Profit Statement												
Year		**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
			2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Power Generation	MWh/year		4978.20	4978.20	4978.20	4978.20	4978.20	4978.20	4978.20	4978.20	4978.20	4978.20
Power tariff			2.88	2.90	2.93	2.96	2.99	2.95	2.91	2.87	2.80	2.41
Free cash flow forecast	Rs Mill											
Sales realizations	Rs Mill		**14.34**	**14.44**	**14.59**	**14.74**	**14.88**	**14.69**	**14.49**	**14.29**	**13.94**	**12.00**
Less:												
O&M, Spares & consumables, admin and other costs (3.5%)	Rs Mill		2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Book depreciation			3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55
EBIT			**8.44**	**8.54**	**8.69**	**8.84**	**8.99**	**8.79**	**8.59**	**8.39**	**8.04**	**6.10**
Interest			5.17	5.17	4.14	3.10	2.07	1.03				
PBT			**3.26**	**3.36**	**4.55**	**5.73**	**6.92**	**7.75**	**8.59**	**8.39**	**8.04**	**6.10**
Tax			1.20	1.24	1.67	2.11	2.54	2.85	3.16	3.08	2.95	2.24
PAT			**2.06**	**2.13**	**2.88**	**3.63**	**4.37**	**4.90**	**5.43**	**5.31**	**5.08**	**3.86**
Cash Flow												
Year		**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
			2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Operating Cashflow *(PAT + interest + Depreciation)*	Rs Mill		10.79	10.85	10.56	10.28	9.99	9.48	8.98	8.85	8.63	7.40
Less:												
Investment												
Capital Expenditure		67.19										
Increase in working capital			3.58	0.02	-	-	-	-	-	-	-	-
Free Cash Flows to Project	**Rs Mill**	**(67.19)**	**7.20**	**10.82**	**10.56**	**10.28**	**9.99**	**9.48**	**8.98**	**8.85**	**8.63**	**7.40**
IRR of Project	**6.37%**											

Working capital	3 months	**-**	**3.58**	**3.61**	**3.65**	**3.68**	**3.72**	**3.67**	**3.62**	**3.57**	**3.48**	**3.00**

Interest Payment Schedule	Principal	**47.03425**	47.03425	37.6243	28.2143	18.8043	9.39425	-0.01575
	Repayment		0	9.41	9.41	9.41	9.41	9.41
	Interest		5.173768	5.17377	4.13867	3.10357	2.06847	1.03337

Tariff as per APERC order

Y1	1.61	1.27	2.88
Y2	1.57	1.33	2.9
Y3	1.53	1.4	2.93
Y4	1.49	1.47	2.96
Y5	1.45	1.54	2.99
Y6	1.41	1.54	2.95
Y7	1.37	1.54	2.91
Y8	1.33	1.54	2.87
Y9	1.26	1.54	2.8
Y10	0.87	1.54	2.41

Cashflow analysis with CER benefit

Price of ERs	USD/ER		8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	
ER estimates	CERs		35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	
ER availing cost	Rs Mill	1	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	
Registration Cost	Rs Mill	1											
Issuance cost	Rs Mill		0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	
Selling charges	Rs Mill		1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
Cashflow after tax from sale of ERs	Rs mill		6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	
Total Free Cash Flow from the project		-68.192	13.968	17.591	17.330	17.044	16.758	16.251	15.746	15.620	15.399	14.171	0.000
IRR to Project	19.7%												

SN	System	Rs Ml
1	Anaerobic Digester	18,866,173
2	Boiler	30,994,162
3	Turbine	8,459,496
4	ESP	6,876,403
5	Lab Equipments	1,995,554
	Total	**67.19**

Equity	**30%**
Debt	**70%**

ba = be / {1+ (1- T)*(D / E)}
where:
ba is the Asset beta or unlevered beta of the firm
be is the Equity beta or levered beta of the firm
T is the marginal tax-rate of the firm
D / E is the debt-equity ratio of the firm

Asset Beta for listed companies in 2000(source Crisil Paper)	
BSES	0,79
Tata Powe	0,61

		Based on S&P CNX 500 (1 year)	Based on BSE 30 (2 year)	Based on S&P CNX 500 (3 year)
As Market Capitalization Weighted average of *Asset Betas* of companies in the industry	**Power Industry**	0.62	0.20	0.66
	Refinery Industry	0.55	0.19	0.39

Source: Crisil-cost of capital for central utilities

Equity Beta for Power Projects
1,56

Calculation of WACC		
WACC	**14,72%**	
Average Debt Cost	11,00%	
D:E ratio	2,33	D:E structure
Equity Cost		
Market risk premium	9,50%	Aswath Damodaran (Investment Valuation) : market risk premium in India
Beta	1,56	As per market data for similar project activities
Treasury 10 yrs yield	8,60%	GoI 10 years bond YTM
Equity cost	23,4%	

Date: 30/06/2006

To whomsoever it may concern

Internal rate of return (IRR) for the project **"Methane Recovery and Power Generation in a Distillery Plant"** by GMR Industries Ltd. (GIDL) has been reviewed by us.

IRR for the project is 6.37% and weighted average cost of capital (WACC) calculated on the basis on Capital Asset Pricing Model (CAPM) is 14.7%. Both IRR estimations and assumptions used are found to be verifiable. Enclosed annexure details out assumptions used in the IRR and WACC estimations.

Your faithfully

Regards

For Bisen & Associates

Anand Kr. Panday

ANAND PANDAY
Partner
(Membership No. 403995)

108/53-IInd Floor, Madangir, Local shopping Complex, Behind Sidwal, New Delhi-110 062
Phone: +91 11 41834772, Fax: +91 41834771

Key Assumptions:

- Project Cost- Rs 67.19 Million
- Debt Equity Structure: Equity: 30%, Debt: 70%
- Interest Rate: 11%
- Repayment period: 5 years (1 year principal repayment moratorium)
- O&M cost: 3.5% of project cost
- Power Tariff:

Year	Tariff
1	2.88
2	2.90
3	2.93
4	2.96
5	2.99
6	2.95
7	2.91
8	2.87
9	2.80
10	2.41

- Book Depreciation: 5.28%
- Tax rate: 35% (5% surcharge additional)
- Capacity 970 KW, Run days 270, 24 Hours/day, 90% Plant load factor, 12% Auxiliary Consumption
- Working Capital: 3 months
- Beta: 1.56
- Market Risk premium: 9.5%
- Risk free rate: 8.6%

Documents Reviewed:

- Project Cost structure
- Crisil Cost of capital for Utilities- 2000
- Aswath Damodaran: Investment Valuation second edition
- Andhra Pradesh Electricity regulatory Commission (APERC) Tariff order year 2004

F-CDM-REG

CDM Project Activity Registration and Validation Report Form
(By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)

Section 1: Request for registration	
Name of the designated operational entity (DOE) submitting this form	SGS United Kingdom Ltd.
Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration	Methane recovery and power generation in a distillery plant by GMR Industries Ltd. [GIDL]
Project participants (Name(s))	GMR Industries Ltd. [GIDL]
Sector in which project activity falls	1. Energy Industries (renewable-/non-renewable sources. 13. Waste handling and disposal 15. Agriculture
Is the proposed project activity a small-scale activity?	Yes / ~~No~~ *(underline as applicable)*

Section 2: Validation report	
List of documents to be attached to this validation report (please check mark)*:*	

☒ The CDM-PDD of the project activity

☒ An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

☒ The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development:

- ☐ (Attach a list of all Parties involved and attach the approval (in alphabetical order)

☒ Other documents, including any validation protocol used in the validation

- ☒ (comprehensive list of documents attached clearly referenced)
- ☒ List of persons interviewed by DOE validation team during the validation process
- ☐ Any other documents (list attached)

☐ Information on when and how the above validation report is made publicly available.

☐ Banking information on the payment of the non-reimbursable registration fee

☒ A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance

Executive Summary and Introduction, including

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

Description of the proposed CDM project activity

The proposed CDM project activity is a Methane recovery and power generation in a distillery plant by GMR Industries Ltd. [GIDL]. The power is being generated by using Methane as a fuel. The starting date of project activity was 16-12-2003 and the project is already in operation.

Baseline Scenario:

The electricity generated by project activity would have otherwise been generated by Southern Regional grid which is predominantly fossil fuel based.

With Project Scenario:

The project activity is generating electricity using Methane captured by treatment of waste spent wash from the distillery along with Rice husk and some amount of coal as fuel. There is some associated anthropogenic emission of green house gases as the project activity uses some amount of coal. The project displaces the power that would have otherwise been generated by Southern Regional grid which consists of power plants operating on a mix of hydro, nuclear and fossil fuels but are primarily fossil fuel based.

Leakage:

This was the new installation and the energy generating equipment was not transferred from another activity or the existing equipment was not transferred to another activity. So, no leakage is considered.

Environmental & Social Impacts:

According to project developer, there is no negative environmental and social impact expected from project activity. It was also checked through local stake holder consultation by the validator that there were no negative impacts of the project activity. Please refer to Annex 1.

Scope

The scope of validation is the independent and objective review of the project design document, baseline study and monitoring plan and other relevant document of the Methane recovery and power generation in a distillery plant project. The information in this document is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Overview of documentation that has been reviewed and names of persons that have been interviewed as part of the validation

Please refer to Annex 2

DOE Validation Team

Name	**Role**
Shivananda Shetty	Team Leader and Lead Assessor
Sanjeev Kumar	Assessor

Pankaj Mohan	Local Assessor
Irma Lubrecht / Marco van der Linden	Technical reviewer

Description of methodology for carrying out validation

- **Review of CDM-PDD and additional documentation attached to it**
- **Assessment against CDM requirements (e.g. by use of a validation protocol)**
- **Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.**
- **Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.**

Review of CDM-PDD and additional documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.
In general, a site visit might be required to verify assumptions in the baseline. Sometimes additional information is required to complete the validation, which may be obtained through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate. In case of this project, a site visit and interviews have been conducted and the results are summarized in Annex 7 to this report.

Assessment against CDM requirements

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	*Means of verification (MoV)*	*Comment*	*Draft and/or Final Conclusion*
The various requirements are linked to checklist questions the project should meet.	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **New Information Request (NIR)** is used when the validation team has identified a need for further clarification.*

The completed validation protocol for this project is attached as Annex 5 to this report.

Report of findings and use of type of findings.

As an outcome of the validation process, the team can raise different types of findings.

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

I. mistakes have been made with a direct influence on project results;
II. validation protocol requirements have not been met; or
III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 6). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

In accordance with the CDM modalities and procedures, the project design document of this proposed CDM project activity has been made publicly available and comments have been invited from Parties, stakeholders and UNFCCC accredited non-governmental organizations. This process is described in Annex 1 to this report which is available as a separate document.

Conclusions, final comments and validation opinion

- **Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been meet. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.**
- **Final comments and validation opinion**

Participation requirements

The host Party for this project is India. India has ratified the Kyoto protocol on 26 August 2002. Initially, no Letter of Approval was provided and a CAR1 was raised. A Letter of Approval (F.No. 4/12/2006-CCC) dated 14th June 2006, issued by the Indian DNA was provided subsequently.

The approval of the project was also verified from the Ministry of Environment & Forest, Government of India's website. Hence CAR1 was closed out.

No Annex 1 Party has been identified in the PDD and therefore no further 'Letter of Approval' from a Annex I party was obtained. As registration of a CDM project activity can take place without an Annex 1 Party being involved at the stage of registration, this is not a mandatory requirement at this stage. However, it should be noted that before CER's can be transferred to an Annex I Party, a Letter of Approval should be submitted.

Baseline and monitoring methodology

The project has applied the small scale methodology for Grid connected Renewable Electricity Generation AMS – ID and Methane recovery in waste water treatment AMS-IIIH as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The project is replacing equivalent amount of electricity from southern regional grid and also reducing Methane in the process. The baseline was calculated based on regional grid and reduction of methane and the baseline emissions were calculated as per the approved methodologies. The database for the information regarding baseline calculations has been desk reviewed by the assessor.

To confirm whether the emission reductions have been determined in accordance with the methodology described and there are project emission related to usage of coal in the project activity. The client clarified that some coal will be used in the project activity. This was checked during validation stage and records were available to verify them.

The emission factor is calculated ex-ante and is fixed for entire crediting period as 0.845 for electricity generation using AMS 1D version 8.

Additionality

Investment barrier is used to demonstrate the additionality.

The project was installed in December 2003 and the project activity faced "Investment barrier". The project proponent got the loan from different sources i.e. from Andhra bank and also from sugar development fund (SDF). The financial analysis shows IRR of 6.37% without CERs which is less than weighted average cost of capital (WACC) i.e. 14.72%. The project is not financially viable without CDM benefits. The IRR with CDM benefits rises to 19.07% and the project becomes financially viable as WACC is less than IRR with CDM benefits. The CA certificate is provided by the project proponent and is seen by the validator and received the copy of the same. The average generation cost of electricity is high and the power is purchased by the grid is at lower price. Though the project is not

financially viable still the project proponent has gone ahead with the project activity considering sale of CERs will make it financially viable. The option of coal based power plant was also considered as generation cost of coal based power plant is low as compared to project activity, but the coal based plant emits GHG emissions so this was not taken up by the project proponent.

A CAR6 was raised to clarify about investment barrier, technological barrier and common practice analysis. The project proponent replied by providing excel sheet for investment analysis which was reviewed and found OK. The technological barrier was not clear so the project proponent clarified to the validator by explaining the difference from the normal CSTR technology and also provided the documents for the same. PDD was rephrased. In common practice analysis the project proponent replied that the documented verifiable information is not available so it is not being referred and PDD is rephrased. These were accepted and CAR6 was closed out.

Based on the evidences, calculations and the findings above, it was concluded that the project activity was not a likely baseline scenario and hence additional to any which would have been used in the absence of project activity.

Monitoring plan

The data to be collected in order to monitor emissions from the project activity is detailed in the project design document and the desk review showed that the monitoring plan is OK. The industry is an ISO 9001-2000 company and certificate is also provided by the project developer along with the written down procedures booklet for QA and QC.

Environmental Impacts

In order to ascertain whether the project activity results in any adverse environmental impacts, it was confirmed that project activity is having the consent to operate from Andhra Pradesh Pollution Control Board (APPCB). EIA is not required as per law.

EIA was carried out by project proponent and the monitored values were with in the limits prescribed by APPCB.

Comments by local stakeholders

There was no information available on list of stakeholders consulted. NIR2 was raised seeking clarification on the issue. Responding to NIR2, client informed that the representatives of the village community were contacted on one to one basis and through newspaper advertisement. A letter dated 5-5-2005 was written to village panchayat for seeking NOC for the said project activity. In reply the village panchayat provided their NOC to establish the plant. This was verified by the local assessor through meetings with some representatives during site visit. No adverse comment was received. NOC from all the stakeholders were provided by the client and hence NIR 2 was closed.

An NIR3 was raised to clarify the summary of comments received during local stake holder consultation meeting. The project proponent provided the document which was reviewed and found to be OK and PDD was rephrased so NIR3 was closed.

NIR4 was raised to know how comments were accounted for. The project proponent replied by providing the document of stake holder consultation which was reviewed and found to be in order so NIR4 was closed.

Stakeholder consultation process is not required by regulations/laws in the host country. The client obtained “Consent to establish and operate” from State Pollution Control Board which is an indication of regulatory acceptance. The host country approval has been accorded to project activity by Ministry

of Environment and Forests, the host country approval confirms that the project leads to sustainable development in India (annex4). These documents were desk reviewed and found to be OK.

Other requirements

The project was listed for comments on the UNFCCC website from 31/03/2006 till 29/04/2006. No comment was received during the subsequent period of web hosting.

The PDD was not mentioning the project starting date; and CAR5 was raised for the same. The project proponent provided the document for starting date of the project activity and the PDD has been rephrased so CAR 5 was closed.

CAR7 was raised for the increase of CERs in the revised PDD. The project proponent replied that the IPCC default value of methane conversion factor (MCF) for Asia is 0.9 and taking into consideration the uncertainty of 50 to 100% it has been further corrected to 0.738 as detailed out in AM0013.The value of MCF taken as 0.5 earlier is for discharge to the environment, which is not the case in the said project activity. The projections are based on IPCC default values. This was accepted and hence CAR7 was closed.

Final comments and validation opinion

SGS has performed a validation of the project “Methane recovery and power generation in a distillery plant by GMR industries Ltd. [GIDL]”. The validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by SGS for registration with the UNFCCC.

SGS has received confirmation by the host Party that the project activity assists it in achieving sustainable development.

By utilizing methane, rice husk for generation of electricity, the project results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A review of the investment analysis, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. If the project is implemented as designed the project is likely to achieve the estimated amount of emission reductions.

The validation is based on the information made available to SGS and the engagement conditions detailed in the report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence SGS can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.	
By submitting this validation report, the DOE confirms that all validation requirements are met. Name of authorized officer signing for the DOE	Marco van der Linden
Date and signature for the DOE	7th July 2006 

Section below to be filled by UNFCCC secretariat		
Date when the form is received at UNFCCC secretariat		
Date at which the registration fee has been received		
Date at which registration shall be deemed final		
Date of request for review, if applicable		
Date and number of registration	Date	Number

aqa INTERNATIONAL

ANAB ACCREDITED

Certificate of Assessment

AQA International, LLC, attests that:

GMR INDUSTRIES LIMITED
(SUGAR DIVISION)

SANKILI-532 440, R.A.VALASA MANDAL,
SRIKAKULAM DISTRICT
ANDHRA PRADESH, INDIA.

with a scope of:

Manufacture and Supply of Sugar &
Ethyl Alcohol Products

has established a Quality Management System that is in compliance with the International Quality System Standard ISO 9001 - 2000.

"Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2000 requirements may be obtained by consulting the organization."

5/23/2003	6/28/2006 to 6/27/2009
Initial Registration	Registration Period
3539	
Certificate No.	CEO, AQA International

Current Status: Please visit website: www.aqa.in ANAB Accreditation No.010694

501 Commerce Drive NE Columbia, South Carolina 29223, USA (803) 779-8150

ISO 9001: 2000
ISO 14001:2004
OHSAS 18001:1999

DEPARTMENT PROCEDURES MANUAL

Dept. : Distillery-INSTRUMENTATION

DOCUMENT No. : GIDL-SD/DPRO/INST-21

Issue No. : 01

Controlled Copy No. : 06

Controlled Copy Holder : AGM(DIST)

GMR INDUSTRIES LIMITED
(SUGAR DIVISION)
SANKILI-532440
ANDHRA PRADESH, INDIA

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : - REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 of 01
TITLE: REVISION RECORD SHEET	

procedure No.	Previous Rev. No. and Effective Date	Current Rev. No. and Effective Date	Brief Description of Changes

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : --- REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 OF 02
TITLE: Responsibility & Authority of Dept. personnel	

AGM (Distillery)

Responsibility :

1. Overall responsible for Distillery activities.
2. Implement and maintain ISO 9001 / ISO 14001/ OHSAS 18001systems in the distillery plant.
3. Formulates the departmental objectives.
4. Define responsibility and authority for personnel of Distillery.
5. Determine and evaluate the competency for personnel of Distillery.
6. Effective control of process activities to ensure conformance to product quality and desired production performance.
7. Identify training needs and provide training for personnel of Distillery dept. in coordination with HRD & Admn. Department
8. Plan the process activities during season and off-season.
9. Practice safe working methods and maintain good house keeping.
10. Identify critical consumables for production and coordinate with stores for maintaining minimum stock levels.
11. Comply with applicable statutory and regulatory requirements
12. Coordinate with Process and Maintenance departments.
13. Analyse the data of performance of Distillery.
14. Initiates / takes suitable corrective and preventive actions based on results of analysis of
15. data on performance of Distillery.

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : - REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 of 01
TITLE: LIST OF CONTROLLED COPY HOLDERS	

CONTROLLED COPY NO	CONTROLLED COPY HOLDER(DESIGNATION)	SOFT COPY	HARD COPY
1	UNIT HEAD	✓	
2	GM(POWER PLANT)	✓	
3	HOD(HRD & ADMIN)	✓	
4	HOD (PROCESS)	✓	
5	HOD (ENGINEERING)	✓	
6	HOD (DISTILLERY)		✓
7	HOD (CANE)	✓	
8	HOD (FIN & ACCTS)	✓	
9	HOD (EDP)	✓	
10	MANAGER (POWER)	✓	
11	MANAGER (MATERIALS)	✓	
12	AUDITORS(COPY)		✓
13	EXCUTIVE(INSTRUMENTATION)		✓

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : - REVISION No. : 0 SHEET : 01 OF 01 EFFECTIVE DATE : 01.11.2005
TITLE: LIST OF FORMS	

Sl. No.	Format No.	Format Title	Rev. No. & Effective Date
1	GIDL-SD/DPRO/INS/F-01	List of instruments	00/01.11.2005
2	GIDL-SD/DPRO/INS/F-02	Preventive maintenance schedule	00/01.11.2005
3	GIDL-SD/DPRO/INS/F-03	Maintenance Log Book	00/01.11.2005
4	GIDL-SD/DPRO/INS/F-04	Instrument shut down schedule	00/01.11.2005
5	GIDL-SD/DPRO/INS/F-05	History Cards	00/01.11.2005
6	GIDL-SD/DPRO/INS/F-06	Breakdown Analysis Record	00/01.11.2005
7	GIDL-SD/DPRO/INS/F-07	Calibration schedule (Master/Field)	00/01.11.2005
8	GIDL-SD/DPRO/INS/F-08	Calibration record	00/01.11.2005

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : GIDL-SD/DPRO/INS/PR-01 REVISION No. : 0 SHEET : 01 OF 03 EFFECTIVE DATE : 01.11.2005
TITLE: PROCEDURE FOR MAINTANANCE OF INSTRUMNETS	

1. PURPOSE

To Document a procedure for maintenance of instruments to ensure the availability of the same for operation.

2. SCOPE

This covers all instruments having impact on product quality, process perfor –mance, environmental performance and OH & S performance.

3. Responsibility

DY.MANAGER (D)
DY.MANAGER (ETP)
EXECUTIVE (INST)

4. Records

Sl. No.	Description	Form No.
1.	List of instruments	GIDL-SD/DPRO/INS/F-01
2.	Preventive maintenance schedule	GIDL-SD/DPRO/INS/F-02
3.	Maintenance Log book	GIDL-SD/DPRO/INS/F-03
4.	Instruments shut down schedule	GIDL-SD/DPRO/INS/F-04
5.	History Cards	GIDL-SD/DPRO/INS/F-05
6.	Break down analysis record	GIDL-SD/DPRO/INS/F-06

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : GIDL-SD/DPRO/INS/WI REVISION No. : 0 SHEET : 01 OF 02 EFFECTIVE DATE : 01.11.2005
TITLE: LIST OF WORK INSTRUCTIONS	

SL No	Title	Work Instruction No	Revision No/Effective Date	ISO 9001 Clause (s)	ISO 14001 Clause (s)	OHSAS 18001 Clause (s)
01	Calibration of Pressure Gauges	GIDL-SD/DPRO/INS/WI-01	00/01.11.2005	7.6	4.4.6	4.4.6
02	Calibration of Vacuum Gauges	GIDL-SD/DPRO/INS/WI-02	00/01.11.2005	7.6	4.4.6	4.4.6
03	Calibration of Pressure Transmitters	GIDL-SD/DPRO/INS/WI-03	00/01.11.2005	7.6	4.4.6	4.4.6
04	Calibration of Pressure Switches	GIDL-SD/DPRO/INS/WI-04	00/01.11.2005	7.6	4.4.6	4.4.6
05	Calibration of Temperature Gauges	GIDL-SD/DPRO/INS/WI-05	00/01.11.2005	7.6	4.4.6	4.4.6
06	Calibration of Thermocouples	GIDL-SD/DPRO/INS/WI-06	00/01.11.2005	7.6	4.4.6	4.4.6
07	Calibration of RTD's	GIDL-SD/DPRO/INS/WI-07	00/01.11.2005	7.6	4.4.6	4.4.6
08	Calibration of Temperature Transmitters	GIDL-SD/DPRO/INS/WI-08	00/01.11.2005	7.6	4.4.6	4.4.6
09	Calibration of DPT's	GIDL-SD/DPRO/INS/WI-09	00/01.11.2005	7.6	4.4.6	4.4.6
10	Calibration of Draft Gauges	GIDL-SD/DPRO/INS/WI-10	00/01.11.2005	7.6	4.4.6	4.4.6
11	Calibration of pH Controller	GIDL-SD/DPRO/INS/WI-11	00/01.11.2005	7.6	4.4.6	4.4.6

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : GIDL-SD/DPRO/INS/PR-01 REVISION No. : 0 SHEET : 03 OF 03 EFFECTIVE DATE : 01.11.2005
TITLE: PROCEDURE FOR MAINTANANCE OF INSTRUMENTS	

5.2.4. Record of shut down maintenance of the equipment is maintained in the maintenance log book GIDL-SD/DPRO/INS/F-03and history card GIDL-SD/DPRO/INS/F-05.

5.3. Break Down Maintenance

5.3.1. Breakdown jobs are attended immediately after receiving information from operation department to put back the instrument into operation.

5.3.2. After completion of the break down work trail is taken to assure the healthiness of instrument and upon satisfactory results, instrument is handed over to operation.

5.3.3. After completion of the work, break down is analysed to identify cause/root cause. Based on the results of the analysis, corrective actions are taken and the effectiveness of the same is reviewed by the Dy.Manager (Distillery).

5.3.4. Record of breakdown maintenance is maintained in maintenance log book GIDL-SD/DPRO/INS/F-03 and breakdown analysis record is maintained in GIDL-SD/DPRO/INS/F-06.

5.4. Environmental system compliance

5.4.1. The Environmental aspects identification is carried out in the related activities and evaluated to identify significant aspects & to take appropriate control measures.

5.4.2. During maintenance the waste generated is segregated and dumped at ear-marked places.

5.4.3. During maintenance action is taken to avail spillage of lube oils.

5.5. OH &S System compliance

5.5.1. The hazard identification & risk assessment is carried out in the related activities to implement appropriate control steps

5.5.2. To carry out maintenance following actions are taken.

a) Using required personnel protective equipment

b) Implementing required permit to work system

c) Using appropriate tools

d)Testing of lifting tackles as per statutory requirements.

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : - REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 of 01
TITLE: TABLE OF CONTENTS	

	PREPARED BY	APPROVED B
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : - REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 of 01
TITLE: ABBREVIATIONS	

ABBRIVATION	FULL FORM
GIDL	GMR Industries limited
SD	Sugar Division
DPRO	Distillery Procedure
Dept	Department
QESH	Quality Environment Safety & Health
ISO	International organization for Standardization
OHSAS	Occupational Health & Safety systems
HOD (D)	Head of department (Distillery)
INS	Instrumentation
WI	Work instruction
F	Format
MR	Management Representative
I/L	Inlet
O/L	Outlet
AFR	Air Filter & regulator
I/P	Current to pneumatic converter
PT	Pressure transmitter
TT	Temperature transmitter
FT	Flow transmitter
LT	Level transmitter
DPT	Differential Pressure Transmitter
C/V	Control valve

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : --- REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 02 OF 02
TITLE: Responsibility & Authority of Dept. personnel	

Authority :

1. To modify equipment / change process conditions to improve the performance with the approval of PRESIDENT.
2. To stop any equipment / process which leads or may lead to nonconformance/ unsafe incident.
3. To sanction leaves for the department employees.

EXECUTIVE (INSTRUMENTATION)

1. Reporting to AGM (DIST)/DY.MANAGER(DIST)
2. Instrumentation Budget preparation
3. Planning and preparing of spares and ensuring the spares availability
4. Planning ,Indent raising for material requirement/ spares
5. Ensuring the healthiness of all Instruments & Control systems
6. Modification works supervision
7. Coordinating with all departments for smooth operation of the plant
8. Maintaining Instrument Log Book

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : - REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 of 01
TITLE: LIST OF PROCEDURES	

SL. No	Procedure No.	Procedure title	Revision No. / Effective Date	ISO 9001 Clause(s)	ISO 14001 Clause(s)	OHSAS 18001 Clause(s)
1	GIDL-SD/DPRO/INS/PR-01	Maintenance of Monitoring & Measuring Instruments	00/01.11.2005	6.3 & 7.6	4.4.6	4.4.6
2	GIDL-SD/DPRO/INS/PR-02	Calibration of Master/Field Instruments	00/01.11.2005	7.6	4.4.6	4.4.6

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : -- REVISION No. : 00 EFFECTIVE DATE : 01.11.2005 SHEET : 01 of 01
TITLE: DEPARTMENTAL ORGANIZATION CHART	

DEPARTMENTAL ORGANIZATION CHART

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

5. Procedure

5.1. Preventive Maintenance:

5.1.1. List of Instruments is prepared and maintained by Executive (Instrumentation).

5.1.2. From the above list Critical Instruments having impact over product quality ,plant performance , environmental performance and OH & S performance are identified by Executive (Instrumentation) in consultation with Dy.Manager(Distillery)

5.1.3. Preventive maintenance schedule for the above critical instruments is prepared by Executive (Instrumentation) in the format GIDL-SD/DPRO/INS/F-02 and same is approved by Dy.Manager (Distillery).

5.1.4. As per the schedule preventive maintenance and calibration are carried out based on documented work instructions 01-16/check list and /or guidelines provided in the instrument manuals.

5.1.5. In case of non availability of equipment as per schedule, Maintenance is carried out on the available date on which equipment is available.

5.1.6. Record of preventive maintenance of the instrument is maintained in maintenance log book GIDL-SD/DPRO/INS/F-03 and History card GIDL-SD/DPRO/INS/F-05. of the equipment is updated as required

5.1.7. During maintenance period if any deviation found in the reading of field instrument , calibration is carried out with the master instruments available in the lab, and details of calibration is noted down in the calibration record GIDL-SD/DPRO/INS/F-08.

5.2. Shut Down Maintenance:

5.2.1. Instrument shut down maintenance schedule GIDL-SD/DPRO/INS/F-04 is prepared, planning resources required viz., manpower, spares, and tools etc., and date of job to be completed.

5.2.2. Shutdown maintenance is carried out as per the schedule based on the documented work instructions and/or instrument manuals.

5.2.3. During shut down, schedule is monitored for adherence and to initiate necessary corrective action.

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

12	Calibration of Conductivity Controller	GIDL-SD/DPRO/INS/WI-12	00/01.11.2005	7.6	4.4.6	4.4.6
13	Calibration of Digital Indicator/Controller	GIDL-SD/DPRO/INS/WI-13	00/01.11.2005	7.6	4.4.6	4.4.6
14	Calibration of Control Valves	GIDL-SD/DPRO/INS/WI-14	00/01.11.2005	7.6	4.4.6	4.4.6
15	Calibration of Pneumatic Power Cylinders	GIDL-SD/DPRO/INST/WI-15	00/01.11.2005	7.6	4.4.6	4.4.6
16	Daily Shift Routine Works	GIDL-SD/DPRO/INST/WI-16	00/01.11.2005	7.6	4.4.6	4.4.6

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : GIDL-SD/DPRO/INS/PR-02 REVISION No. : 0 SHEET : 01 OF 02 EFFECTIVE DATE : 01.11.2005
TITLE: PROCEDURE FOR CALIBRATION OF MASTER INSTRUMENTS	

1. PURPOSE

To Document a procedure for calibration of instruments to ensure the availability of the same for operation.

2. SCOPE

This covers all instruments having impact on product quality, process performance, environmental performance and OH & S performance.

3. Responsibility

DY.MANAGER (D)
DY.MANAGER (ETP)
EXECUTIVE (INST)

4. Records

Sl. No.	Description	Form No.
1.	List of instruments	GIDL-SD/DPRO/INS/F-01
2.	Calibration schedule (field/master)	GIDL-SD/DPRO/INS/F-07
3.	Calibration record	GIDL-SD/DPRO/INS/F-08
4.	Calibration report of master instruments	___

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

GMR INDUSTRIES LTD. SUGAR DIVISION, SANKILI	DOCUMENT No : GIDL-SD/DPRO/INS/PR-02 REVISION No. : 0 SHEET : 02 OF 02 EFFECTIVE DATE : 01.11.2005
TITLE: PROCEDURE FOR CALIBRATION OF MASTER INSTRUMENTS	

5. PROCEDURE

5.1. List of instruments which require calibration is prepared by Executive (Instrumentation) and approved by Dy.manager (Distillery)
5.2. For the above identified instruments calibration schedule GIDL-SD/DPRO/INS/F-07. is prepared with the details like instrument tag number range acceptance criteria ,frequency and calibration agency.
5.3. The above identified equipment are calibrated either internally (with in GIDL-SD) or by external agency.
5.4. It is ensured that the master instruments (either internal or external) are calibrated with a master instrument/equipment having traceability to National/International standards.
5.5. Details of calibration along with the status are maintained in calibration record GIDL-SD/DPRO/INS/F-08 .
5.6. Master Instruments/Equipment of GIDL-SD used for calibration are calibrated by the external agency .
5.7. It is ensured that the instruments /equipment used by the external agency is traceable to National/International standards .
5.8. All instruments /equipment are safe guarded from adjustments that would invalidate the measurement results.
5.9. All Instruments/equipment are protected from damage and deterioration during handling, maintenance and storage.
5.10. When the equipment is found not conforming to requirements, the validity of the previous measuring results are assessed and recorded , appropriate Action is taken on the equipment and product affected
5.11. Record of the results of calibration and verification are maintained .

	PREPARED BY	APPROVED BY
DESIGNATION	Executive (Inst)	AGM (DIST)
DATE	26.10.2005	27.10.2005
SIGNATURE		

No. J-11011/157/2003-IA-II
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex, Lodi Road,
New Delhi-110 003
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March 8, 2004

To
Shri K. Narayana Rao
Managing Director
GMR Technologies & Industries Limited
6-3-866/1/G2, Greenlands, Begumpet
Hyderabad-50 016

Sub : 40 KLD distillery unit of M/s GMR Technologies & Industries Limited at Sankili village, Srikakulam district, Andhra Pradesh

Sir,

This has reference to your letter No. nil dated 8.8.2003 enclosing Application and EIA/EMP report, and subsequent clarifications furnished vide your letters dated 8.10.03 and 12.11.03 on the above mentioned project.

2. The Ministry of Environment & Forests has examined the proposal. It is noted that the proposal is for setting up of a distillery unit of 40 KLD at Sankili in Srikakulum district of Andhra Pradesh. The unit will be located in an area of 16.20 ha (40 acres) within the existing presmises of 77.22 ha of 3125 TCD sugar mill of the company . The project does not involve forest land and displacement of people. Water requirement of 890 m^3/d will be met from the subsurface water of Nagavali river through existing infilteration wells dug up in the river bed. The distillery will operate for 270 days in a year. The unit will adopt continuous fermentation technology with reboiler system. Biomethanation followed by biocomposting will be practiced for utilization of spentwash from the distillery and pressmud from the 3125 TCD sugar mill. There will be zero discharge of effluents from the distillery. Requirement of molasses (5340 TPM) and pressmud (32572 TPA) will be met from own Sugar Mill and nearby sugar mills. NOC from Andhra Pradesh Pollution Control Board has been obtained on 28.6.03. Public hearing for the project was held on 29.5.2003. Total cost of the project is Rs. 16 crores.

3. The Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 27th January, 1994 as amended subsequently subject to strict compliance of the following specific and general conditions: