
17-Jul-2017	09:53	195.65	4.48	0	235	0	10	0	0	55	300
16-Jul-2017	09:32	195.81	4.52	0	235	0	10	0	0	55	300
15-Jul-2017	09:30	195.91	4.54	0	280	0	10	0	0	58	348
14-Jul-2017	10:56	196.07	4.58	0	248	0	10	0	0	62	320
13-Jul-2017	09:42	196.2	4.6	0	245	0	10	0	0	60	315
12-Jul-2017	09:08	196.3	4.62	0	220	0	10	0	0	60	290
11-Jul-2017	09:25	196.43	4.65	0	225	0	10	0	0	68	303
10-Jul-2017	09:19	196.53	4.67	0	260	0	10	0	0	70	340
09-Jul-2017	09:20	196.7	4.71	0	260	0	10	0	0	70	340

08-Jul-2017	10:04	196.83	4.74	0	215	0	10	0	0	72	297
07-Jul-2017	09:21	196.93	4.76	0	225	0	10	0	0	75	310
06-Jul-2017	09:24	197.02	4.78	0	145	0	10	0	0	73	228
05-Jul-2017	09:21	197.12	4.81	0	215	0	10	0	0	81	306
04-Jul-2017	09:32	197.25	4.84	0	198	0	10	0	0	80	288
03-Jul-2017	11:56	197.35	4.86	0	220	0	10	0	0	80	310
02-Jul-2017	09:20	197.45	4.88	0	190	0	10	0	0	85	285
01-Jul-2017	10:32	197.58	4.92	0	230	0	10	0	0	80	320
30-Jun-2017	09:34	197.68	4.94	0	300	0	10	0	0	80	390
	09:55	197.81	4.97	0	300	0	10	0	0	80	390

29-Jun-2017											
28-Jun-2017	10:17	197.94	5.0	0	300	0	50	0	0	80	430
27-Jun-2017	09:54	198.14	5.05	0	300	0	50	0	0	80	430
26-Jun-2017	09:57	198.27	5.08	0	300	0	50	0	0	85	435
25-Jun-2017	09:21	198.44	5.17	0	0	0	50	0	0	80	130
24-Jun-2017	09:22	198.47	5.13	0	0	0	50	0	0	85	135
23-Jun-2017	10:11	198.53	5.14	0	0	0	50	0	0	85	135
22-Jun-2017	09:28	198.56	5.15	0	0	0	50	0	0	85	135
21-Jun-2017	09:21	198.63	5.16	0	0	0	50	0	0	80	130
20-Jun-2017	09:28	198.67	5.17	0	0	0	50	0	0	80	130
19-Jun-2017	08:59	198.73	5.19	0	0	0	50	0	0	80	130
18-Jun-2017	09:01	198.77	5.19	0	0	0	50	0	0	83	133
17-Jun-2017	09:12	198.83	5.21	0	0	0	50	0	0	85	135
16-Jun-2017	10:42	198.93	5.23	0	0	0	50	0	0	85	135
15-Jun-2017	09:40	198.93	5.23	0	0	0	50	0	0	85	135
14-Jun-2017	09:01	198.99	5.25	0	0	0	50	0	0	85	135
13-Jun-2017	08:51	199.03	5.26	0	0	0	50	0	0	85	135
12-Jun-2017	09:18	199.06	5.26	0	0	0	50	0	0	88	138
11-Jun-2017	09:20	199.12	5.28	0	0	0	15	0	0	85	100
10-Jun-2017	09:28	199.16	5.29	0	0	0	15	0	0	85	100
09-Jun-2017	09:07	199.19	5.3	0	0	0	15	0	0	85	100
08-Jun-2017	09:50	199.22	5.3	0	0	0	15	0	0	88	103
07-Jun-2017	09:23	199.26	5.31	0	0	0	15	0	0	88	103
06-Jun-2017	09:22	199.29	5.32	0	0	0	15	0	0	88	103
05-Jun-2017	09:16	199.32	5.33	0	0	0	15	0	0	88	103
04-Jun-2017	09:32	199.39	5.34	0	0	0	15	0	0	88	103
03-Jun-2017	09:29	199.42	5.35	0	0	0	15	0	0	88	103
02-Jun-2017	09:15	199.45	5.36	0	0	0	15	0	0	88	103
01-Jun-2017	09:13	199.49	5.37	0	0	0	10	0	0	87	97
31-May-2017	11:14	199.52	5.37	0	0	0	10	0	0	85	95
30-May-2017	09:06	199.55	5.38	0	10	10	10	0	0	85	115

29-May-2017	09:25	199.58	5.39	0	10	10	10	0	0	85	115
28-May-2017	09:16	199.62	5.4	0	10	10	10	0	0	85	115
27-May-2017	09:19	199.65	5.4	0	10	10	10	0	0	85	115
26-May-2017	09:28	199.71	5.42	0	10	10	10	0	0	85	115
25-May-2017	09:37	199.75	5.43	0	10	10	10	0	0	85	115
24-May-2017	10:01	199.78	5.44	0	10	10	10	0	0	85	115
23-May-2017	09:38	199.81	5.44	0	10	30	10	0	0	85	135
22-May-2017	09:18	199.88	5.46	0	10	30	10	0	0	85	135
21-May-2017	09:33	199.94	5.47	0	10	10	10	0	0	88	118
	09:20	199.98	5.48	0	10	10	10	0	0	88	118

20-May-2017											
19-May-2017	11:15	200.04	5.5	0	10	10	10	0	0	88	118
18-May-2017	09:15	200.08	5.5	0	10	10	10	0	0	88	118
17-May-2017	10:30	200.11	5.51	0	10	10	10	0	0	85	115
16-May-2017	09:06	200.17	5.53	0	10	10	10	0	0	85	115
15-May-2017	09:17	200.2	5.54	0	10	10	10	0	0	88	118
14-May-2017	09:20	200.24	5.55	0	10	10	10	0	0	88	118
13-May-2017	09:20	200.27	5.56	0	10	10	10	0	0	88	118
12-May-2017	09:23	200.31	5.56	0	10	10	10	0	0	85	115
11-May-2017	09:37	200.34	5.57	0	10	10	10	0	0	85	115
10-May-2017	10:10	200.37	5.58	0	10	10	10	0	0	88	118
09-May-2017	09:49	200.4	5.59	0	10	10	10	0	0	85	115
08-May-2017	09:24	200.47	5.61	0	10	50	10	0	0	88	158
07-May-2017	09:17	200.5	5.62	0	10	50	100	0	0	88	248
06-May-2017	09:34	200.57	5.63	0	10	50	100	0	0	85	245
05-May-2017	09:31	200.67	5.66	0	10	50	100	0	0	85	245
04-May-2017	09:10	200.73	5.68	0	10	50	100	0	0	85	245
03-May-2017	09:09	200.83	5.71	0	10	50	100	0	0	80	240
02-May-2017	09:03	200.9	5.72	0	10	50	100	0	0	80	240
01-May-2017	09:26	200.96	5.74	0	10	50	30	0	0	80	170
30-Apr-2017	09:13	201.03	5.76	0	10	50	30	0	0	90	180
29-Apr-2017	09:34	201.06	5.77	0	0	80	30	0	0	78	188
28-Apr-2017	09:43	201.09	5.78	0	30	50	30	0	0	75	185
27-Apr-2017	08:40	201.16	5.79	0	60	40	30	0	0	75	205
26-Apr-2017	09:19	201.22	5.81	0	60	40	30	0	0	75	205
25-Apr-2017	09:01	201.29	5.83	0	60	25	30	0	0	78	193
24-Apr-2017	09:20	201.36	5.85	0	60	25	30	0	0	80	195
23-Apr-2017	09:15	201.45	5.87	0	60	25	30	0	0	78	193
22-Apr-2017	09:11	201.52	5.89	0	60	25	30	0	0	75	190
21-Apr-2017	09:30	201.55	5.9	0	60	5	30	0	0	75	170
20-Apr-2017	09:14	201.62	5.92	0	60	5	30	0	0	75	170

19-Apr-2017	09:28	201.65	5.93	0	35	5	40	0	0	77	157
18-Apr-2017	09:03	201.72	5.94	0	35	5	50	0	0	75	165
17-Apr-2017	09:11	201.75	5.95	0	35	5	50	0	0	75	165
16-Apr-2017	09:16	201.81	5.97	0	35	5	7	0	0	78	125
15-Apr-2017	09:42	201.88	5.99	0	35	5	7	0	0	78	125
14-Apr-2017	09:29	201.91	6.0	0	35	5	7	0	0	80	127
13-Apr-2017	08:59	201.95	6.0	0	5	5	7	0	0	80	97
12-Apr-2017	10:48	202.01	6.02	0	5	5	7	0	0	82	99
11-Apr-2017	09:40	202.01	6.02	0	15	5	7	0	0	80	107
	10:27	202.04	6.03	0	15	5	7	0	0	80	107

10-Apr-2017											
09-Apr-2017	09:19	202.07	6.04	0	40	5	7	0	0	82	134
08-Apr-2017	09:51	202.18	6.06	0	40	5	7	0	0	85	137
07-Apr-2017	09:26	202.21	6.07	0	40	5	7	0	0	85	137
06-Apr-2017	09:16	202.24	6.08	0	40	5	7	0	0	85	137
05-Apr-2017	09:19	202.27	6.09	0	40	5	7	0	0	85	137
04-Apr-2017	09:40	202.31	6.1	0	40	5	7	0	0	85	137
03-Apr-2017	09:10	202.34	6.11	0	40	5	7	0	0	84	136
02-Apr-2017	09:38	202.37	6.12	0	40	5	7	0	0	85	137
01-Apr-2017	09:48	202.44	6.14	0	40	5	7	0	0	85	137
31-Mar-2017	09:47	202.47	6.15	0	20	5	7	0	0	85	117
30-Mar-2017	09:03	202.54	6.16	0	20	5	7	0	0	88	120
29-Mar-2017	09:45	202.57	6.17	0	20	5	7	0	0	90	122
28-Mar-2017	09:29	202.6	6.18	0	20	5	7	0	0	90	122
27-Mar-2017	11:13	202.64	6.19	0	20	5	7	0	0	95	127
26-Mar-2017	11:28	202.67	6.2	0	20	5	7	0	0	96	128
25-Mar-2017	11:40	202.73	6.22	0	20	5	7	0	0	90	122
24-Mar-2017	11:24	202.77	6.22	0	245	5	7	0	0	95	352
23-Mar-2017	11:23	202.86	6.25	0	260	5	7	0	0	98	370
22-Mar-2017	10:27	203.0	6.29	0	270	5	7	0	0	95	377
21-Mar-2017	09:11	203.09	6.31	0	270	0	0	0	0	95	365
20-Mar-2017	09:40	203.23	6.35	0	295	0	200	0	0	95	590
19-Mar-2017	09:41	203.42	6.4	0	320	0	200	0	0	87	607
18-Mar-2017	09:45	203.62	6.46	0	345	0	200	0	0	90	635
17-Mar-2017	09:29	203.78	6.51	0	370	0	200	0	0	89	659
16-Mar-2017	09:00	203.98	6.56	0	395	0	200	0	0	90	685
15-Mar-2017	09:02	204.18	6.62	0	420	0	200	0	0	98	718
14-Mar-2017	09:11	204.41	6.69	0	450	0	200	0	0	95	745
13-Mar-2017	10:54	204.6	6.75	0	460	0	200	0	0	98	758
12-Mar-2017	10:35	204.83	6.81	0	480	0	200	0	0	95	775
11-Mar-2017	09:57	205.06	6.88	0	530	0	200	0	0	96	826

10-Mar-2017	09:40	205.29	6.95	0	530	150	200	0	0	97	977
09-Mar-2017	09:34	205.59	7.03	0	530	150	200	0	0	95	975
08-Mar-2017	09:00	205.88	7.12	0	530	150	200	0	0	95	975
07-Mar-2017	09:05	206.18	7.21	15	580	150	200	0	0	85	1015
06-Mar-2017	08:52	206.47	7.29	30	630	150	200	0	0	92	1072
05-Mar-2017	09:17	206.77	7.38	75	680	150	200	0	0	98	1128
04-Mar-2017	09:46	207.06	7.48	120	730	150	200	0	0	90	1170
03-Mar-2017	09:37	207.33	7.56	175	755	150	200	0	0	97	1202
02-Mar-2017	09:44	207.59	7.65	225	780	150	200	0	0	98	1228
	09:26	207.85	7.73	270	830	150	200	0	0	95	1275

01-Mar-2017											
28-Feb-2017	09:23	208.15	7.83	325	880	150	200	0	0	90	1320
27-Feb-2017	09:40	208.41	7.91	400	930	150	200	0	0	98	1378
26-Feb-2017	09:15	208.67	8.0	475	955	150	200	0	0	95	1400
25-Feb-2017	09:33	208.9	8.07	525	1010	150	200	0	0	95	1455
24-Feb-2017	09:06	209.16	8.16	625	1080	150	200	0	0	91	1521
23-Feb-2017	09:04	209.39	8.23	650	1155	100	200	0	0	98	1553
22-Feb-2017	09:14	209.66	8.31	745	1255	200	10	0	0	92	1557
21-Feb-2017	09:05	209.87	8.39	860	1280	10	200	0	0	94	1584
20-Feb-2017	09:07	210.05	8.44	970	1305	10	200	0	0	94	1609
19-Feb-2017	09:25	210.21	8.5	1025	1330	10	200	0	0	90	1630
18-Feb-2017	09:10	210.34	8.55	1075	1395	10	200	0	0	95	1700
17-Feb-2017	09:45	210.51	8.61	1175	1420	10	200	0	0	92	1722
16-Feb-2017	09:27	210.64	8.65	1350	1500	10	10	0	0	93	1613
15-Feb-2017	10:21	210.71	8.68	1460	1500	10	10	0	0	94	1614
14-Feb-2017	09:10	210.74	8.69	1500	1500	10	10	0	0	97	1617
13-Feb-2017	09:18	210.78	8.7	1620	1500	10	10	0	0	95	1615
12-Feb-2017	09:50	210.78	8.7	1835	1440	10	10	0	0	99	1559
11-Feb-2017	10:07	210.71	8.68	1860	1465	10	10	0	0	97	1582
10-Feb-2017	09:17	210.64	8.65	2020	1415	10	10	0	0	99	1534
09-Feb-2017	08:56	210.51	8.61	2610	1390	10	10	0	0	99	1509
08-Feb-2017	09:58	210.25	8.51	1270	1290	10	10	0	0	99	1409
07-Feb-2017	10:15	210.28	8.53	0	1540	10	10	0	0	98	1658
06-Feb-2017	09:30	210.67	8.66	0	1540	10	10	0	0	99	1659
05-Feb-2017	10:17	211.07	8.8	0	1740	10	10	0	0	99	1859
04-Feb-2017	08:49	211.53	8.97	0	1740	10	10	0	0	98	1858
03-Feb-2017	09:05	211.99	9.13	0	1740	10	10	0	0	99	1859
02-Feb-2017	09:20	212.44	9.29	0	1740	200	200	0	0	99	2239
01-Feb-2017	08:52	213.0	9.49	0	1740	200	200	0	0	98	2238
31-Jan-2017	09:40	213.53	9.68	0	1730	200	200	0	0	98	2228
30-Jan-2017	09:17	214.02	9.87	0	1730	200	200	0	0	99	2229

29-Jan-2017	09:29	214.51	10.07	0	1730	200	200	0	0	98	2228
28-Jan-2017	09:23	215.0	10.26	0	1730	200	200	0	0	99	2229
27-Jan-2017	09:41	215.5	10.45	0	1730	120	150	0	0	99	2099
26-Jan-2017	09:31	215.96	10.63	0	1730	120	150	0	0	98	2098
25-Jan-2017	09:27	216.42	10.81	0	1730	120	150	0	0	99	2099
24-Jan-2017	09:17	216.87	11.0	0	1730	120	150	0	0	98	2098
23-Jan-2017	09:25	217.27	11.17	0	1730	120	150	0	0	99	2099
22-Jan-2017	09:39	217.73	11.37	0	1730	120	150	0	0	98	2098
21-Jan-2017	09:18	218.12	11.54	0	1730	120	150	0	0	98	2098
	09:44	218.55	11.72	0	1730	120	150	0	0	99	2099

20-Jan-2017											
19-Jan-2017	09:19	218.97	11.9	0	1730	120	150	0	0	99	2099
18-Jan-2017	09:00	219.4	12.09	0	1730	120	150	0	0	98	2098
17-Jan-2017	09:29	219.83	12.27	0	1530	200	150	0	0	98	1978
16-Jan-2017	08:55	220.19	12.44	0	1530	200	150	0	0	98	1978
15-Jan-2017	09:36	220.52	12.6	0	1530	200	150	0	0	97	1977
14-Jan-2017	09:14	220.88	12.77	0	1530	200	150	0	0	97	1977
13-Jan-2017	09:05	221.24	12.95	0	1200	200	150	0	0	97	1647
12-Jan-2017	09:26	221.53	13.09	0	1200	200	150	0	0	98	1648
11-Jan-2017	09:28	221.86	13.24	0	1200	200	150	0	0	98	1648
10-Jan-2017	09:11	222.12	13.37	0	900	100	100	0	0	99	1199
09-Jan-2017	09:19	222.35	13.48	0	20	10	10	0	0	99	139
08-Jan-2017	09:19	222.39	13.5	0	20	10	10	0	0	98	138
07-Jan-2017	09:50	222.39	13.5	0	20	10	10	0	0	98	138
06-Jan-2017	09:36	222.42	13.51	0	20	10	10	0	0	98	138
05-Jan-2017	09:37	222.45	13.53	0	20	10	10	0	0	99	139
04-Jan-2017	09:28	222.52	13.56	0	20	10	10	0	0	98	138
03-Jan-2017	09:43	222.52	13.56	0	20	10	10	0	0	98	138
02-Jan-2017	08:47	222.55	13.57	0	20	10	10	0	0	99	139
01-Jan-2017	09:37	222.58	13.59	0	20	10	10	0	0	98	138
31-Dec-2016	09:40	222.62	13.61	0	20	20	10	0	0	99	149
30-Dec-2016	09:42	222.64	13.62	0	20	20	10	0	0	99	149
29-Dec-2016	09:53	222.68	13.64	0	20	20	10	0	0	98	148
28-Dec-2016	09:20	222.68	13.64	0	20	20	10	0	0	98	148
27-Dec-2016	09:53	222.71	13.65	0	20	20	10	0	0	97	147
26-Dec-2016	09:22	222.75	13.67	0	20	20	10	0	0	98	148
25-Dec-2016	10:29	222.78	13.68	0	20	20	10	0	0	96	146
24-Dec-2016	09:43	222.81	13.7	0	20	20	10	0	0	97	147
23-Dec-2016	09:54	222.81	13.7	0	20	20	10	0	0	96	146
22-Dec-2016	09:47	222.85	13.72	0	20	20	10	0	0	95	145
21-Dec-2016	09:50	222.88	13.73	0	40	10	10	0	0	94	154

20-Dec-2016	09:32	222.91	13.75	0	40	10	10	0	0	92	152
19-Dec-2016	09:14	222.94	13.76	0	40	10	10	0	0	90	150
18-Dec-2016	09:40	222.98	13.77	0	40	10	10	0	0	90	150
17-Dec-2016	09:54	222.98	13.77	0	40	10	10	0	0	90	150
16-Dec-2016	09:25	223.01	13.79	0	60	10	10	0	0	95	175
15-Dec-2016	09:13	223.04	13.81	0	60	10	10	0	0	90	170
14-Dec-2016	09:30	223.11	13.84	0	60	10	10	0	0	85	165
13-Dec-2016	09:27	223.14	13.86	7465	60	10	10	0	0	85	165
12-Dec-2016	09:49	221.8	13.21	0	110	20	10	0	0	90	230
	08:54	221.86	13.24	0	1210	200	100	0	0	95	1605

11-Dec-2016											
10-Dec-2016	09:24	222.16	13.39	0	1710	200	100	0	0	96	2106
09-Dec-2016	09:24	222.55	13.57	0	1705	200	100	0	0	97	2102
08-Dec-2016	08:54	222.94	13.76	0	1705	200	100	0	0	96	2101
07-Dec-2016	09:02	223.44	14.01	0	1705	200	100	0	0	96	2101
06-Dec-2016	09:31	223.93	14.28	0	1705	200	100	0	0	95	2100
05-Dec-2016	09:26	224.42	14.54	0	1705	200	100	0	0	95	2100
04-Dec-2016	09:50	224.91	14.8	0	1705	150	150	0	0	96	2101
03-Dec-2016	08:46	225.24	14.97	0	1705	150	150	0	0	95	2100
02-Dec-2016	09:35	225.5	15.11	0	1705	150	150	0	0	95	2100
01-Dec-2016	10:01	225.67	15.2	0	1705	150	150	0	0	98	2103
30-Nov-2016	09:19	226.03	15.39	0	1705	150	150	0	0	99	2104
29-Nov-2016	08:57	226.39	15.58	0	1705	150	150	0	0	99	2104
28-Nov-2016	09:32	226.75	15.79	0	1705	150	150	0	0	98	2103
27-Nov-2016	09:28	227.05	15.96	0	1705	100	200	0	0	99	2104
26-Nov-2016	09:11	227.34	16.14	0	1705	70	250	0	0	98	2123
25-Nov-2016	09:19	227.64	16.31	0	1705	70	250	0	0	98	2123
24-Nov-2016	09:06	228.0	16.52	0	1720	70	250	0	0	99	2139
23-Nov-2016	09:58	228.29	16.69	0	1720	50	250	0	0	98	2118
22-Nov-2016	09:30	228.46	16.79	0	1720	50	250	0	0	98	2118
21-Nov-2016	09:36	228.62	16.89	0	1720	200	200	0	0	99	2219
20-Nov-2016	10:11	228.72	16.94	0	1720	200	200	0	0	99	2219
19-Nov-2016	09:10	229.05	17.14	0	1720	200	200	0	0	94	2214
18-Nov-2016	09:51	229.38	17.33	0	1720	200	200	0	0	95	2215
17-Nov-2016	09:30	229.7	17.52	0	1720	200	200	0	0	96	2216
16-Nov-2016	09:08	230.0	17.71	0	1520	200	150	0	0	95	1965
15-Nov-2016	10:18	230.29	17.89	0	1520	200	150	0	0	95	1965
14-Nov-2016	09:30	230.62	18.1	0	1520	200	100	0	0	94	1914
13-Nov-2016	09:42	230.92	18.28	0	1520	200	100	0	0	96	1916
12-Nov-2016	10:34	231.21	18.47	0	1520	200	100	0	0	95	1915
11-Nov-2016	09:44	231.54	18.67	0	1000	200	100	0	0	98	1398

10-Nov-2016	09:33	231.77	18.81	0	1000	200	100	0	0	95	1395
09-Nov-2016	09:44	231.97	18.94	0	200	0	100	0	0	95	395
08-Nov-2016	09:10	232.0	18.96	0	0	200	100	0	0	98	398
07-Nov-2016	09:34	232.07	19.0	0	0	250	100	0	0	98	448
06-Nov-2016	10:09	232.13	19.04	0	500	250	100	0	0	99	949
05-Nov-2016	09:30	232.26	19.12	0	500	250	100	0	0	98	948
04-Nov-2016	09:47	232.39	19.2	0	800	200	100	0	0	92	1192
03-Nov-2016	09:18	232.56	19.31	0	800	200	100	0	0	92	1192
02-Nov-2016	09:23	232.72	19.41	0	800	200	100	0	0	92	1192
	09:37	232.89	19.51	0	1300	200	100	0	0	96	1696

01-Nov-2016											
31-Oct-2016	09:26	233.12	19.67	0	1300	100	100	0	0	86	1586
30-Oct-2016	09:46	233.31	19.8	0	1300	50	50	0	0	85	1485
29-Oct-2016	10:02	233.51	19.93	0	1000	0	10	0	0	90	1100
28-Oct-2016	09:39	233.67	20.04	0	1000	0	10	0	0	95	1105
27-Oct-2016	09:37	233.8	20.13	0	1000	0	7	0	0	87	1094
26-Oct-2016	09:49	233.94	20.22	0	1000	0	7	0	0	88	1095
25-Oct-2016	10:07	234.1	20.33	0	1000	0	7	0	0	87	1094
24-Oct-2016	09:41	234.26	20.44	0	1000	0	7	0	0	85	1092
23-Oct-2016	09:38	234.4	20.53	0	1000	0	7	0	0	86	1093
22-Oct-2016	09:01	234.6	20.64	0	1000	0	7	0	0	85	1092
21-Oct-2016	09:42	234.76	20.77	0	900	0	7	0	0	86	993
20-Oct-2016	09:33	234.92	20.88	0	800	0	7	0	0	85	892
19-Oct-2016	09:29	235.08	20.99	0	700	0	7	0	0	85	792
18-Oct-2016	09:30	235.25	21.1	0	600	0	7	0	0	88	695
17-Oct-2016	09:23	235.412	21.21	0	500	0	7	0	0	85	592
16-Oct-2016	09:43	235.58	21.32	0	500	0	7	0	0	82	589
15-Oct-2016	09:44	235.7	21.41	0	500	0	7	0	0	80	587
14-Oct-2016	09:52	235.87	21.518	0	500	0	7	0	0	87	594
13-Oct-2016	09:38	235.97	21.58	0	200	0	7	0	0	90	297
12-Oct-2016	09:51	236.04	21.63	0	200	0	7	0	0	85	292
11-Oct-2016	09:50	236.07	21.65	0	200	0	7	0	0	86	293
10-Oct-2016	09:40	236.13	21.69	0	30	0	7	0	0	85	122
09-Oct-2016	09:46	236.16	21.72	0	30	0	7	0	0	88	125
08-Oct-2016	11:12	236.19	21.738	0	30	0	7	0	0	98	135
07-Oct-2016	09:44	236.23	21.76	0	30	0	7	0	0	98	135
06-Oct-2016	09:43	236.27	21.78	0	30	0	7	0	0	96	133
05-Oct-2016	09:30	236.3	21.81	0	30	0	7	0	0	97	134
04-Oct-2016	09:46	236.33	21.83	0	30	0	7	0	0	98	135
03-Oct-2016	09:58	236.36	21.86	0	30	0	7	0	0	98	135
02-Oct-2016	09:45	236.4	21.88	0	30	0	7	0	0	98	135

01-Oct-2016	09:52	236.43	21.9	0	30	0	7	0	0	97	134
30-Sep-2016	11:07	236.46	21.93	0	30	0	7	0	0	99	136
29-Sep-2016	09:35	236.49	21.95	0	90	25	40	0	0	97	252
28-Sep-2016	09:53	236.56	22.0	0	90	25	40	0	0	98	253
27-Sep-2016	10:26	236.59	22.02	0	90	25	40	0	0	97	252
26-Sep-2016	09:55	236.66	22.07	0	90	25	40	0	0	96	251
25-Sep-2016	10:58	236.69	22.1	0	90	25	40	0	0	98	253
24-Sep-2016	10:31	236.76	22.14	0	90	25	40	0	0	95	250
23-Sep-2016	09:51	236.79	22.17	0	90	25	40	0	0	93	248
	09:01	236.82	22.19	0	90	25	40	0	0	92	247

22-Sep-2016											
21-Sep-2016	09:38	236.89	22.24	0	90	25	40	0	0	88	243
20-Sep-2016	09:05	236.92	22.26	0	90	25	40	0	0	91	246
19-Sep-2016	09:02	236.95	22.29	0	90	25	40	0	0	95	250
18-Sep-2016	09:56	237.02	22.33	0	90	25	40	0	0	98	253
17-Sep-2016	09:42	237.05	22.36	0	90	25	40	0	0	93	248
16-Sep-2016	08:52	237.12	22.41	0	90	25	40	0	0	95	250
15-Sep-2016	09:28	237.15	22.43	0	90	25	40	0	0	94	249
14-Sep-2016	10:10	237.18	22.45	0	90	25	40	0	0	93	248
13-Sep-2016	09:22	237.22	22.48	0	80	25	25	0	0	98	228
12-Sep-2016	09:44	237.25	22.5	0	30	0	7	0	0	95	132
11-Sep-2016	10:14	237.31	22.55	0	30	0	7	0	0	92	129
10-Sep-2016	09:53	237.31	22.55	0	30	0	7	0	0	90	127
09-Sep-2016	09:33	237.35	22.57	0	30	0	7	0	0	97	134
08-Sep-2016	09:32	237.38	22.6	0	30	0	25	0	0	98	153
07-Sep-2016	09:39	237.41	22.62	0	330	25	25	0	0	105	485
06-Sep-2016	09:36	237.51	22.69	0	330	25	25	0	0	100	480
05-Sep-2016	09:48	237.58	22.74	0	300	25	25	0	0	96	446
04-Sep-2016	10:35	237.64	22.79	0	300	25	25	0	0	98	448
03-Sep-2016	10:03	237.68	22.81	0	300	25	25	0	0	95	445
02-Sep-2016	10:13	237.71	22.84	0	300	25	25	0	0	97	447
01-Sep-2016	09:48	237.74	22.86	0	300	25	25	0	0	95	445
31-Aug-2016	09:43	237.77	22.88	0	300	50	100	0	0	90	540
30-Aug-2016	09:52	237.81	22.91	0	300	50	100	0	0	95	545
29-Aug-2016	09:25	237.84	22.93	0	300	50	100	0	0	90	540
28-Aug-2016	09:24	237.91	22.98	0	250	50	100	0	0	85	485
27-Aug-2016	10:13	237.94	23.0	0	250	50	100	0	0	80	480
26-Aug-2016	09:52	238.0	23.05	0	350	100	150	0	0	100	700
25-Aug-2016	09:49	238.07	23.1	0	350	100	150	0	0	120	720
24-Aug-2016	09:39	238.17	23.17	0	350	100	150	0	0	95	695
23-Aug-2016	09:55	238.23	23.22	0	350	100	100	0	0	105	655

22-Aug-2016	09:12	238.36	23.31	0	350	100	100	0	0	110	660
21-Aug-2016	10:01	238.43	23.36	0	350	100	100	0	0	100	650
20-Aug-2016	10:07	238.5	23.41	0	350	50	50	0	0	105	555
19-Aug-2016	10:03	238.56	23.46	0	280	50	50	0	0	90	470
18-Aug-2016	10:49	238.63	23.51	0	280	50	30	0	0	73	433
17-Aug-2016	09:49	238.66	23.53	0	230	20	30	0	0	70	350
16-Aug-2016	09:57	238.69	23.55	0	230	5	30	0	0	90	355
15-Aug-2016	09:56	238.73	23.58	0	230	5	30	0	0	98	363
14-Aug-2016	10:03	238.79	23.63	0	230	5	30	0	0	102	367
	11:38	238.89	23.7	0	230	5	30	0	0	115	380

13-Aug-2016											
12-Aug-2016	10:09	238.96	23.74	0	280	5	7	0	0	140	432
11-Aug-2016	09:29	239.02	23.79	0	280	5	7	0	0	160	452
10-Aug-2016	10:00	239.09	23.8	0	150	0	37	0	0	182	369
09-Aug-2016	09:44	239.15	23.8	0	150	0	37	0	0	180	367
08-Aug-2016	10:13	239.22	23.83	0	150	0	37	0	0	190	377
07-Aug-2016	10:24	239.28	23.9	0	50	0	37	0	0	180	267
06-Aug-2016	09:31	239.32	23.93	0	0	0	37	0	0	180	217
05-Aug-2016	10:10	239.35	23.97	0	0	0	37	0	0	165	202
04-Aug-2016	10:42	239.35	23.97	0	0	0	37	0	0	160	197
03-Aug-2016	09:29	239.38	24.01	0	0	0	37	0	0	170	207
02-Aug-2016	09:21	239.38	24.01	0	0	0	37	0	0	160	197
01-Aug-2016	10:05	239.41	24.05	0	0	0	37	0	0	183	220
31-Jul-2016	09:39	239.41	24.05	0	0	0	37	0	0	190	227
30-Jul-2016	09:14	239.45	24.09	0	0	0	37	0	0	186	223
29-Jul-2016	09:35	239.45	24.09	0	0	0	37	0	0	190	227
28-Jul-2016	09:54	239.48	24.12	0	0	0	37	0	0	180	217
27-Jul-2016	09:57	239.48	24.12	0	0	0	37	0	0	185	222
26-Jul-2016	09:31	239.51	24.15	0	20	50	37	0	0	180	287
25-Jul-2016	09:53	239.55	24.18	0	20	50	37	0	0	170	277
24-Jul-2016	09:44	239.58	24.2	0	20	50	37	0	0	185	292
23-Jul-2016	09:37	239.64	24.25	0	20	30	37	0	0	185	272
22-Jul-2016	10:10	239.68	24.28	0	20	30	37	0	0	190	277
21-Jul-2016	10:49	239.74	24.33	0	20	30	37	0	0	187	274
20-Jul-2016	09:27	239.81	24.38	0	20	30	37	0	0	185	272
19-Jul-2016	09:44	239.84	24.41	0	20	30	37	0	0	188	275
18-Jul-2016	09:22	239.87	24.43	0	20	30	37	0	0	175	262
17-Jul-2016	10:54	239.91	24.46	0	20	30	37	0	0	185	272
16-Jul-2016	09:31	239.97	24.51	0	20	30	27	0	0	186	263
15-Jul-2016	09:37	240.04	24.56	0	120	20	20	0	0	170	330
14-Jul-2016	09:17	240.1	24.61	0	120	20	7	0	0	167	314

13-Jul-2016	09:30	240.17	24.66	0	120	20	7	0	0	165	312
12-Jul-2016	09:37	240.23	24.71	0	120	20	7	0	0	160	307
11-Jul-2016	10:39	240.27	24.74	0	120	20	7	0	0	155	302
10-Jul-2016	13:05	240.33	24.79	0	120	20	7	0	0	150	297
09-Jul-2016	11:14	240.37	24.82	0	120	20	7	0	0	150	297
08-Jul-2016	09:11	240.4	24.84	0	120	20	7	0	0	145	292
07-Jul-2016	09:35	240.43	24.87	0	120	20	7	0	0	140	287
06-Jul-2016	09:27	240.46	24.89	0	120	20	7	0	0	145	292
05-Jul-2016	09:44	240.5	24.92	0	0	40	7	0	0	145	192
	09:30	240.5	24.92	0	20	20	7	0	0	140	187

04-Jul-2016											
03-Jul-2016	09:21	240.53	24.94	0	20	20	7	0	0	145	192
02-Jul-2016	09:31	240.56	24.97	0	20	20	7	0	0	140	187
01-Jul-2016	09:35	240.6	25.0	0	200	0	7	0	0	130	337
30-Jun-2016	09:37	240.63	25.02	0	200	0	7	0	0	130	337
29-Jun-2016	09:39	240.69	25.07	0	265	35	7	0	0	130	437
28-Jun-2016	10:06	240.79	25.15	0	265	35	7	0	0	140	447
27-Jun-2016	09:57	240.86	25.2	0	265	35	7	0	0	140	447
26-Jun-2016	09:34	240.92	25.25	0	265	35	7	0	0	135	442
25-Jun-2016	08:55	241.02	25.33	0	265	35	7	0	0	140	447
24-Jun-2016	09:13	241.09	25.38	0	265	35	7	0	0	145	452
23-Jun-2016	09:01	241.15	25.43	0	225	25	7	0	0	140	397
22-Jun-2016	09:12	241.22	25.48	0	225	25	7	0	0	145	402
21-Jun-2016	09:10	241.28	25.53	0	225	25	30	0	0	140	420
20-Jun-2016	09:07	241.35	25.58	0	225	25	30	0	0	140	420
19-Jun-2016	10:40	241.42	25.64	0	175	25	20	0	0	130	350
18-Jun-2016	09:11	241.45	25.66	0	175	25	20	0	0	135	355
17-Jun-2016	09:42	241.48	25.69	0	175	25	20	0	0	140	360
16-Jun-2016	09:23	241.51	25.71	0	140	10	20	0	0	145	315
15-Jun-2016	09:06	241.58	25.74	0	90	20	20	0	0	140	270
14-Jun-2016	09:22	241.61	25.79	0	90	20	20	0	0	150	280
13-Jun-2016	08:58	241.65	25.81	0	90	20	20	0	0	140	270
12-Jun-2016	09:35	241.65	25.81	0	90	20	20	0	0	135	265
11-Jun-2016	09:15	241.68	25.84	0	90	20	20	0	0	135	265
10-Jun-2016	09:29	241.71	25.87	0	90	20	20	0	0	130	260
09-Jun-2016	09:11	241.74	25.89	0	125	25	20	0	0	135	305
08-Jun-2016	09:18	241.78	25.92	0	200	15	20	0	0	130	365
07-Jun-2016	09:10	241.81	25.94	0	200	15	50	0	0	135	400
06-Jun-2016	09:38	241.84	25.97	0	200	15	50	0	0	140	405
05-Jun-2016	11:03	241.91	26.02	0	200	15	50	0	0	155	420
04-Jun-2016	11:15	241.94	26.05	0	200	15	50	0	0	170	435

03-Jun-2016	09:51	241.97	26.07	0	200	15	7	0	0	165	387
02-Jun-2016	09:22	242.04	26.12	0	200	15	7	0	0	159	381
01-Jun-2016	09:24	242.07	26.15	0	200	15	7	0	0	144	366
31-May-2016	09:10	242.1	26.17	0	200	15	7	0	0	130	352
30-May-2016	09:34	242.14	26.2	0	200	15	7	0	0	135	357
29-May-2016	09:20	242.17	26.22	0	200	0	7	0	0	155	362
28-May-2016	08:58	242.24	26.28	0	200	0	7	0	0	120	327
27-May-2016	08:47	242.27	26.3	0	150	0	7	0	0	112	269
26-May-2016	08:48	242.3	26.33	0	150	0	7	0	0	109	266
	08:53	242.33	26.35	0	100	0	7	0	0	102	209

25-May-2016											
24-May-2016	08:54	242.33	26.35	0	50	0	7	0	0	99	156
23-May-2016	08:55	242.37	26.38	0	50	0	7	0	0	85	142
22-May-2016	08:56	242.37	26.38	0	50	0	7	0	0	67	124
21-May-2016	10:39	242.4	26.4	0	50	0	7	0	0	33	90
20-May-2016	10:02	242.4	26.4	370	50	0	7	0	0	21	78
19-May-2016	08:56	242.37	26.38	3250	50	0	7	0	0	16	73
18-May-2016	10:24	242.01	26.1	0	300	0	7	0	0	44	351
17-May-2016	09:26	242.04	26.12	0	300	0	7	0	0	127	434
16-May-2016	09:33	242.1	26.17	0	400	0	7	0	0	131	538
15-May-2016	08:57	242.17	26.22	0	400	0	7	0	0	129	536
14-May-2016	09:03	242.24	26.28	0	60	0	7	0	0	142	209
13-May-2016	09:26	242.24	26.28	0	60	0	7	0	0	40	107
12-May-2016	09:19	242.27	26.3	0	60	0	7	0	0	135	202
10-May-2016	09:19	242.3	26.33	0	60	0	7	0	0	130	197
09-May-2016	09:13	242.33	26.35	0	60	0	7	0	0	123	190
08-May-2016	09:10	242.33	26.35	0	60	0	7	0	0	125	192
07-May-2016	09:25	242.37	26.38	0	60	0	7	0	0	120	187
06-May-2016	11:39	242.4	26.4	0	60	0	7	0	0	123	190
05-May-2016	10:15	242.43	26.43	0	60	0	7	0	0	120	187
04-May-2016	10:20	242.43	26.43	0	60	0	7	0	0	116	183
03-May-2016	08:57	242.47	26.45	0	60	0	7	0	0	129	196
02-May-2016	08:56	242.47	26.45	0	60	0	7	0	0	144	211
01-May-2016	09:17	242.5	26.48	0	60	0	7	0	0	193	260
30-Apr-2016	09:09	242.53	26.51	0	60	0	7	0	0	221	288
29-Apr-2016	11:02	242.56	26.53	0	115	0	7	0	0	157	279
28-Apr-2016	08:56	242.6	26.56	0	115	0	7	0	0	126	248
27-Apr-2016	09:19	242.63	26.58	0	115	0	7	0	0	91	213
26-Apr-2016	09:15	242.63	26.58	0	115	0	7	0	0	89	211
25-Apr-2016	09:16	242.66	26.61	0	115	0	7	0	0	87	209
24-Apr-2016	09:03	242.73	26.66	0	115	0	7	0	0	90	212

23-Apr-2016	09:04	242.73	26.66	0	115	0	7	0	0	92	214
22-Apr-2016	08:55	242.76	26.69	0	115	0	7	0	0	90	212
21-Apr-2016	09:13	242.76	26.69	0	115	0	7	0	0	89	211
20-Apr-2016	08:58	242.79	26.71	0	115	0	7	0	0	87	209
19-Apr-2016	10:04	242.79	26.71	0	105	0	7	0	0	86	198
18-Apr-2016	09:17	242.83	26.74	0	115	0	7	0	0	84	206
17-Apr-2016	09:05	242.86	26.77	0	115	0	7	0	0	85	207
16-Apr-2016	09:17	242.86	26.77	0	215	0	7	0	0	81	303
15-Apr-2016	08:53	242.89	26.79	0	215	0	7	0	0	80	302
	09:09	242.93	26.82	0	215	0	7	0	0	78	300

14-Apr-2016											
13-Apr-2016	09:37	242.99	26.87	0	385	0	7	0	0	77	469
12-Apr-2016	09:45	243.02	26.9	0	220	0	7	0	0	75	302
11-Apr-2016	09:32	243.06	26.93	0	220	0	7	0	0	74	301
10-Apr-2016	09:19	243.09	26.96	0	220	0	7	10	0	76	313
09-Apr-2016	09:17	243.12	26.98	0	220	0	7	10	0	75	312
08-Apr-2016	09:25	243.15	27.01	0	220	0	7	10	0	73	310
07-Apr-2016	09:19	243.19	27.04	0	320	0	7	10	0	71	408
06-Apr-2016	09:16	243.22	27.06	0	425	0	7	10	0	70	512
05-Apr-2016	09:27	243.29	27.12	0	525	0	7	10	0	67	609
04-Apr-2016	09:11	243.32	27.15	0	525	0	7	10	0	65	607
03-Apr-2016	09:10	243.38	27.2	0	525	0	7	10	0	66	608
02-Apr-2016	09:05	243.45	27.25	0	575	0	7	10	0	44	636
01-Apr-2016	09:07	243.52	27.31	0	725	0	7	10	0	60	802
31-Mar-2016	08:59	243.61	27.39	0	730	0	7	10	0	55	802
30-Mar-2016	09:23	243.71	27.47	0	730	0	7	10	0	70	817
29-Mar-2016	08:56	243.78	27.53	0	740	0	7	10	0	100	857
28-Mar-2016	09:04	243.88	27.61	0	940	0	7	13	0	102	1062
27-Mar-2016	09:12	243.98	27.69	0	940	150	157	15	0	105	1367
26-Mar-2016	09:47	244.11	27.8	0	940	150	157	20	0	106	1373
25-Mar-2016	09:26	244.27	27.93	0	940	150	157	24	0	105	1376
24-Mar-2016	09:27	244.4	28.04	0	940	150	157	29	0	104	1380
23-Mar-2016	09:01	244.57	28.18	0	1140	150	157	33	0	106	1586
22-Mar-2016	09:02	244.73	28.32	0	1140	150	157	38	0	105	1590
21-Mar-2016	09:04	244.89	28.45	0	1140	150	157	42	0	110	1599
20-Mar-2016	09:20	245.06	28.59	0	1040	150	157	47	0	125	1519
19-Mar-2016	09:09	245.22	28.72	0	1040	150	157	53	0	129	1529
18-Mar-2016	09:24	245.39	28.86	0	1040	150	157	60	0	145	1552
17-Mar-2016	09:08	245.55	29.0	0	1040	150	157	75	0	162	1584
16-Mar-2016	09:02	245.71	29.13	0	1040	150	7	100	0	165	1462
15-Mar-2016	12:22	245.85	29.24	0	1040	150	7	120	0	155	1472

14-Mar-2016	09:20	246.01	29.38	0	1140	150	7	150	0	155	1602
13-Mar-2016	09:19	246.17	29.51	0	1240	150	7	150	0	152	1699
12-Mar-2016	09:02	246.34	29.65	0	1540	0	7	150	0	147	1844
11-Mar-2016	09:19	246.53	29.82	0	1640	0	7	150	0	145	1942
10-Mar-2016	09:12	246.73	29.98	0	1640	0	7	150	0	148	1945
09-Mar-2016	09:36	246.93	30.15	0	1640	0	7	150	0	145	1942
08-Mar-2016	09:15	247.12	30.32	0	1640	0	7	150	0	143	1940
07-Mar-2016	09:19	247.32	30.48	0	1640	0	7	150	0	150	1947
06-Mar-2016	09:19	247.52	30.65	0	1640	0	7	150	0	154	1951
	09:36	247.72	30.82	0	1640	0	7	150	0	152	1949

05-Mar-2016											
04-Mar-2016	09:14	247.91	30.98	0	1640	0	7	150	0	150	1947
03-Mar-2016	08:50	248.11	31.15	0	1640	0	7	150	0	147	1944
02-Mar-2016	09:00	248.34	31.34	0	1540	150	157	150	0	151	2148
01-Mar-2016	10:06	248.6	31.56	0	1240	150	157	150	0	160	1857
29-Feb-2016	09:09	248.73	31.67	0	690	150	157	120	0	156	1273
28-Feb-2016	09:18	248.86	31.78	0	1340	150	157	120	0	162	1929
27-Feb-2016	09:28	249.06	31.95	0	1340	150	157	120	0	160	1927
26-Feb-2016	09:28	249.26	32.12	0	1540	150	157	100	0	174	2121
25-Feb-2016	09:21	249.45	32.3	0	1240	150	157	100	0	183	1830
24-Feb-2016	11:13	249.62	32.46	0	1040	150	157	100	0	180	1627
23-Feb-2016	09:26	249.78	32.62	0	1040	150	157	100	0	194	1641
22-Feb-2016	09:13	249.91	32.74	0	1540	150	157	100	0	196	2143
21-Feb-2016	09:09	250.11	32.93	0	1540	150	157	100	0	195	2142
20-Feb-2016	09:05	250.31	33.13	0	1340	150	157	100	0	190	1937
19-Feb-2016	09:12	250.47	33.29	0	1240	150	157	100	0	0	1647
18-Feb-2016	09:37	250.64	33.44	0	1240	0	157	100	0	180	1677
17-Feb-2016	09:13	250.77	33.57	0	1240	0	157	100	0	173	1670
16-Feb-2016	09:14	250.96	33.76	0	1240	0	157	100	0	175	1672
15-Feb-2016	09:40	251.09	33.89	0	1240	0	157	100	0	172	1669
14-Feb-2016	09:57	251.23	34.02	0	1240	0	157	100	0	164	1661
13-Feb-2016	09:17	251.39	34.18	0	1390	0	157	100	0	170	1817
12-Feb-2016	09:15	251.52	34.31	0	1340	0	157	100	0	172	1769
11-Feb-2016	09:22	251.69	34.47	0	1140	0	7	60	0	170	1377
10-Feb-2016	09:05	251.82	34.59	0	1040	0	7	0	0	166	1213
09-Feb-2016	09:27	251.92	34.69	0	1040	0	7	0	0	160	1207
08-Feb-2016	09:08	252.05	34.82	0	1040	0	7	0	0	165	1212
07-Feb-2016	09:19	252.14	34.91	0	1040	0	7	0	0	161	1208
06-Feb-2016	09:35	252.24	35.01	0	1040	0	7	100	0	160	1307
05-Feb-2016	09:30	252.37	35.14	0	1040	0	7	100	0	154	1301
04-Feb-2016	09:27	252.47	35.23	0	1040	0	7	100	0	150	1297

03-Feb-2016	09:38	252.6	35.36	0	840	0	7	100	0	144	1091
02-Feb-2016	09:24	252.7	35.46	0	840	0	7	60	0	140	1047
01-Feb-2016	09:32	252.8	35.56	0	840	0	7	60	0	143	1050
31-Jan-2016	09:32	252.87	35.62	0	840	0	207	60	0	152	1259
30-Jan-2016	09:04	252.97	35.72	0	840	0	207	40	0	144	1231
29-Jan-2016	09:22	253.1	35.86	0	840	0	207	70	0	123	1240
28-Jan-2016	09:27	253.19	35.96	0	640	0	207	70	0	102	1019
27-Jan-2016	09:28	253.26	36.02	0	640	0	207	45	0	100	992
26-Jan-2016	09:25	253.36	36.12	0	640	0	207	40	0	96	983
	09:08	253.42	36.19	0	640	0	207	40	0	90	977

25-Jan-2016											
24-Jan-2016	09:28	253.52	36.29	0	640	0	207	40	0	89	976
23-Jan-2016	09:02	253.59	36.36	0	640	0	207	40	0	84	971
22-Jan-2016	09:10	253.69	36.46	0	640	0	207	40	0	80	967
21-Jan-2016	09:36	253.75	36.52	0	640	0	207	45	0	85	977
20-Jan-2016	09:22	253.85	36.62	0	640	0	207	45	0	116	1008
19-Jan-2016	09:22	253.92	36.69	0	640	0	207	45	0	120	1012
18-Jan-2016	09:19	254.02	36.79	0	640	0	207	45	0	118	1010
17-Jan-2016	09:54	254.11	36.89	0	640	0	207	45	0	115	1007
16-Jan-2016	09:32	254.18	36.96	0	640	0	207	45	0	110	1002
15-Jan-2016	09:27	254.28	37.06	0	640	0	107	45	0	105	897
14-Jan-2016	09:37	254.34	37.12	0	640	0	107	45	0	102	894
13-Jan-2016	09:13	254.44	37.22	0	640	0	107	45	0	105	897
12-Jan-2016	09:51	254.51	37.29	0	540	200	107	45	0	100	992
11-Jan-2016	09:20	254.61	37.39	0	540	200	107	60	0	98	1005
10-Jan-2016	09:26	254.67	37.46	0	540	200	107	60	0	93	1000
09-Jan-2016	09:53	254.77	37.55	0	540	200	107	60	0	95	1002
08-Jan-2016	09:23	254.87	37.65	0	340	200	107	60	0	90	797
07-Jan-2016	09:26	254.93	37.72	0	540	200	7	60	0	94	901
06-Jan-2016	09:32	255.0	37.79	0	120	200	7	40	0	90	457
05-Jan-2016	09:15	255.03	37.82	0	40	200	7	40	0	84	371
04-Jan-2016	09:31	255.06	37.85	0	40	200	7	40	0	85	372
03-Jan-2016	09:13	255.1	37.89	0	40	200	7	40	0	71	358
02-Jan-2016	09:17	255.13	37.92	0	40	200	7	40	0	65	352
01-Jan-2016	09:25	255.16	37.95	0	120	200	7	45	0	63	435
31-Dec-2015	09:24	255.2	37.99	0	120	200	7	45	0	59	431
30-Dec-2015	09:36	255.23	38.02	0	120	200	7	0	0	87	414
29-Dec-2015	09:45	255.26	38.05	0	120	100	7	0	0	70	297
28-Dec-2015	10:00	255.29	38.09	0	80	0	7	0	0	76	163
27-Dec-2015	09:40	255.29	38.09	120	80	0	7	0	0	93	180
26-Dec-2015	09:01	255.29	38.09	650	80	0	7	0	0	98	185

25-Dec-2015	09:17	255.26	38.05	750	80	0	7	0	0	110	197
24-Dec-2015	09:29	255.23	38.02	1700	80	0	7	0	0	104	191
23-Dec-2015	09:25	255.1	37.89	3150	80	0	7	0	0	101	188
22-Dec-2015	09:09	254.84	37.62	3050	45	0	7	0	0	105	157
21-Dec-2015	09:46	254.61	37.39	2900	45	0	7	0	0	103	155
20-Dec-2015	09:09	254.34	37.12	2900	45	0	7	0	0	100	152
19-Dec-2015	09:22	254.11	36.89	2900	45	0	7	0	0	102	154
18-Dec-2015	09:15	253.88	36.66	2920	0	0	7	0	0	99	106
17-Dec-2015	09:04	253.65	36.42	7200	0	0	7	0	0	97	104
	09:59	253.06	35.82	7400	0	0	7	0	0	94	101

16-Dec-2015											
15-Dec-2015	09:03	252.47	35.23	8700	0	0	7	0	0	97	104
14-Dec-2015	09:11	251.69	34.47	10350	0	0	7	0	0	95	102
13-Dec-2015	09:44	250.77	33.57	10200	0	0	7	0	0	87	94
12-Dec-2015	09:32	249.88	32.71	11350	0	0	7	0	0	60	67
11-Dec-2015	09:28	248.8	31.73	11300	0	0	7	0	0	52	59
10-Dec-2015	09:27	247.65	30.76	11300	0	0	7	0	0	45	52
09-Dec-2015	09:32	246.5	29.79	11080	0	0	7	0	0	58	65
08-Dec-2015	09:24	245.35	28.83	10700	0	0	7	0	0	55	62
07-Dec-2015	09:32	244.24	27.91	10380	0	0	7	0	0	0	7
06-Dec-2015	09:34	243.15	27.01	11400	0	0	7	0	0	0	7
05-Dec-2015	09:32	241.91	26.02	10600	0	0	7	0	0	0	7
04-Dec-2015	09:12	240.73	25.1	12625	0	0	7	0	0	0	7
03-Dec-2015	09:45	239.32	24.01	12200	0	0	7	0	0	0	7
02-Dec-2015	09:17	237.87	22.96	10200	0	0	7	0	0	0	7
01-Dec-2015	09:16	236.66	22.07	8200	0	0	7	0	0	0	7
30-Nov-2015	09:15	235.64	21.36	12070	0	0	7	0	0	0	7
29-Nov-2015	09:09	234.0	20.26	11940	0	0	7	0	0	0	7
28-Nov-2015	09:40	232.26	19.12	11960	0	0	7	0	0	0	7
27-Nov-2015	10:01	230.62	18.1	11800	0	0	7	0	0	0	7
26-Nov-2015	09:17	228.95	17.08	11200	0	0	7	0	0	0	7
25-Nov-2015	09:45	227.31	16.12	10350	0	0	7	0	0	0	7
24-Nov-2015	09:23	225.73	15.23	8600	0	0	7	0	0	0	7
23-Nov-2015	09:23	224.58	14.62	6250	0	0	7	0	0	0	7
22-Nov-2015	09:38	223.57	14.08	3200	0	0	7	0	0	0	7
21-Nov-2015	09:23	223.04	13.81	4600	0	0	7	0	0	12	19
20-Nov-2015	09:14	222.23	13.42	4000	0	0	7	0	0	0	7
19-Nov-2015	09:00	221.8	13.21	7100	0	0	7	0	0	6	13
18-Nov-2015	08:54	220.52	12.6	6111	0	0	7	0	0	5	12
17-Nov-2015	09:13	219.37	12.07	39039	0	0	7	0	0	5	12
16-Nov-2015	09:38	210.77	8.7	650	0	0	7	0	0	10	17

15-Nov-2015	09:57	210.64	8.65	0	0	0	7	0	0	18	25
14-Nov-2015	09:33	210.64	8.65	0	0	0	7	0	0	15	22
13-Nov-2015	09:43	210.64	8.65	1350	0	0	7	0	0	13	20
12-Nov-2015	09:04	210.31	8.54	6290	0	0	7	0	0	12	19
11-Nov-2015	09:17	208.67	8.0	30450	0	0	7	0	0	10	17
10-Nov-2015	09:40	199.48	5.37	3240	0	0	7	0	0	15	22
09-Nov-2015	09:22	198.3	5.09	3870	0	0	7	0	0	18	25
08-Nov-2015	09:19	196.89	4.75	2240	0	0	7	0	0	18	25
07-Nov-2015	09:30	196.01	4.56	595	0	0	7	0	0	22	29
	09:24	195.78	4.51	1810	0	0	7	0	0	20	27

06-Nov-2015											
05-Nov-2015	09:13	195.06	4.36	660	0	0	7	0	0	21	28
04-Nov-2015	09:16	194.79	4.3	1700	0	0	7	0	0	20	27
03-Nov-2015	09:11	194.1	4.15	0	0	0	7	0	0	23	30
02-Nov-2015	10:07	194.14	4.16	0	0	0	7	0	0	25	32
01-Nov-2015	09:32	194.14	4.16	0	0	0	7	0	0	28	35
31-Oct-2015	09:10	194.17	4.17	0	0	0	7	0	0	29	36
30-Oct-2015	09:30	194.17	4.17	0	0	0	7	0	0	16	23
29-Oct-2015	09:22	194.2	4.17	0	0	0	7	0	0	17	24
28-Oct-2015	09:53	194.2	4.17	0	0	0	7	0	0	20	27
27-Oct-2015	09:29	194.2	4.17	0	15	0	7	0	0	23	45
26-Oct-2015	09:18	194.24	4.18	0	20	0	7	0	0	35	62
25-Oct-2015	09:21	194.24	4.18	0	25	0	7	0	0	36	68
24-Oct-2015	09:29	194.27	4.19	0	25	0	7	0	0	35	67
23-Oct-2015	09:24	194.3	4.2	0	25	0	7	0	0	37	69
22-Oct-2015	09:44	194.33	4.2	0	30	0	7	0	0	40	77
21-Oct-2015	09:41	194.37	4.21	0	40	0	7	0	0	49	96
20-Oct-2015	09:24	194.4	4.22	0	50	0	7	0	0	57	114
19-Oct-2015	09:46	194.46	4.23	0	50	0	7	0	0	60	117
18-Oct-2015	09:37	194.5	4.24	0	60	0	7	0	0	63	130
17-Oct-2015	09:22	194.53	4.24	0	60	0	7	0	0	65	132
16-Oct-2015	09:08	194.6	4.26	0	60	0	7	0	0	70	137
15-Oct-2015	09:08	194.66	4.27	150	65	0	7	0	0	72	144
14-Oct-2015	09:01	194.66	4.27	230	65	0	7	0	0	80	152
13-Oct-2015	09:27	194.63	4.27	320	65	0	7	0	0	83	155
12-Oct-2015	09:32	194.56	4.25	465	65	0	7	0	0	85	157
11-Oct-2015	09:11	194.46	4.23	520	65	0	7	0	0	87	159
10-Oct-2015	09:26	194.3	4.2	760	65	0	7	0	0	90	162
09-Oct-2015	09:32	194.17	4.17	1226	65	0	7	0	0	93	165
08-Oct-2015	09:36	193.64	4.05	850	65	0	7	0	0	89	161
07-Oct-2015	09:30	193.35	4.0	0	65	0	7	0	0	92	164

07-Oct-2015	09:26	193.35	4.0	0	65	0	7	0	0	92	164
06-Oct-2015	09:29	193.41	4.01	0	65	0	7	0	0	90	162
05-Oct-2015	09:34	193.48	4.02	0	65	0	7	0	0	93	165
04-Oct-2015	10:18	193.55	4.03	380	70	0	7	0	0	95	172
03-Oct-2015	10:05	193.45	4.02	0	70	0	7	0	0	98	175
02-Oct-2015	09:18	193.51	4.03	0	65	0	7	0	0	103	175
01-Oct-2015	09:21	193.58	4.04	0	65	0	7	0	0	110	182
30-Sep-2015	11:04	193.68	4.06	0	70	0	7	0	0	122	199
29-Sep-2015	09:18	193.74	4.08	0	70	0	7	0	0	121	198
	09:25	193.84	4.1	140	70	0	7	0	0	132	209

28-Sep-2015											
27-Sep-2015	09:19	193.87	4.1	0	60	0	7	0	0	135	202
26-Sep-2015	09:18	193.94	4.12	0	65	0	7	0	0	132	204
25-Sep-2015	09:11	194.04	4.14	0	65	0	7	0	0	125	197
24-Sep-2015	11:24	194.12	4.15	0	65	0	7	0	0	127	199
23-Sep-2015	09:32	194.2	4.17	0	65	0	7	0	0	131	203
22-Sep-2015	09:22	194.27	4.19	0	70	0	7	0	0	123	200
21-Sep-2015	09:46	194.33	4.2	0	70	0	7	0	0	129	206
20-Sep-2015	09:16	194.43	4.22	0	70	0	7	0	0	124	201
19-Sep-2015	09:18	194.5	4.24	0	80	0	7	0	0	120	207
18-Sep-2015	09:47	194.6	4.26	0	90	0	7	0	0	127	224
17-Sep-2015	09:18	194.69	4.28	0	90	0	7	0	0	122	219
16-Sep-2015	09:58	194.79	4.3	0	90	0	7	0	0	129	226
15-Sep-2015	09:22	194.86	4.32	0	90	0	7	0	0	120	217
14-Sep-2015	09:34	194.96	4.34	0	90	0	7	0	0	115	212
13-Sep-2015	09:48	195.02	4.35	0	90	0	7	0	0	112	209
12-Sep-2015	09:43	195.06	4.36	0	90	0	7	0	0	108	205
11-Sep-2015	09:29	195.15	4.38	0	90	0	7	0	0	108	205
10-Sep-2015	18:31	195.25	4.4	420	0	90	7	0	0	103	200
09-Sep-2015	11:43	195.19	4.39	0	90	0	7	0	0	105	202
08-Sep-2015	11:42	195.29	4.41	0	100	0	7	0	0	110	217
07-Sep-2015	11:42	195.35	4.42	140	100	0	7	0	0	124	231
06-Sep-2015	11:41	195.38	4.43	0	90	0	7	0	0	135	232
05-Sep-2015	09:10	195.48	4.45	0	90	0	7	0	0	132	229
04-Sep-2015	11:34	195.58	4.47	0	90	0	7	0	0	137	234
03-Sep-2015	09:13	195.68	4.49	0	90	0	7	0	0	135	232
02-Sep-2015	09:33	195.78	4.51	0	90	0	7	0	0	140	237
01-Sep-2015	09:11	195.88	4.53	0	100	0	7	0	0	143	250
31-Aug-2015	08:46	195.97	4.55	0	100	0	7	0	0	139	246
30-Aug-2015	09:01	196.07	4.58	0	100	0	7	0	0	142	249
29-Aug-2015	09:11	196.17	4.6	0	100	0	7	0	0	130	237

28-Aug-2015	09:08	196.27	4.62	0	100	0	7	0	0	134	241
27-Aug-2015	11:30	196.37	4.64	0	150	0	7	0	0	122	279
26-Aug-2015	09:18	196.5	4.67	0	150	0	7	0	0	120	277
25-Aug-2015	08:48	196.6	4.69	0	80	0	7	0	0	118	205
24-Aug-2015	08:49	196.7	4.71	0	80	0	7	0	0	100	187
23-Aug-2015	10:56	196.76	4.72	0	80	0	7	0	0	97	184
22-Aug-2015	08:48	196.79	4.73	250	100	0	7	0	0	104	211
21-Aug-2015	09:34	196.79	4.73	100	100	0	7	0	0	118	225
20-Aug-2015	08:51	196.86	4.74	0	100	0	7	0	0	121	228
	08:51	196.93	4.76	0	100	0	7	0	0	126	233

		19-Aug-2015										
		18-Aug-2015	09:25	196.96	4.77	0	100	0	7	0	0	122
		17-Aug-2015	11:18	197.02	4.78	0	100	0	7	0	0	118
		16-Aug-2015	10:24	197.12	4.81	0	100	0	7	0	0	115
		15-Aug-2015	09:00	197.22	4.83	0	50	0	7	0	0	122
		14-Aug-2015	09:02	197.32	4.85	0	0	0	7	0	0	118
		13-Aug-2015	09:03	197.38	4.87	0	0	0	7	0	0	112
		12-Aug-2015	09:31	197.45	4.88	0	0	0	17	0	0	120
		11-Aug-2015	09:22	197.52	4.9	0	0	0	17	0	0	150
		10-Aug-2015	09:00	197.55	4.91	0	0	0	17	0	0	146
		09-Aug-2015	09:18	197.61	4.92	0	0	0	17	0	0	144
		08-Aug-2015	09:02	197.68	4.94	0	0	0	7	0	0	152
		07-Aug-2015	09:11	197.71	4.95	0	0	0	7	0	0	150
		06-Aug-2015	08:49	197.78	4.96	0	0	0	7	0	0	146
		05-Aug-2015	09:05	197.81	4.97	0	0	0	7	0	0	149
		04-Aug-2015	09:17	197.88	4.99	0	0	0	7	0	0	144
		03-Aug-2015	09:13	197.94	5.0	0	0	0	7	0	0	140
		02-Aug-2015	09:10	197.98	5.01	0	7	0	0	0	0	142
		01-Aug-2015	08:55	198.04	5.02	0	0	0	7	0	0	147
		31-Jul-2015	09:08	198.11	5.04	0	0	0	7	0	0	144
		30-Jul-2015	09:14	198.17	5.05	0	0	0	7	0	0	150
		29-Jul-2015	09:12	198.27	5.08	0	0	0	7	0	0	153
		28-Jul-										

2015	08:52	198.37	5.1	0	0	0	7	0	0	167
		174								
27-Jul-2015	09:04	198.43	5.12	0	0	0	7	0	0	170
		177								
26-Jul-2015	10:50	198.5	5.13	0	0	0	7	0	0	169
		176								
25-Jul-2015	09:13	198.57	5.15	0	20	5	7	0	0	166
		198								
24-Jul-2015	09:01	198.63	5.16	0	60	5	7	0	0	164
		236								
23-Jul-2015	09:13	198.7	5.18	0	100	5	7	0	0	168
		280								
22-Jul-2015	09:23	198.83	5.21	0	100	5	7	0	0	166
		278								
21-Jul-2015	09:00	198.93	5.23	0	115	5	7	0	0	162
		289								
20-Jul-2015	08:52	199.03	5.26	0	150	5	150	0	0	165
		470								
19-Jul-2015	09:21	199.19	5.3	0	150	5	150	0	0	160
		465								
18-Jul-2015	09:02	199.39	5.34	0	170	5	150	0	0	156
		481								
17-Jul-2015	09:04	199.55	5.38	0	170	5	37	0	0	153
		365								
16-Jul-2015	09:22	199.65	5.4	0	170	5	37	0	0	155
		367								
15-Jul-2015	09:18	199.71	5.42	0	170	5	37	0	0	152
		364								
14-Jul-2015	08:55	199.94	5.47	0	170	5	37	0	0	149
		361								
13-Jul-2015	09:17	200.08	5.5	0	170	5	37	0	0	145
		357								
12-Jul-2015	09:16	200.21	5.54	0	220	5	37	0	0	142
		404								
11-Jul-2015	09:09	200.34	5.57	0	150	5	37	0	0	140
		332								
09:34	200.44	5.6	0	110	5	37	0	0	135	287

		10-Jul-2015											
		09-Jul-2015	08:58	200.57	5.63	0	110	5	37	0	0	130	282
		08-Jul-2015	09:15	200.63	5.65	0	110	5	37	0	0	127	279
		07-Jul-2015	09:18	200.7	5.67	0	110	5	37	0	0	122	274
		06-Jul-2015	09:06	200.76	5.69	0	110	5	37	0	0	120	272
		05-Jul-2015	09:13	200.86	5.71	0	100	5	37	0	0	117	259
		04-Jul-2015	09:18	200.96	5.74	0	100	5	37	0	0	113	255
		03-Jul-2015	09:06	201.03	5.75	0	100	5	37	0	0	115	257
		02-Jul-2015	09:14	201.09	5.78	0	100	5	37	0	0	112	254
		01-Jul-2015	09:07	201.16	5.79	0	110	5	37	0	0	110	262
		30-Jun-2015	09:11	201.22	5.81	0	150	5	37	0	0	107	299
		29-Jun-2015	09:06	201.32	5.84	0	150	5	37	0	0	105	297
		28-Jun-2015	09:20	201.42	5.86	0	150	5	37	0	0	110	302
		27-Jun-2015	09:08	201.52	5.89	0	170	5	7	0	0	116	298
		26-Jun-2015	09:18	201.62	5.92	0	170	5	7	0	0	115	297
		25-Jun-2015	09:13	201.68	5.93	0	210	5	7	0	0	112	334
		24-Jun-2015	09:16	201.78	5.96	0	410	10	7	0	0	105	532
		23-Jun-2015	09:01	201.98	6.01	0	410	10	7	0	0	102	529
		22-Jun-2015	09:06	202.14	6.06	0	460	10	7	0	0	94	571
		21-Jun-2015	09:19	202.34	6.11	0	460	10	7	0	0	90	567
		20-Jun-2015	08:54	202.5	6.15	0	460	50	7	0	0	92	609
		19-Jun-2015	09:07	202.7	6.21	0	460	50	7	0	0	124	641
		18-Jun-2015	08:56	202.93	6.26	0	510	50	7	0	0	153	720
		17-Jun-2015	09:20	203.16	6.33	0	510	50	7	0	0	165	732
		16-Jun-2015	09:08	203.39	6.39	0	610	50	7	0	0	171	838
		15-Jun-2015	09:05	203.62	6.46	0	610	50	7	0	0	176	843
		14-Jun-2015	09:22	203.88	6.53	0	660	30	7	0	0	188	885
		13-Jun-2015	09:54	204.14	6.61	0	710	30	7	0	0	174	921
		12-Jun-2015	09:25	204.41	6.69	0	810	30	7	0	0	186	1033
		11-Jun-2015	09:05	204.73	6.78	0	1010	30	7	0	0	185	1232
		10-Jun-2015	09:18	205.1	6.89	0	1000	0	30	0	0	190	1220

09-Jun-2015	09:18	205.46	7.0	0	1020	5	30	0	0	187	1242
08-Jun-2015	08:57	205.82	7.1	0	1020	5	30	0	0	182	1237
07-Jun-2015	09:17	206.18	7.21	0	1020	5	30	0	0	180	1235
06-Jun-2015	09:37	206.54	7.31	0	1020	5	30	0	0	184	1239
05-Jun-2015	08:57	206.9	7.42	0	1010	15	30	0	0	177	1232
04-Jun-2015	09:09	207.23	7.53	0	1010	15	30	0	0	181	1236
03-Jun-2015	08:53	207.52	7.63	0	1010	15	30	0	0	179	1234
02-Jun-2015	08:59	207.88	7.74	0	1010	15	30	0	0	184	1239
01-Jun-2015	09:09	208.25	7.86	0	35	15	17	0	0	180	247
	09:13	208.28	7.87	0	35	15	17	0	0	171	238

31-May-2015											
30-May-2015	08:58	208.34	7.89	0	35	15	17	0	0	225	292
29-May-2015	08:55	208.38	7.9	0	35	15	7	0	0	222	279
28-May-2015	09:05	208.47	7.93	0	35	15	7	0	0	220	277
27-May-2015	09:26	208.54	7.95	0	35	15	7	0	0	215	272
26-May-2015	09:06	208.64	7.99	0	35	15	7	0	0	210	267
25-May-2015	09:33	208.7	8.01	0	35	15	37	0	0	205	292
24-May-2015	08:56	208.8	8.04	0	35	15	37	17	0	198	302
23-May-2015	09:04	208.87	8.06	0	35	15	37	13	0	194	294
22-May-2015	09:08	208.93	8.08	0	35	15	37	12	0	187	286
21-May-2015	08:45	209.0	8.1	0	35	15	37	18	0	180	285
20-May-2015	08:54	209.1	8.13	0	35	15	37	20	0	174	281
19-May-2015	08:57	209.16	8.16	0	35	15	37	16	0	167	270
18-May-2015	08:57	209.23	8.18	0	35	15	17	20	0	161	248
17-May-2015	09:28	209.33	8.21	0	35	15	17	22	0	162	251
16-May-2015	09:23	209.39	8.23	0	35	15	7	20	0	154	231
15-May-2015	09:15	209.46	8.25	0	35	15	7	20	0	160	237
14-May-2015	09:11	209.56	8.28	0	35	15	7	21	0	167	245
13-May-2015	09:12	209.62	8.3	0	25	0	7	20	0	162	214
12-May-2015	09:02	209.66	8.31	0	25	0	7	16	0	159	207
11-May-2015	09:41	209.72	8.34	0	25	0	7	14	0	154	200
10-May-2015	11:12	209.75	8.35	0	25	0	7	14	0	149	195
09-May-2015	09:17	209.82	8.37	0	25	0	7	15	0	148	195
08-May-2015	09:39	209.89	8.39	0	25	0	7	15	0	140	187
07-May-2015	09:27	209.92	8.4	0	25	0	7	15	0	135	182
06-May-2015	09:17	209.95	8.41	0	25	0	7	15	0	137	184
05-May-2015	10:00	209.98	8.42	0	30	0	7	16	0	135	188
04-May-2015	09:22	210.05	8.44	0	30	0	7	20	0	129	186
03-May-2015	09:14	210.08	8.46	0	30	0	7	21	0	128	186
02-May-2015	09:29	210.12	8.47	0	30	0	7	21	0	125	183
01-May-2015	09:45	210.18	8.49	0	30	0	7	15	0	120	172

30-Apr-2015	09:12	210.21	8.5	0	30	0	7	13	0	124	174
29-Apr-2015	10:08	210.08	8.53	0	30	0	7	17	0	107	161
28-Apr-2015	09:17	210.34	8.55	0	30	0	7	14	0	105	156
27-Apr-2015	09:55	210.41	8.57	0	30	0	7	12	0	102	151
26-Apr-2015	11:32	210.44	8.58	0	30	0	7	16	0	99	152
25-Apr-2015	09:47	210.48	8.59	0	50	0	7	20	0	96	173
24-Apr-2015	09:16	210.51	8.61	0	50	0	7	0	0	99	156
23-Apr-2015	09:29	210.54	8.62	0	500	0	7	0	0	97	604
22-Apr-2015	09:15	210.71	8.68	0	1600	0	7	0	0	92	1699
	09:12	211.13	8.83	0	1600	0	7	0	0	90	1697

21-Apr-2015											
20-Apr-2015	09:13	211.53	8.97	0	1600	0	7	0	0	87	1694
19-Apr-2015	09:19	211.89	9.09	0	1600	0	7	0	0	85	1692
18-Apr-2015	09:10	212.28	9.23	0	1600	0	7	0	0	72	1679
17-Apr-2015	09:41	212.71	9.38	0	1600	0	7	0	0	68	1675
16-Apr-2015	09:36	213.13	9.53	0	1600	0	7	0	0	63	1670
15-Apr-2015	09:51	213.49	9.67	0	1600	0	7	0	0	60	1667
14-Apr-2015	09:25	213.89	9.82	0	1600	0	7	0	0	65	1672
13-Apr-2015	09:19	214.25	9.96	0	1600	0	7	0	0	77	1684
12-Apr-2015	09:07	214.61	10.11	0	1600	0	7	0	0	95	1702
11-Apr-2015	09:44	214.97	10.25	0	1600	0	7	0	0	97	1704
10-Apr-2015	09:37	215.36	10.4	0	20	0	7	0	0	90	117
09-Apr-2015	09:25	215.4	10.42	0	20	0	7	0	0	84	111
08-Apr-2015	09:16	215.43	10.43	0	20	0	7	0	0	99	126
07-Apr-2015	08:59	215.46	10.44	0	20	0	7	0	0	97	124
06-Apr-2015	11:23	215.46	10.44	0	20	0	7	0	0	95	122
05-Apr-2015	09:33	215.5	10.45	0	20	0	7	0	0	94	121
04-Apr-2015	09:22	215.53	10.46	0	25	0	77	0	0	90	192
03-Apr-2015	09:53	215.56	10.48	0	25	0	77	0	0	89	191
02-Apr-2015	10:00	215.63	10.5	0	15	10	77	0	0	87	189
01-Apr-2015	09:18	215.66	10.52	0	15	10	77	0	0	80	182
31-Mar-2015	09:29	215.69	10.53	0	15	10	7	0	0	73	105
30-Mar-2015	11:49	215.69	10.53	0	15	10	7	0	0	84	116
29-Mar-2015	09:09	215.73	10.54	0	40	10	7	0	0	105	162
28-Mar-2015	09:18	215.76	10.55	0	40	10	7	0	0	103	160
27-Mar-2015	08:59	215.79	10.57	0	40	10	7	0	0	99	156
26-Mar-2015	09:04	215.82	10.58	0	40	10	7	0	0	94	151
25-Mar-2015	08:55	215.86	10.59	0	40	10	7	0	0	89	146
24-Mar-2015	08:49	215.85	10.6	0	320	100	107	0	0	109	636
23-Mar-2015	09:28	216.02	10.66	0	320	100	107	0	0	110	637
22-Mar-2015	09:26	216.19	10.72	0	320	100	107	0	0	104	631

21-Mar-2015	09:38	216.32	10.77	0	320	100	107	0	0	106	633
20-Mar-2015	09:04	216.45	10.82	0	320	100	107	0	0	100	627
19-Mar-2015	09:22	216.58	10.87	0	50	100	7	0	0	101	258
18-Mar-2015	09:15	216.64	10.9	0	150	0	7	0	0	93	250
17-Mar-2015	09:10	216.71	10.93	0	250	0	7	0	0	100	357
16-Mar-2015	08:45	216.78	10.96	0	520	0	7	0	0	97	624
15-Mar-2015	08:58	217.87	11.0	0	1520	0	107	0	0	95	1722
14-Mar-2015	09:00	217.24	11.16	0	1520	0	107	0	0	89	1716
13-Mar-2015	09:21	217.56	11.3	0	1520	0	107	0	0	86	1713
09:12	217.92		11.45	0	1520	0	107	0	0	80	1707

12-Mar-2015											
11-Mar-2015	08:51	218.28	11.61	0	1520	0	107	0	0	76	1703
10-Mar-2015	08:58	218.61	11.75	0	1520	0	107	0	0	70	1697
09-Mar-2015	09:02	218.94	11.89	0	820	0	107	0	0	66	993
08-Mar-2015	09:28	219.14	11.97	0	1020	0	107	0	0	60	1187
07-Mar-2015	09:42	219.4	12.09	0	1020	0	207	0	0	58	1285
06-Mar-2015	09:10	219.63	12.19	0	1020	0	207	0	0	54	1281
05-Mar-2015	09:02	219.89	12.3	0	1220	0	207	0	0	50	1477
04-Mar-2015	09:18	220.16	12.43	0	1520	0	107	0	0	55	1682
03-Mar-2015	10:18	220.48	12.58	0	1520	0	107	0	0	64	1691
02-Mar-2015	09:12	220.78	12.73	0	1520	0	107	0	0	73	1700
01-Mar-2015	09:38	221.11	12.88	0	1620	0	7	0	0	70	1697
28-Feb-2015	09:26	221.4	13.02	0	1720	0	7	0	0	62	1789
27-Feb-2015	09:22	221.7	13.17	0	1820	0	7	0	0	82	1909
26-Feb-2015	09:12	222.03	13.32	0	1920	200	7	0	0	95	2222
25-Feb-2015	09:16	222.42	13.51	0	1920	200	7	0	0	100	2227
24-Feb-2015	09:07	222.81	13.7	0	1920	200	7	0	0	97	2224
23-Feb-2015	09:09	223.21	13.89	150	1920	200	7	0	0	95	2222
22-Feb-2015	09:30	223.53	14.07	985	1920	200	7	0	0	90	2217
21-Feb-2015	09:12	223.76	14.19	1010	1920	200	107	0	0	87	2314
20-Feb-2015	09:22	223.96	14.29	1150	1920	200	107	0	0	80	2307
19-Feb-2015	09:08	224.16	14.4	1010	1920	200	107	0	0	95	2322
18-Feb-2015	09:14	224.35	14.5	1020	1920	150	157	0	0	82	2309
17-Feb-2015	09:14	224.58	14.62	1050	1920	150	157	0	0	80	2307
16-Feb-2015	09:32	224.78	14.73	1130	1920	100	157	0	0	74	2251
15-Feb-2015	09:36	224.98	14.83	1270	1920	0	157	0	0	75	2152
14-Feb-2015	09:03	225.14	14.92	1350	1920	0	157	0	0	70	2147
13-Feb-2015	09:19	225.27	14.98	0	1920	0	157	0	0	72	2149
12-Feb-2015	09:30	225.5	15.11	0	1920	0	157	0	0	80	2157
11-Feb-2015	09:38	225.83	15.28	0	1920	0	7	0	0	77	2004
10-Feb-2015	09:47	226.16	15.46	0	1920	0	7	0	0	74	2001

09-Feb-2015	09:21	226.49	15.64	0	1920	0	7	0	0	69	1996
08-Feb-2015	09:24	226.78	15.81	0	1920	250	157	0	0	64	2391
07-Feb-2015	09:26	227.11	16.0	0	1920	250	157	0	0	55	2382
06-Feb-2015	09:21	227.47	16.21	0	1920	250	157	0	0	48	2375
05-Feb-2015	09:40	227.83	16.43	0	1920	250	157	0	0	45	2372
04-Feb-2015	09:35	228.23	16.66	0	1920	250	157	0	0	41	2368
03-Feb-2015	09:21	228.52	16.83	0	1920	250	157	0	0	34	2361
02-Feb-2015	09:09	228.88	17.04	0	1920	250	157	0	0	29	2356
01-Feb-2015	09:17	229.24	17.25	0	1920	200	157	0	0	21	2298
09:30	229.57		17.44	0	1920	200	157	0	0	16	2293

31-Jan-2015											
30-Jan-2015											
29-Jan-2015	09:32	229.87	17.62	0	1920	200	157	0	0	20	2297
28-Jan-2015	09:19	230.19	17.83	0	1920	150	107	0	0	62	2239
27-Jan-2015	09:29	230.49	18.02	0	1920	150	107	0	0	60	2237
26-Jan-2015											
25-Jan-2015	09:35	230.82	18.22	0	1920	150	107	0	0	57	2234
24-Jan-2015	09:19	231.15	18.43	0	1920	150	107	0	0	51	2228
23-Jan-2015	10:55	231.44	18.61	0	1620	100	157	0	0	49	1926
22-Jan-2015											
21-Jan-2015	09:30	231.7	18.77	0	1620	100	107	0	0	45	1872
20-Jan-2015	09:31	232.0	18.96	0	1620	100	107	0	0	47	1874
19-Jan-2015	09:28	232.26	19.12	0	1920	100	107	0	0	45	2172
18-Jan-2015											
17-Jan-2015	09:15	232.56	19.31	0	1920	100	107	0	0	49	2176
16-Jan-2015	09:15	232.85	19.49	0	1620	100	107	0	0	47	1874
15-Jan-2015											
14-Jan-2015	09:38	233.12	19.67	320	1620	0	7	0	0	50	1677
13-Jan-2015	09:23	233.28	19.78	290	1320	0	7	0	0	53	1380
12-Jan-2015	09:04	233.41	19.87	285	1320	0	7	0	0	61	1388
11-Jan-2015											
10-Jan-2015	09:12	233.54	19.96	300	1320	0	7	0	0	60	1387
09-Jan-2015	09:31	233.67	20.04	310	1320	0	7	0	0	65	1392
08-Jan-2015	09:25	233.84	20.15	320	1120	0	7	0	0	61	1188
07-Jan-2015											
06-Jan-2015	09:33	233.94	20.22	250	1120	0	7	0	0	59	1186
05-Jan-2015	09:44	234.07	20.31	260	1120	0	7	0	0	54	1181
04-Jan-2015	09:25	234.16	20.37	0	1120	0	7	0	0	57	1184
03-Jan-2015											
02-Jan-2015	09:27	234.3	20.46	0	1120	0	7	0	0	60	1187
01-Jan-2015	10:12	234.43	20.55	0	1120	0	157	0	0	65	1342

Annexure 4: Letter from R & B Department

R CHENCHAIAH
CHIEF ENGINEER – I

To
The Engineer-In-Chief
R&B , Administration & State Roads
Room No: 101, A-Block,
Anjaneeya Towers,
Ibrahim Patnam, Vijayawada- 521456

Lr.No CE-I/APIIC/ADB-WS/05/2014-15 **Dt:20.06.2017**

Sir,

Sub: Vizag – Chennai Industrial Corridor Development Programme (VCICDP) – Development of Industrial Hub at Meenakur, Near Naidupeta, SPSR Nellore Dist – Permission to lay the pipe line from Utlapalli to Menakuru along the RoW of the Venkatagiri – Naidupeta State Highway – Requested – Reg

000

Government of Andhra Pradesh (GoAP) is in the process of developing Vizag – Chennai Industrial Corridor with the Financial Assistance of Asian Development Bank.

As a part of the corridor development, GoAP is planning to improve the infrastructure to the Industrial Areas located along the Corridor. As part of the infrastructure development, APIIC propose to develop a bulk water system from Telugu Ganga Canal near Utlapalli to the Industrial Cluster located at Menakuru, Naidupeta Mandal, SPSR Nellore Dist.

The proposal involves construction of intake works at Utlapalli and laying of pumping main from Utlapalli to Menakuru. The Proposed Pumping main runs along Venkatagiri – Naidupeta road.

Govt of Andhra Pradesh accorded permission to the Chief Engineer, NTR, TGP Tirupathi to release the allocated water of 0.27 TMC from Teluguganga Canal, near Utlampalli village of Nellore Dist for use of existing IP/MPSEZ, Meenakur as per the provisions of GO MS No 184, DT 04.08.2007.

APIIC is intended to take up the proposed pipe line from Utlampalli Intake to SEZ at Meenakur along the Existing RoW of the Venkatagiri – Naidupeta state Highway as per the plan enclosed.

Hence it is requested to kindly accord permission to APIIC for laying the proposed pipe line along the existing RoW of Venkatagiri – Naidupeta State Highway so that to take up the work accordingly

Early action is solicited

Yours faithfully,

CHIEF ENGINEER – I
APIIC LIMITED

// By R.P with Ack due //

GOVERNMENT OF ANDHRA PRADESH
ROADS AND BUILDINGS DEPARTMENT

From
Sri.B.Vivekanand.,M.E., M.I.E.
Executive Engineer,
(R&B) Division, Gudur,
SPSR Nellore District.
Andhra Pradesh.

To
The Manager,
State Bank of Undia,
COMMERICAL BRN,
COMMERICAL BRANCH,
KOTI., HYDERABAD- 95,
BANK STREET, HYDERABAD.

Letter No. B.Gs/Road Cutting/Supdt/2018, Dated: 04 -09-2018.

Sir,

Sub:- (R&B) Division, Gudur – Bank Guarantee- " Road Cutting permission for Laying of Pipe line along with Venkatagiri – Naidupet road from Km 12/4 to 30/4 in S.P.S.R. Nellore District" – Restoration charges - B.G No. 0416818 BG000436, dt.14.08.2018 of SBI,Commecial Branch, Koti, Hyderabad, Telangana for Rs.17,81,200/- - – Submitted by the Zonal Manager, APIIC, Nellore – Confirmation requested – Reg.

Ref:-Lr.No.ZM/APIIC/NLR/DB/VCICDP-04/454, dt.28.08.2018 of the Zonal Manager, APIIC, Nellore. along with B.G No. 0416818 BG000436, dt.14.08.2018 of SBI,Commecial Branch, Koti, Hyderabad, Telangana for Rs.17,81,200/-.

@@@

It is requested to confirm the issuance of Bank Guarantee No. 0416818 BG000436, dt.14.08.2018 for Rs.17,81,200 valid upto 05.12.2018 of State Bank of India, Commecial Branch, Koti, Hyderabad issued on behalf of SRR Projects PVT LTD, Hyderabad towards EMD for the above subject work submitted by the Zonal Manager,APIIC, Nellore immediately.

Encl:- Xerox copy of above B G.

Yours faithfully,

Executive Engineer (R&B)
Gudur.

Copy to the Zonal Manager, APIIC , Nellore for information.

Annexure 5: Government order no GO. RT. No. 163 dated 08-06-2018 for establishment of Grievance Redressal Mechanism

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

VCICDP - Establishment of Project Grievance Redress Mechanism (GRM) at three levels to cover both environmental and social issues - Orders - Issued.

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INDUSTRIES AND COMMERCE (INFRA) DEPARTMENT

G.O.RT.No. 163 Dated: 08-06-2018

Read the following:

1. Facility Administrative Manual (FAM) of VCICDP.
2. From the Commissioner of Industries, Vijayawada, 15/1/2014/11427/VCIC-GRM. Dated:31-05-2018

&&&

ORDER:

In the reference 2nd read above, the Commissioner of Industries has stated that at Sl. No. 95, Page No. 42 of the Facility Administrative Manual of the VCICDP, the Project Grievance Redress Mechanism (GRM) is envisaged, wherein, it is directed to establish Project GRM at three levels to cover both Environmental and Social issues.

2. The Commissioner of Industries has proposed for establishment of Project Grievance Redress Mechanism at three levels with the following provisions and requested the Government to take a view on the establishment of Project GRM and issue orders:-

a. The GRM shall be established and disclosed to the project affected communities.
b. The Project Grievance Redress Committee, supported by the consultants of PMSC and Safeguard officers of both the PMU and PIUs, will be responsible for timely redress of grievances on Environmental and Social Safeguards issues.
c. The Grievance Redress Committee is also responsible for Registration of Grievances, Related Disclosure and Communication with the aggrieved parties.
d. A complaint register shall be maintained at the field unit, PIU and PMU levels with details of 1. Complaint lodged, 2. Date of Personal Hearing, 3. Action Taken and 4. Date of communication sent to the complainant.
e. Contact Details, Procedure and Complaint Mechanism shall be disclosed to the Project Affected Communities at accessible locations and through various Media (Leaflets, Newspapers etc.,)

3. Government after careful examination of the proposal, hereby establish the Project Grievance Redress Mechanism at three levels is as follows:-

1st Level Grievance:

The Contact Number of the PIU office should be made available at the construction site signboards. The contractor and field unit staff can immediately resolve onsite, seek the advice of the PIU Safeguard Manager as required, within seven (7) days of receipt of the complaint / grievance.

2nd Level Grievance:

All grievances that could not be redressed within seven (7) days at Field / Ward level shall be reviewed by the GRC at District Level headed by Joint Collector of the respective District. GRC shall attempt to resolve them within fifteen (15) Days. The Safeguard Manager of the PIU shall be responsible to see through the process of redressal of each grievance.

(P.T.O)

3rd Level Grievance:

All grievances that cannot be redressed within fifteen (15) days at District Level shall be reviewed by the Grievance Redressal Committee (GRC) at State Level headed by the Project Director, VCICDP PMU, with support from District GRC, PMU, Social Safeguards and Gender Officer (SSGO), Environmental Safeguard Officer of PMU. Environmental and Social Safeguard Specialists of PMSC shall coordinate the GRC to ensure that the grievances be resolved within fifteen (15) days. The SSGO of PMU shall be responsible to see through the process of redressal of each grievance pertaining to the Social Safeguards

4. Government hereby constitute the Grievance Redressal Committee (GRC) at District level with the following composition:

1.	Joint Collector of the Concerned District	Chairman
2.	Project Engineer of the concerned field unit	Member Secretary
3.	Revenue Divisional Officer (RDO) or sub-collector of the division	Member
4.	Project Director, DRDA	Member
5.	Chief Executive Officer, Zilla Parishad	Member
6.	District Panchayat Officer	Member
7.	District Education Officer	Member
8.	District Medical and Health Officer	Member
9.	District level representative of DISCOM	Member
10.	Superintendent Engineer, RWS Panchayat Raj Department	Member
11.	Three members from affected persons, with at least one of them a woman DP	Member
12.	Team Leader of the resettlement plan implementation support NGO or Agency	Member

5. The functions of the Grievance Redressal Committee (GRC) at District level are as follows:

a) GRC at District Level shall receive, evaluate and facilitate the resolutions of displaced person's concerns, complaints and grievances.
b) The GRC shall provide an opportunity to the affected persons to have their grievances redressed prior to approaching the State Level LARR Authority, constituted by the GoAP in accordance with Section 51 (1) of the RFCTLARR Act, 2013.
c) The GRC is aimed to provide a trusted way to voice and resolve concerns linked to the project, and to be an effective way to address displaced person's concerns without allowing it to escalate resulting in delays in project implementation.
d) The GRC shall meet once in every month and review and redress any grievances / complaints. Periodical monthly reports shall be submitted to the Project Director, VCICDP PMU in the prescribed proforma.

//Countd.p.3//

e) The GRC will continue to function, for the benefit of the displaced persons, during the entire life of the project including the defects liability period. The entire resettlement component of the project has to be completed before the construction starts, and pending grievances resolved. Other than disputes relating to ownership rights and apportionment issues on which the LARR Authority has jurisdiction.
f) GRC will review grievances involving all resettlement benefits, relocation and payment of assistances.
g) The GRCs will function out of each district where the subprojects are being implemented. The existing setup for coordination, monitoring and grievance redress at district level which meets once a month, will be used for VCICDP.
h) An annual fund of Rs.1.00 Lakhs shall be allocated to each GRC for their operations like convening monthly review meetings, preparing and distributing broachers, leaflets etc.

6. The Project Director, PMU, VCICDP shall be the Appellate Authority and shall be supported by the Safeguards Officer of PMU, VCICDP and the Team Leader of PMSC. This shall be the highest Grievance Redressal Mechanism at the project level.

7. The Project Monitoring Unit (PMU), Project Implementing Units (PIUs) and Grievance Redressal Committees (GRCs) shall update the status of complaints / grievances in the VCIC Web-Site.

5. The Project Director, PMU, VCICDP shall take further necessary action in the matter, accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

S.SOLOMON AROKIARAJ
SECRETARY TO GOVERNMENT & CIP

To
The Project Director, Project Monitoring Unit, VCICDP, Vijayawada.
The Chairman and all the members through PD, PMU, Vijayawada.
Copy to:
The District Collectors, Visakhapatnam, East Godavari, Krishna and SPS Nellore.
P.S. to Minister for Industries
P.S. to Pri. Secretary to CM (GSP)
Sc/Sf

//FORWARDED BY: ORDER//

SECTION OFFICER

Appendix-6 – Minutes of Public Consultation

Minutes of Public Consultation held on 28.07.2015 is herewith enclosed with this report. The photographs and signature sheets are given below

Photographs of Public consultation held on 28.07.2015 held at Naidupeta Mandal and Pellkur Mandal of Nellore	
	
	

Appendix 7: Applicable Ambient Air Quality Standards for India Projects

Parameter	Location[a]	Applicable Standards Per ADB SPS[e] ($\mu g/m^3$)
PM_{10}	Industrial Residential, Rural and Other Areas	20 (Annual) [c] 50 (24-hr) [c]
	Sensitive Area	20 (Annual) [c] 50 (24-hr) [c]
PM_{25}	Industrial Residential, Rural and Other Areas	10 (Annual) [c] 25 (24-hr) [c]
	Sensitive Area	10 (Annual) [c] 25 (24-hr) [c]
SO_2	Industrial Residential, Rural and Other Areas	50 (Annual) [b] 20 (24-hr) [c] 500 (10-min) [c]
	Sensitive Area	20 (Annual) [b] 20 (24-hr) [c] 500 (10-min) [c]
NO_2	Industrial Residential, Rural and Other Areas	40 (Annual) [b] 80 (24-hr) [b] 200 (1-hr) [c]
	Sensitive Area	30 (Annual) [b] 80 (24-hr) [b] 200 (1-hr) [c]
CO	Industrial Residential, Rural and Other Areas	2,000 (8-hr) [b] 4,000 (1-hr) [b] 100,000 (15-min)[d]
	Sensitive Area	2,000 (8-hr) [b] 4,000 (1-hr) [b] 100,000 (15-min)[d]
Ozone (O_3)	Industrial Residential, Rural and Other Areas	100 (8-hr) [b] 180 (1-hr) [b]
	Sensitive Area	100 (8-hr) [b] 180 (1-hr) [b]
Lead (Pb)	Industrial, Residential, Rural and Other Areas	0.5 (Annual) [b] 1.0 (24-hr) [b]
	Sensitive Area	0.5 (Annual) [b] 1.0 (24-hr) [b]
Ammonia (NH_3)	Industrial Residential, Rural and Other Areas	100 (Annual) [b] 400 (24-hr) [b]
	Sensitive Area	100 (Annual) [b] 400 (24-hr) [b]
Benzene (C_6H_6)	Industrial Residential, Rural and Other Areas	5 (Annual) [b]
	Sensitive Area	5 (Annual) [b]
Benzo(o)pyrene (BaP) particulate phase only	Industrial Residential, Rural and Other Areas	0.001 (Annual) [b]
	Sensitive Area	0.001 (Annual) [b]
Arsenic (As)	Industrial Residential, Rural and Other Areas	0.006 (Annual) [b]
	Sensitive Area	0.006 (Annual) [b]
Nickel (Ni)	Industrial Residential, Rural and Other Areas	0.02 (Annual) [b]
	Sensitive Area	0.02 (Annual) [b]

[a] Sensitive area refers to such areas notified by the India Central Government.
[b] Notification by Ministry of Environment and Forests, Government of India Environment (Protection) Seventh Amendment Rules, 2009
[c] WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide. *Global update 2005*. WHO. 2006
[d] Air Quality Guidelines for Europe Second Edition. WHO 2000.
[e] Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

Applicable Ambient Noise Level Standards for India Projects

Receptor/ Source	Applicable Standards Per ADB SPS[c] (dBA)	
	Day time	Night time
Industrial area	70[b]	70[b]
Commercial area	65[a]	55[a]
Residential Area	55[a]	45[a]
Silent Zone	50[a]	40[a]

[a] Noise Pollution (Regulation and Control) Rules, 2002 as amended up to 2010.
[b] Guidelines for Community Noise. WHO. 1999
[c] Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

Applicable Drinking Water Quality Standards for India Projects

Group	Parameter	Unit	Max. Concentration Limits[d]	Applicable Standards Per ADB SPS[a, c, d]
Physical	Turbidity	NTU	1 (5)	1 (5)
	pH		6.5 – 8.5	6.5 – 8.5
	Color	Hazen units	5 (15)	5 (15)
	Taste and Odor		Agreeable	Agreeable
	TDS	mg/l	500 (2,000)	500 (2,000)
	Iron	mg/l	0.3	0.3
	Manganese	mg/l	0.1 (0.3)	0.1 (0.3)
	Arsenic	mg/l	0.01 (0.05)	0.01
	Cadmium	mg/l	0.003	0.003
	Chromium	mg/l	0.05	0.05
	Cyanide	mg/l	0.05	0.05
	Fluoride	mg/l	1 (1.5)	1 (1.5)
	Lead	mg/l	0.01	0.01
	Ammonia	mg/l	0.5	0.5
Chemical	Chloride	mg/l	250 (1,000)	250 (1,000)
	Sulphate	mg/l	200 (400)	200 (400)
	Nitrate	mg/l	45	45
	Copper	mg/l	0.05 (1.5)	0.05 (1.5)
	Total Hardness	mg/l	200 (600)	200 (600)
	Calcium	mg/l	75 (200)	75 (200)
	Zinc	mg/l	5 (15)	5 (15)
	Mercury	mg/l	0.001	0.001
	Aluminum	mg/l	0.1 (0.3)	0.1 (0.3)
	Residual Chlorine	mg/l	0.2	0.2
Micro Germs	E-coli	MPN/100ml	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample
	Total Coliform	MPN/100ml		

[a] Bureau of India Standard 10200: 2012.
[b] Health-based guideline values.
[c] Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.
[d] Figures in parenthesis are maximum limits allowed in the absence of alternate source.

APPLICABLE STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS (EFFLUENT)

Pollutants	Units	Applicable Standard per ADB SPS [a, b, c]
pH	pH	6 – 9 [b]
BOD	mg/l	20 [a]
COD	mg/l	125 [b]
Total nitrogen	mg/l	10 [b]
Total phosphorus	mg/l	2 [b]
Oil and grease	mg/l	10 [b]
Total suspended solids	mg/l	<50 [a]
Total coliform bacteria	MPN b / 100 ml	400a [b]

[a] Environment (Protection) Amendment Rules, 2017

[b] Health-based guideline values

[c] Per ADB SPS, the government shall achieve whichever of the ambient air quality standards is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the executing agency of the government will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.

Appendix 8
SOUTH ASIA REGIONAL DEPARTMENT
SAFEGUARDS INFORMATION LOG FOR SAUW PROJECTS

Project:	**IND: Visakhapatnam Chennai Industrial Corridor Development Program (VCICDP)** **[Naidupeta Economic Zone Subproject –** Naidupeta Economic Zone Subproject – Common Effluent Treatment Plant at Naidupeta		
Loan No.:		**Package No.:**	**VCICDP-APIIC/04**
Components:	A 3 MLD CETP is proposed to be established in 3 units of 1 MLD each. This section of the report shall deal with **1 MLD capacity CETP** being proposed. The 1st module of the proposed Common Effluent Treatment Plant (CETP) will cater to a capacity of 1 MLD. The CETP is proposed as a Zero Liquid Discharge (ZLD) which will enable water conservation and also prevent any discharge to the nearby water body MamidiKalava which is being used for irrigation purposes. A part of the treated wastewater will be used for maintaining the green belt within the Naidupeta-SEZ and the balance will be reused at the units as non-potable water for various applications. The proposed CETP is designed to mainly cater to the following sector of industries which are expected to come up in the Naidupeta cluster - engineering, bulk drug & pharmaceuticals, leather and textile garments, food, chemical, paper products, cement products and textile. The break up in terms of volumetric contribution (for the 1st 1,000 KLD CETP) is as given below: Estimated Volumetric Contribution to CETP of Different Sectors of Industry		

TYPE OF INDUSTRY	APPROXIMATE CONTRIBUTION (%)
API Units	20
Pharmaceutical Sector (formulation units)	15
Leather and Textiles (semi-finished to finished)	25
Engineering	15
Chemical	10
Others	15

Contract Type:	Civil works	
Date of IEE:	January 2019	

Draft IEE	Updated/Revised IEE	Others/Remarks
	This updated IEE report has been prepared on the basis of detailed design, field investigations and assessments, surveys, stakeholder consultations and meetings to meet the requirements for environmental assessment process and documentation as per ADB's Safeguard Policy Statement (SPS, 2009). The subproject package has been awarded its contract as of March 2018. The updated IEE includes a site-specific EMP.	The initial IEE prepared during project processing is uploaded at the ADB website and can be accessed at https://www.adb.org/sites/default/files/linked-documents/48434-002-ieeab-04.pdf This updated / revised IEE for Common Effluent Treatment Plant at Naidupeta will be uploaded at the ADB website upon clearance.

	Activity	Status		Detailed Comments and Further Actions Required
1.	Environmental assessment has been satisfactorily	**Yes**	**No**	This updated IEE report has been prepared on the basis of detailed design, field investigations and assessments, surveys, stakeholder consultations and meetings. ADB REA
		X		

	Activity	Status		Detailed Comments and Further Actions Required
	conducted based on ADB REA Checklist and scoping checklist.[1]			checklist was used for preparing the draft IEE which has now been updated after detailed design.
2.	Environmental assessment based on latest project components and design	**Yes**	**No**	IEE report based on detailed design of CETP
		X		
3.	Statutory Requirements[2]	NA	Forest Clearance	Since the proposed project sites are within the already allocated Industrial cluster zones of APIIC, it does not impact forest area and hence no Forest clearance is required.
		X	No Objection Certificate	IEE " Table 1: Applicable Environmental Regulations for Naidupeta CETP Sub project" provides details of required NOCs to be obtained. NOC copies as obtained and available are included in the SEMR. Six monthly monitoring report of APPCB (Appendix-16 of IEE) provides details and confirmation of compliance.
			Site Location Clearance	Not required. The owner ship of the Land is with APIIC as employer of the contractor hence SLC is not required.
		X	Environmental Compliance Certificate	Environmental Clearance (EC) has been obtained from Ministry of Environment and Forest (MoEF), individually for each component of the cluster. Statutory clearances can be downloaded from this link: http://www.apiic.in/Envirnoment+Clearance
		X	Permit to Construct (or equivalent)	Consent for Establishment (CFE) has been obtained from Ministry of Environment and Forest (MoEF), individually for each component of the cluster. Statutory clearances can be downloaded from this link: http://www.apiic.in/Envirnoment+Clearance Consent for establishment (CFE) required for the following components: (i) diesel generators, (ii) hot mix plants, and (iii) vehicles emitting air pollutants
		X	Permit to Operate (or equivalent)	Consent for operation (CFO) required for the following components: (i) diesel generators, (ii) hot mix plants, and (iii) vehicles emitting air pollutants, etc. are provided as available in the SEMR.
			Others	
5.	Policy, legal,	Adequate	Not Adequate	Please refer IEE Table 2: Applicable

[1] ADB Rapid Environmental Assessment Checklist for screening and categorization. Scoping Checklist ("No Mitigation Scenario" Checklist) for scope of IEE, identification of impacts and development of environmental management plan.

[2] If applicable, Include date accomplished or obtained.

	Activity	Status				Detailed Comments and Further Actions Required
	and administrative framework	X				Environmental Regulations for Naidupeta CETP Sub project wherein the required NOCs has been included in the table. A copy is included in the SEMR. ADB SPS applicable standards are provided as Appendix 5, Appendix, 7 and Appendix 8 of the IEE.
		Frameworks included:				
		X	National regulation/law on EIA			
		X	Environmental agency			
		X	Relevant international environmental agreements			
		X	Environmental standards (IFC's EHS Guidelines)			
6.	Anticipated environmental impacts and mitigation measures	Impacts and risks:		Mitigation Measures:		
				Yes	No	
			Biodiversity conservation		NA	**Not applicable.** The proposed subproject is part of SEZ area that consists of barren land. No rare or sensitive flora and fauna species in the site nor region.
			Pollution prevention and abatement	X		**Applicable.** Noise pollution will mainly come from construction activities of the CETP (machinery, bulldozers, front end loaders, generators, etc). Naidupeta industrial estates are far from the main city and will have minimal or no impact on neighboring communities. Operation stage impacts are included in the IEE and suitable measures to meet the standard guidelines / requirements are provided.
			Health and safety	X		**Applicable.** Mitigation measures for both occupational and community health and safety are being followed at site during construction. The same will be monitored and reported in the SEMR's.
			Physical cultural resources		NA	**Not applicable.** Subproject is in an industrial estate free from PCR. There are no community property resources like temples, Churches, Masjids or community halls available within the project influence area.
			Cumulative impacts		NA	**Not applicable.** No cumulative impacts
			Transboundary impacts		NA	**Not applicable.** No transboundary impacts
7.	Impacts from Associated Facilities[3]	Addressed	Not Addressed	None		The prior existing industries and infrastructures are part of the industrial estate and also a part of the master plan of the Naidupeta industrial estate. An environmental impact assessment was conducted, and Environmental Management Plan was prepared by the NABET (National Accreditation Board for Education and Training) accredited consultant hired by APIIC for preparation of EIA and EMP and environmental clearance. Based on this EIA and EMP application was furnished to the expert appraisal committee of MoEFCC for environmental clearance. Subsequently environmental clearance was awarded. A
				X		

[3] ADB SPS (Appendix 1 para 6) defines associated facilities as not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project.

	Activity	Status			Detailed Comments and Further Actions Required
					regular monitoring is being conducted for construction and operation phase of the infrastructure and facilities. A half yearly environmental monitoring report is submitted to MoEFCC. The latest half yearly report submitted to MoEFCC has been reviewed. and it has been found that there is no residual impact of earlier facility and there is no cumulative impact of the current facility and earlier facility. The latest environmental half yearly report has been annexed as Appendix 16 in the IEE. The environmental audit of the individual industry may not be required as these industries are NOT existing facilities of the Project as per ADB SPS, however, any potential impacts from these industries in the vicinity of the project has been considered during the initial environmental assessment. Moreover, APIIC as a promoter does not have leverage to conduct individual environmental audits for these units due to two reasons (a) APIIC has sold the plot to the individual industry owner with the terms and conditions of industrial policy. This has been obligated to industries through the conditions of contract of the allotment of the plot. A review of the allotment letter cum agreement was conducted by the environmental specialist of PMSC and an excerpt of the allotment agreement is given in the appendix 15. (b) For individual industry has obligation to follow the laws, regulation and standards of the state government and central government. This is controlled and regulated by the AP state Pollution control Board. Hence it can be concluded from the monitoring report of APIIC and the conditions of the allotment letter that there is no cumulative or residual impact implied to be addressed in this sub-project.
8.	Analysis of Alternatives	Yes		No	As project is cat B, no analysis of alternatives needed and provided
				X	
9.	EMP budget included	**Yes**		**No**	EMP budget included in the IEE in the subsection D of section IX of the IEE.
		X			
10.	EMP implementation integrated in PAM and bid documents	**Yes**		**No**	IEE sub-section A of section IX and the table of EMP includes pre-construction, construction and operation stage, Please refer Apprendix-3
		X			
11.	Consultation and Participation	Yes		No	Public consultation details and minutes are given in the appendix 16 of the IEE
		X			
12.	Grievance Redress Mechanism	Yes		No	
		X			
		Description of GRM			IEE Appendix-2 provides a copy of notification of GRM.
		Identification of GRC members			
13.	Disclosure		Endorsement to disclose on ADB		May be disclosed after final formatting.

<table>
<tr><th></th><th>Activity</th><th colspan="3">Status</th><th>Detailed Comments and Further Actions Required</th></tr>
<tr><td></td><td></td><td></td><td>website</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td>Disclosed on project website</td><td></td><td>May be disclosed after final formatting</td></tr>
<tr><td></td><td></td><td></td><td>Relevant information available to stakeholders and affected people in language and form they understand</td><td></td><td></td></tr>
<tr><td>14.</td><td>Mobilized PMU Environment Specialist</td><td>Yes</td><td>No</td><td></td><td>The PMU has appointed a Safeguards coordinator covering social and environmental safeguards. The environmental specialist of PMSC has been mobilized. The names and contact details are provided in the SEMR.</td></tr>
<tr><td></td><td></td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>15.</td><td>Mobilized PIU Environment Specialist</td><td>Yes</td><td>No</td><td></td><td>The PIU environmental specialist has been mobilized and it has been reported in the SEMR</td></tr>
<tr><td></td><td></td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>16.</td><td>Mobilized Environment Specialist at PMU level</td><td>Yes</td><td>No</td><td></td><td>The PMU has appointed a Safeguards coordinator covering social and environmental safeguards. The environmental specialist of PMSC has been mobilized. The names and contact details are provided in the SEMR.</td></tr>
<tr><td></td><td></td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>17.</td><td>Mobilized Environment Specialist at PIU level</td><td>Yes</td><td>No</td><td></td><td>The PIU environmental specialist has been mobilized and it has been reported in the SEMR</td></tr>
<tr><td></td><td></td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>18.</td><td>Awareness training on compliance to safeguard requirements</td><td>Yes</td><td>No</td><td></td><td>The training budget has been provided in sub-section D of section IX under EMP budget.</td></tr>
<tr><td></td><td></td><td>X</td><td></td><td></td><td></td></tr>
<tr><td>19.</td><td>Others/Remarks</td><td colspan="4">Names and Contact details of environmental safeguards personnel are provided in the SEMR. Provided below for reference:

<table>
<tr><th>PIU/PMU</th><th>Designation</th><th>Name of Officer</th><th>Contact Details</th></tr>
<tr><td>PMU - VCICDP</td><td>Environmental Safeguards officer</td><td>Recruitment in process</td><td>Presently being overseen by Panchakarla Bhargava
bhargavapkarla@gmail.com</td></tr>
<tr><td>PMSC</td><td>Environmental Specialist (Position K9)</td><td>Anjay Kumar</td><td>Anjay.kumar@mottmac.com
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<tr><td></td><td>Environmental Officer Visakhapatnam</td><td>Mr. Kompala Ravi</td><td>eeapiicvskp@gmail.com
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<tr><td>GVMC</td><td>Dy. Executive Engineer, Environmental & Social Safeguards Officer</td><td>Mr. B. Maheswar</td><td>+91-9912255228</td></tr>
</table></td></tr>
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Prepared by: Anik Ajmera, Environment Safeguards Consultant, SAUW

Noted and Checked By: Zarah C. Pilapil, Associate Safeguards Officer (Environment), SAUW
Documents/References: Updated IEE sent by PD VCICDP