UNFCCC Secretariat
Martin-Luther-King-Strasse 8
D-53153 Bonn
Germany

Att: CDM Executive Board

DET NORSKE VERITAS
DNV Certification
International Climate Change Services
Veritasveien 1
NO-1322 Høvik
Norway
Tel: +47-6757 9900
Fax: +47-6757 9911
http://www.dnv.com
NO 945 748 931 MVA

Your ref.:	Our ref.:	Date:
CDM Ref 1220	MLEH/KCHA	9 October 2007

Response to request for review

"Flare gas recovery project at Uran plant, Oil and Natural Gas Corporation (ONGC) Limited in India" (Project activity 1220)

Dear Members of the CDM Executive Board,

We refer to the requests for review raised by three Board members concerning DNV's request for registration of the **"Flare gas recovery project at Uran plant, Oil and Natural Gas Corporation (ONGC) Limited in India" (Project activity 1220)**

and would like to provide the following initial response to the issues raised by the requests for review.

Comment 1: *"Further demonstration of the additionality of the project activity is required."*

DNV Response:

We reiterate that during the validation, DNV has assessed relevant documentation and also held stakeholder consultation with industry experts with respect to the additionality of the project. As presented in the final validation report, version 02 dated 14 June 2007, DNV confirms that the project faces significant technological barrier with respect to the determination of the design inputs for the flare gas recovery unit (FGRU). The amount of flare gas generated in the project plant varied over a range of 30000 SCMD to 150000 SCMD which poses a significant technological barrier with respect to the sizing of the compressor system. The variation in amount of flare gas produced has been confirmed from the actual amount of gas compressed by the FGRU during the period January 2006 to December 2006.

Uniqueness of the project in the region has been confirmed through communication received from M/s Nicco Corporation Limited, project division, to M/s Kirloskar Pneumatics Limited dated 17 December 2003, and the communication is enclosed herewith **as Supportive 01**.

The uniqueness of the project is further recognized by the Ministry of Petroleum & Natural Gas, Government of India, and the project was conferred with the "Award for Excellence" during the year 2003~2004. A copy of the certificate of recognition is enclosed herewith as **Supportive 02**.

Being the first of its kind the compressor supplier and the process package detail engineering concern did not have relevant experience in designing of flare gas recovery units. These uncertainties during designing of the unit resulted in severe operational / technical failures of the unit during the commissioning and streamlining of the unit. Communications between ONGC, Nicco Corporation and M/s Kirloskar Pneumatics confirmed these operational / technical failures of the unit and annual downtime records of the plant confirmed the related downtime of the unit.

Samples of the communication between ONGC, M/s Nicco Corporation and M/s Kirloskar Pneumatics are enclosed herewith as **Supportive 03.**

Comment 2: *"Stronger evidence of CDM influence in the decision to proceed with the project should be provided".*

DNV Response:
We reiterate that during the validation, DNV assessed relevant documentation with respect to consideration of CDM during the implementation of flare gas recovery projects at different sites of ONGC and in Uran plant as well. As presented in the final validation report, version 02 dated 14 June 2007, section 4.4, the following documents were assessed as a proof of CDM consideration during project inception.

- Internal note dated 5 January 2001 from Head, Environment Management, to all Asset Managers, Basin Managers and Head work centers which urges the assets to develop CDM projects as per the Kyoto protocol framework. **The note is attached herewith as Supportive 4.**
- Further to the notice from Head, an environment management meeting was held at Uran plant, on 22 January 2001, identifying the need for taking up the FGRU as a CDM project**. Minutes of the meeting is attached herewith as supportive 4.**
- Communication from Head (HSE) dated 31 August 2002 to Head, Corporate Communication, providing related information on 'Principals of global compact' for inclusion in the ONGC annual report. The note clearly states that "All possible efforts are continuing to ensure reduction of emissions that contribute to global warming". It stresses that work to achieve "zero gas flaring" at the assets, and in the context of CDM emphasizes the possibility of "recycling low pressure gas to ensure minimal flaring and resource conservation". **The note is attached herewith as Supportive 4.**

The timeline of the project execution is detailed herebelow vis a vis CDM consideration for the project activity.

5 January 2001	Internal note from Head, Environment management, urging the assets to develop CDM projects as per Kyoto framework.
22 January 2001	Internal meeting at Uran asset identifying the need to take up the FGRU as a CDM project.
20 November 2001	Contract awarded to M/s Nicco Corporation Limited for project execution which is the start date of the project.
02 August 2003	Commissioning of the FGRU unit.

The documents clearly demonstrate that the organization had identified development of GHG reduction projects and CDM projects as a part of future business strategy. The organization was aware of the requirements to address environmental issues in order to achieve long term sustainable development for the organization and development of flare gas recovery projects at all its units was a part of the long term strategy.

Comment 3: **"**The additionality of the project should be demonstrated using version-03 of the additionality tool."

DNV Response:
DNV would like to thank the EB for pointing out the error in using the latest version of the additionality tool available during the validation process. The additionality of the project has been re-assessed in line with the "Tool for the demonstration and assessment of additionality" version 03.

DNV would like to reiterate that the validation opinion with respect to project additionality does not change as a result of the re-assessment.
The necessary changes, as required by the latest version of additionality tool, have been incorporated in the revised final validation report and are enclosed herewith.

We sincerely hope that the Board accepts our aforementioned explanations.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION LTD

Michael Lehmann
Technical Director
International Climate Change Services

C Kumaraswamy
Manager – South Asia
Climate Change Services

Supportive -01

NICCO CORPORATION LIMITED
PROJECT DIVISION

IRQS A DEPARTMENT OF INDIAN REGISTER OF SHIPPING — ACCREDITED BY DUTCH COUNCIL FOR ACCREDITATION — ISO 9001/EN ISO 9001 APPROVED BY IRQS

FASCIMMILE TRANSMISSION

SL / KM / C203 / 03 / 22 — December 17, 2003

M/s Kirloskar Pneumatic Co. Ltd.
Hadapsar Industrial Estate
Pune – 411013

Kind Attn. : Mr. D. S. LOKRAS – DGM (ACR)

Subject : FLARE GAS RECOVERY COMPRESSOR (HOWDEN – UK make)

Ref : ONGC, Flare Gas Recovery Project

Dear Sir,

Flare Gas Recovery Compressor is under shutdown since last Saturday (13-12-2003) and the status was immediately conveyed to you over the telephone by ONGC and NICCO. Your representative(s) from Pune have visited ONGC Uran plant on 15-12-2003 & 16-12-2003 to detect the actual problem. Apparently it has been detected with the help of ONGC's Instrumentation engineers and telephonic guidance given by Bentley Nevada's representative that axial displacement sensing probe for rotor displacement is got damaged somehow and since the probe is placed inside the compressor it wouldn't be rectified from outside. As informed by your representative that it may require to open the compressor for its rectification. In this regard please note that ONGC is very much stringent regarding opening of the compressor since the entire compressor was brought in assembled conditions from HOWDEN-UK. So you are requested to ensure the followings before opening the compressor casing or dish end at site:

1. Bentley Nevada concerned representative has to come along with you at Uran site by 18-12-2003 to re-check & re-ensure the damage in presence of ONGC. Accordingly you have to line up with HOWDEN for its rectification immediately since Christmas is not far away.

2. HOWDEN concerned representative has to come for technical assistance in association with Bentley Nevada person before opening the compressor. Please note that ONGC is very much serious to get proper diagnosis why the probe got damaged , whether any other component(s) inside the compressor got damaged or

[SHEET 1 OF 2]

Registered Office : NICCO HOUSE ● 2 Hare Street ● 3rd floor ● Kolkata-700 001
Telephone : 210 5313/14; 242 3245/46 (DISA); 242 3334 (Board) ● Fax : (91) 33-248 3098; 220 2362; 221 4244
E-mail : nicco@vsnl.com ● Web Site : www.niccoprojects.com

ALL REPLIES TO BE ADDRESSED TO THE PROJECT DIVISION

not, it has also to be ensured that the similar defect should not appear in near future for long, safe and steady operation of compressor package.

3. Prior to visit of HOWDEN representative at ONGC Uran plant for rectification the compressor problem, an ACTION PLAN (in micro detail) has to be prepared after consulting HOWDEN (written)and BENTLEY NEVADA to ensure the availability of all sorts of parts / components, tools & tackles, consumables, machinery etc. at site before opening the compressor.

Being the Flare Gas Recovery Project is very prestigious in nature and being executed for the First Time in INDIA, ONGC's C&MD had formally inaugurate the project and conveyed his hearty congratulations to all concerned for its successful running and the status of the project is also being monitored by him. So you are once again requested to take corrective measures for its rectification immediately so that the plant gets back its normal operation.

Yours truly,
For **NICCO CORPORATION LTD.**

17/12/03

S LAYEK
Site in Charge

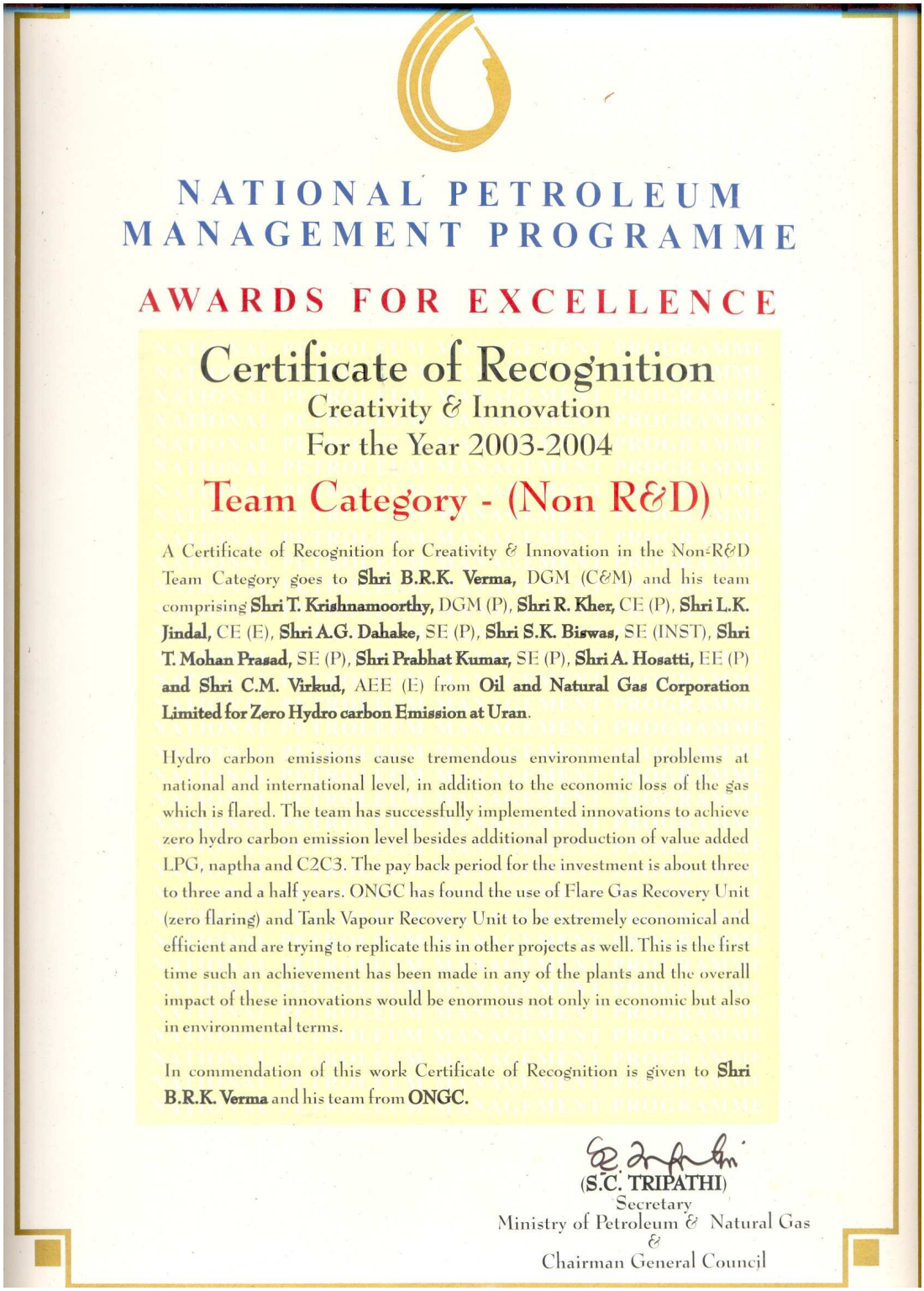
cc Mr. S. K. TIKKU – DGM (MARKETING) – KPCL – MUMBAI : Request to expedite

cc Mr. A. M. KHAN – GM (HES) ; ONGC – Uran Plant
cc Mr. R. K. MIGLANI – DGM (P) E&P ; ONGC – Uran Plant
cc Mr. B. R. K. VARMA – DGM (C&M) ; ONGC – Uran Plant
cc Mr. T. K. KRISNAMURTHY – DGM (OPERATION) ; ONGC – Uran Plant

cc Mr. P. K. NAG – GM (PROJECTS) – NICCO, KOLKATA : Request to expedite

[SHEET 2 OF 2]

Supportive 2:



NATIONAL PETROLEUM MANAGEMENT PROGRAMME

AWARDS FOR EXCELLENCE

Certificate of Recognition

Creativity & Innovation
For the Year 2003-2004

Team Category - (Non R&D)

A Certificate of Recognition for Creativity & Innovation in the Non-R&D Team Category goes to **Shri B.R.K. Verma,** DGM (C&M) and his team comprising **Shri T. Krishnamoorthy,** DGM (P), **Shri R. Kher,** CE (P), **Shri L.K. Jindal,** CE (E), **Shri A.G. Dahake,** SE (P), **Shri S.K. Biswas,** SE (INST), **Shri T. Mohan Prasad,** SE (P), **Shri Prabhat Kumar,** SE (P), **Shri A. Hosatti,** EE (P) **and Shri C.M. Virkud,** AEE (E) from **Oil and Natural Gas Corporation Limited for Zero Hydro carbon Emission at Uran.**

Hydro carbon emissions cause tremendous environmental problems at national and international level, in addition to the economic loss of the gas which is flared. The team has successfully implemented innovations to achieve zero hydro carbon emission level besides additional production of value added LPG, naptha and C2C3. The pay back period for the investment is about three to three and a half years. ONGC has found the use of Flare Gas Recovery Unit (zero flaring) and Tank Vapour Recovery Unit to be extremely economical and efficient and are trying to replicate this in other projects as well. This is the first time such an achievement has been made in any of the plants and the overall impact of these innovations would be enormous not only in economic but also in environmental terms.

In commendation of this work Certificate of Recognition is given to **Shri B.R.K. Verma** and his team from **ONGC.**

(S.C. TRIPATHI)
Secretary
Ministry of Petroleum & Natural Gas
&
Chairman General Council

Supportive 3:

NICCO CORPORATION LIMITED
PROJECT DIVISION

PKN/SR/C-203/164/05

4th August, 2005

M/s Oil and Natural Gas Corporation Ltd.
Onshore Installation Group
LPG/CSU Plant
Uran-400 702
Fax No 022 27222825

Kind Attn : Mr B R K Verma (DGM-C&M)

Sub : ONGC, Uran – Flare Gas Recovery Project

Dear Sir,

We are in receipt of your letter MRBC/URN/ESG/FGRP/114(3) dated 02/08/05 regarding certain post completion issues under warranty period. We give below our action points :-

1 Our sub-vendors M/s KPCL & Tussaco have already taken action for providing Bellow type seal for Lube Oil Pump and presently this pump is lying at V-Trans Transportation godown at Uran for last 3 days. Ph. No. 3099 2605 & LR No. 168032. We have already informed our Mr S Layek who is taking necessary action with M/s KPCL,Pune (Mr Jairaj K Hemmady) and M/s Tussaco (Mr Vivek Kulkarni). Hope this work can be completed by 9th or 10th August'05 at Uran. We shall be highly obliged if you also keep pressure on M/s KPCL, Pune who is your regular vendor.

2 During the installation of above pump at Uran M/s KPCL and M/s Tussaco still check out the spare pump for necessary changes of Bellow type seal at the earliest possible time.

3 Wer have already requested M/s KPCL,Pune to take immediate action for supply of Bellow type seal.

4 M/s KPCL confirmed that 'O' ring for shaft seal is already received at their Pune factory and shall be delivered in early next week.

5 This gear box of Lube Oil Cooler is a non-standard item as confirmed by M/s Paharpur and they will take time to deliver this item within 15-20 days time. In this regard we have already intimated you through our fax dated 3/8/05. We understand M/s Paharpur is executed lot of big project at ONGC Uran itself, may we request you to have a word that their Sr. Officer at Uran project site to execute this delivery.

However, we shall put one gear oil supplement balance type seal (important lubricant) in that gear box which is developed by our NICCO Engineering Services Ltd. and it may reduced sunstantial vibration of gear box.

Thanking you,

Yours faithfully,
for NICCO CORPORATION LIMITED

P K Nag
General Manager - Projects

Cc : Mr S Layek, NICCO Bombay –
Please coordinate with M/s KPCL & M/s Tussaco on top priority basis.

"Please use e-mail through Lotus Notes (ongc.co.in) for official communication"

Registered Office : NICCO HOUSE • 2 Hare Street • 3rd floor • Kolkata-700 001
Telephone : 2210 5313/14; 2242 3245/46 (DISA); 2242 3334 (Board) • Fax : (91) 33-2248 3098; 2230 2362; 2231 4244
E-mail : nicco@vsnl.com • Web Site : www.niccoproject.com

ALL REPLIES TO BE ADDRESSED TO THE PROJECT DIVISION

ऑयल एण्ड नेचुरल गैस कॉरपोरेशन लिमिटेड
मुम्बई क्षेत्र, उरण प्लांट, उरण

OIL AND NATURAL GAS CORPORATION LIMITED
MUMBAI REGION, URAN PLANT, URAN
DIST- RAIGAD, MAHARASHTRA - 400702

Engineering Services Group

No. MRBC/URN/ESG/FGRP/114(3)

Date: 04.05.2005

M/s NICCO Corporation Limited
Project Division
2, Hare Street, Kolkata
Fax No. 033 22483098

MR. P K NAG; GM (PROJECTS)

Ref: Flare Gas Recovery Project

Dear Sir,

Please refer our discussion on phone today regarding leakage of oil from bearing housing and fabricated flange of seal stationery part. "O" ring of the stationery flange was replaced by M/s Tussaco Pumps but still the leakage of oil is there from lube oil pump.

You are requested to modify the seal and bearing housing in such a way that there should not be any leakage of oil.

MATTER MOST URGENT.

Thanking you,

Yours faithfully,

04/05/05

(L. K Jindal)
CE (E)

Copy to:-

1.GM-HES/DGM(C&M)
2.Shri. M.P.Behere; GM (AC&R), M/s Kirloskar Pneumatic Co. Ltd
Hadapsar Industrial Estate, Pune Fax No. 020 2687 0514 / 0297

making tomorrow brighter ONGC

OIL AND NATURAL GAS CORPORATION LTD.
ENGG. SERVICES GROUP, LPG/CSU PLANTS, MR, URAN-400 702
TELEPHONE: 022-27222308, 27222816/20, FAX: 022-27222825/811

No. MRBC/URN/ESG/FGRP/114(3) Date : 01.03.2005

M/s Paharpur Cooling Tower Ltd.
Paharpur House
8/1/B, Diamond Harbour Road
Kolkata – 700 027
Fax No. 033 - 2479 2188

Attn.: Mr. S. K. BHARGAWA, Vice President.
SUB: Flare Gas Recovery Project

Dear Sir,

This is in reference to my earlier letter of even no. dated 18th February, 2005 regarding the high vibrations of the Oil and Gas cooler fans installed in Flare Gas Recovery Project, Uran..

In this connection, it is informed that even after the replacement of the couplings and realignment of the motor & Gear Box by your representatives, the vibration level of the cooler fans is very high accompanied by abnormal sound. Besides, during the aforesaid rectifications, it was observed by your representatives that the Pitch angle of the Fan blades had been disturbed during operations, which was adjusted by them.

In view of the above, there seems to be no alternative now except to undertake the structural modifications in order to reduce the high vibrations, as proposed by your representative Shri G. Biswas earlier.

Therefore you are requested to submit the details of structural modifications, duly ratified by your Design department along with the design calculations, to M/s. NICCO for review.

Action in this regard to be taken up on priority to avoid shut down of compressor, due to failure of after cooler.

Thanking you,

Yours faithfully,

BRKVarma
1/3/05

B R K VARMA
DGM (C& M)

Copy to : Mr. P K NAG, GM (PROJECTS) M/s. NICCO Corporation Limited, Project Division, 2, Hare Street, Kolkata – to get the structural modifications carried out.
CC: Mr. VIKRAM SWAROOP, M.D., M/s Paharpur Cooling Tower Ltd.

N.O.O. Copy for kind information to:-

01. GGM – HUP
02. GM – HES
03. GM - OM

Received one copy on behalf of P K Nag.
01/03/05
f nicco

OIL AND NATURAL GAS CORPORATION LTD.
ENGG. SERVICES GROUP, LPG/CSU PLANTS, MR, URAN-400 702
TELEPHONE 022-27222308, 27222816/20, FAX: 022-27222825/811

No. MRBC/URN/ESG/FGRP/114(3) Date: 20.01.2005

M/s Kirloskar Pneumatic Co. Ltd
AC&R
Hadapsar Industrial Estate, Pune
Fax No. 020 2687 0514 / 0297
Attn.: Mr. B.M.BEHARE, G.M. (AC&R)

SUB: Flare Gas Recovery Project-Repair

Dear Sir,

This is regarding the recurring seal failure of 'TUSHACO' make oil pump installed on our Flare Gas Recovery Project at URAN plant, URAN, through M/s. NICCO Corp.

As informed vide your letter nos. ACR/PRJ/9165/2004-2006 dt. 24.07.2004 and 09.08.2004, the cause of seal failure was attributed to high vibrations on account of the NRV in the suction line being kept open, resulting in insufficient NPSH for the pumps.

As advised in your aforesaid communications, the NRV has been checked, serviced and steps have also been taken to ensure that the same remains in line throughout, whether the compressor is ON or OFF.

However on restarting the compressor after complying with all your advisories, to our utter disbelief, the seal started leaking again. This despite the fact that it was earlier attended to by the Pump and Seal OEMs' representatives along with your Engineers.

Such recurring failure of a similar nature, obviously indicates that the trouble shooting source has not been identified perfectly and attended. This has caused heavy loss to ONGC in the form of leakage and heavy loss of oil. The loss of oil due to seal leakage and failure shall have to be replaced by M/s. KPCL or equivalent amount shall be recovered from the M/s NICCO's balance payments.

Therefore, urgent measures may please be taken to logically analyse the failure and rectify the same on **WHITE HOT PRIORITY** to avoid any further losses to ONGC.

Thanking you,

Yours faithfully,

20/1/05

B R K VARMA
DGM (C& M)

Copy to :

01. Mr. Aditya Kaowshik, Vice President, M/s. KPCL.
02. MR. P K NAG; GM (PROJECTS) M/s. NICCO Corporation Limited, Project Division, 2, Hare Street, Kolkata – to follow up with M/s. KPCL.

OIL AND NATURAL GAS CORP. LTD
MUMBAI REGION
ENGINEERING SERVICES GROUP, LPG/CSU PLANTS, URAN - 400 702
TELEPHONE: 022 - 27222308,27222816/20, FAX : 022 –27222825/811

No. MRBC/URN/ESG/FGRP/114(3)

Date : 14-06-2004

M/s Kirloskar Pneumatic Co. Ltd.
AC&R
Hadapsar Industrial Estate
Pune
Fax No. 020 2687 0514

RPT

M/s NICCO Corporation Limited
Project Division
2, Hare Street
Kolkata – 700 001
Fax No. 033 224803098

Attn. : Mr. D S LOKRAS; DGM (AC&R) / Mr. P K NAG; GM (PRJECTS)

Ref. Lube Oil Pumps - Flare Gas Recovery Compressor at Uran Plant

Dear Sirs,

This has reference to your confirmation and subsequent long awaited visit of M/s Tushaco Pump & Leak Proof representatives at our Uran Plant on 07-06-2004 to attend the mechanical seal leakages of lube oil pumps PA-71-1201A & PA-71-1201B. They had attended the pump PA-71-1201B. But unfortunately after putting on operation the pump again started leaking. Apart from the above the other pump PA-71-1201 A is yet to be attended, in fact, the above representatives of M/s Tushaco Pump & Leak Proof had confirmed their next visit on 14-06-2004 at our plant premises along with all necessary spares to attend the mechanical seal leakage of the other pump PA-71-1201 A but they have not reported today.

Request please arrange to depute reliable representatives of concerned vendors along with all sorts of necessary spare parts immediately to attend the mechanical seal leakage problem of the pumps PA-71-1201 A & PA-71-1201 B as we are loosing such a costly imported synthetic oil continuously.

You are once again requested to put your concern for proper rectification of mechanical seal leakage of the above lube oil pumps as we are facing this problem since long.

Thanking You,

Yours faithfully,

14/6/04

L K JINDAL
Chief Engineer (Electrical)

OIL AND NATURAL GAS CORP. LTD
MUMBAI REGION
ENGINEERING SERVICES GROUP, LPG/CSU PLANTS, URAN - 400 702
TELEPHONE: 022 - 27222308,27222816/20, FAX : 022 –27222825/811

Facsimile Transmission

No. MRBC/URN/ESG/FGRP/114(3) Date : 08-06-2004

PAHARPUR COOLING TOWERS LTD.
Paharpur House
8/1/B, Diamond Harbour Road
Kolkata – 700 027

Attn : MR. S K BHARGAVA ; GM (CONST.) /
MR. M K DASGUPTA ; SR. MANAGER (TECH)
FAX NO: 033 2479 2188

Ref. Fin Fan Coolers for Flare Gas Recovery Project

Dear sir,

This has reference to visit of your Mr. G Biswas along with Cofimco & Emadi International representatives at our Uran Plant on 07-06-2004 for replacement of damaged lube oil cooler fan by Cofimco make fan. In presence of our operation & maintenance group, installation and various parameters of all the four coolers have been checked & observations are recorded as below:

I. **Vibration Limit Switch:** All the four vibration limit switches have been found non-functioning and your Mr. G Biswas has also agreed on that after necessary inspection. Either the vibration switches are not getting re-set or these are at all not getting actuated for tripping the cooler fan on vibration at tripping level. Even your representative have to start the gas cooler 71-E-1201B by by-passing the vibration limit switch of that fan unit. You are requested to immediately replace all the four non-functioning vibration limit switches for safe operation of cooler units.

II. **Fan Blade Angle:** Fan Blade Angle for lube oil coolers were initially set at around 20° by you during commissioning but Cofimco has confirmed that the angle should be 10.6° only and accordingly new blades are installed at this specified angle. And for gas after coolers blades were initially set at around 12° by you during

commissioning but Cofimco has again confirmed that the angle should be 5.6° only and accordingly blades are re-installed. Please note that Cofimco representative along with Emandi International have doubted that the wrong fixing of fan blade angle would have affected the performance of the cooler fans blades. However detail study will be done by their engineering section and report will be submitted accordingly. It is also observed that the current consumption is reduced from 20 Amps to 16 Amps for gas after cooler and from 14 Amps to 11 Amps for lube oil cooler.

III. **Vibration:** After installation of new Cofimco make fans on lube oil coolers and re-installation of gas after cooler fan blades at desired angle, vibration at various points on motor & gear reducers are measured and recorded jointly. Most of the readings have been recorded slightly in the higher side and few radial reading on gear reducers have been recorded at alarming level and these readings are as under: 13.3 mm/sec for oil cooler 1202A, 11.3 mm/sec for oil cooler 1202B, 15.95 mm/sec for gas after cooler 1201A. Our Operation & Maintenance Deptt. are strongly doubting the performance of gear reducers of the above cooler units.

Our operation & maintenance deptt. are still facing great difficulties to check the oil level at gear reducer when the cooler unit in under operation so you are once again requested to provide some external arrangement on gear reducers so that the oil level can be checked from out side.

Trust you will do the needful immediately for trouble free long term performance of fin fan coolers.

Thanking you,

Yours faithfully,

29/06/04

L K JINDAL
CHIEF ENGINEER (E)

Copy to : MR. P K NAG ; GM (PROJECTS) ; NICCO – KOLKATA

OIL AND NATURAL GAS CORPORATION LIMITED

MUMBAI REGION

URAN PLANT, URAN

Gas Processing Group
C2-C3 Building, Uran Project.

Inter Office Memo

File No. : MR/URAN/02-047/F4C6/03-04
Date . 10.03.2004

From: T.Krishnamoorthy DGM-AM (Gas Processing)

To: Shr. B.R.K. Verma, DGM(C&M), OIG

Subject: Flare gas recovery compressor- Thrust bearing temperature high.

Flare gas recovery compressor, 70-K-1201, is frequently tripping on thrust bearing (Male active) temperature high when running on higher load. Normal temperature is 75 to 80 0C. Its pre-alarm is on 95 0C & trip valve is 105 0C. All other bearing temperatures are normal. The lube oil temperature & pressure is being maintained as per operating manual.

It was also observed that axial displacement, which was recently attended, is going on higher side and pre-alarm is actuating sometimes.

It is requested to call the representative of vender to attend the above problems.

11/3
DGM-AM (Gas Processing)

CC:

Page 1 of 1

Phone : 91-22-723 2929 & 7222816-20, Extn.: 4011/ 4007/ 4012/ 4013 Fax : 91-22-7222811
e-mail : [illegible]

[illegible] Fax
[illegible]

Shri M. Prashad

11/3/04
B. R. K. VARMA
Dy. Gen. Manager (C & M)
(Resident Construction Manager)
ONGC, LPG Gas Plant, URAN,
Pin Code 400 702.

Jairaj K. Hemmady (ACR [illegible] Extn:- 4100)

From: Jairaj K. Hemmady (ACR Proj, Extn:- 4100)
Sent: Saturday, March 13, 2004 4:46 PM
To: 'KPrasad@ongc.net'
Cc: 'nicco_ongc@vsnl.net'; Kavathekar K. A. (ACR Division); Behere M.P. (C.M. ACR Proj); 'pkm@niccoproj.com'; 'Gautam.Kamik@siemens.com'
Subject: FLARE GAS RECOVERY PROJECT - VISIT OF SIEMENS ENGINEER FOR PLC SOFTWARE TRAINING

Attn.: Mr. B. R. K. Varma / Mr. Mohan Prasad,

Please refer to your letter MR/URN/ESG/FGRP/114(4) dt. 26/02/04 regarding the deputation of Siemens trainer for training of your instrumentation operational personal on usage/configuration of PLC software.

We confirm you that our instrumentation Engineer Mr. K. A. Kavathekar will be visiting your plant along with Siemens Engineers Mr. Kamat & Mr. Dipesh Haldar on 17/03/04 & 18/03/04 for two days for imparting the training to your instrumentation operational personal on usage/configuration of PLC software. You are requested to inform all the concerned persons to attend the training.

You are also requested to arrange the gatepass for above three persons on 17/03/04 & 18/03/04 for two days.

Regards,

Jairaj K. Hemmady

Kirloskar Pneumatic Co. Ltd.
Hadapsar Industrial Estate
Hadapsar
Pune-411013
Ph:020-26870133,26870341
Fax:020-26870514,26870341

16/3

Shri M. Prasad

114(4)

Supportive 4:

4/2

OIL & NATURAL GAS CORPORATION LTD,
Corporate Safety Health & Environment Management
Bengal Chemical Bhavan-II
502, Veer Savarkar Marg, Prabhadevi,
Mumbai – 400025
Phone: 24386619 Fax: 24366501

NOTE

ONGC/CSHE/Misc./2000-01 Date: 05.01.2001

From: A.B.Chakraborty, Head, Environment management
To: Asset Managers/Basin Managers/Chief of services/ Head work centres

Subject: Future HSE Plan

This information on the subject Plan is given below for your kind perusal & necessary action.

Organization is looking ahead and designing future strategies to identify any damage to Mother Nature and accidental sufferings and losses. In addition to the present activities, the additional activities to be undertaken during 2001-02 & later, are the following;

- Development and implementation of SMS based on International safety Rating System (ISRS) in 20 Nos. of facilities.
- Compliance audit of all the installations of ONGC through external agencies of international repute.
- Review of the existing safety health and environment policies and formulation of integrated SHE policy
- Third party audit of all the effluent treatment plants as per the decision of the executive committee of the organization.
- National roadmap to combat oil spill in marine environment in coordination with pertinent national oil majors and Government agencies.
- Updating of National oil spill disaster contingency plan.
- Development of EMS ISO 14001 in Work over rigs and vessels other than fixed installation/facilities.
- Developing EMS ISO14001 in all the facilities of the organization within two years.
- Formulation of guidelines on various environmental issues like restoration of drill sites etc. for oil industries under the aegis of Oil Industry Safety Directorate.
- Reporting of Environmental performance of the organization (environmental reporting) duly audited by third party.
- Development of CDM Projects as per the Kyoto protocol.
- Vision 2025- Developing EMS ISO 14001 in all the facilities of the organization and developing and grooming a host of environmental auditors.
- Development and implementation of EMS in 20 Nos. of facilities as per the MOU with MOPNG during the year 2003-04
- Setting up of Occupational health Centers

A B Chakraborty
Head, Environment management

OIL AND NATURAL GAS CORPORATION LIMITED
MUMBAI REGION
URAN PLANT, URAN

Planning & Monitoring Group
Dronagiri Bhavan, Uran Plant.

URAN/PMG/24(85)/2000-01 Date: 23.01.2001

Minutes of the meeting dated 22.01.2001

From:	RAVINDER KHER, CE (P)-PMG
To:	As per participant list

Subject: "Reduction of emission / suitable Project and the CDM"

Participants:

1. Shri T Krishnamoorthy, CE(P)
2. Shri D G Dumbre, CE(P)
3. Shri D K Bhattacharya, SE(P)
4. Shri H S Tripathi, SE(P)
5. Shri Shyamlal, DGM(M)
6. Shri O P Nathani, DGM(E)
7. Shri A K Raot, CE(I)

Mr R. Kher, CE(P), appraised the house regarding the internal note received from Head Environment Mgt., corporate HSE, ONGC, Mumbai. He also explained the "Clean Development Mechanism" and Kyoto Protocol, in brief.

The following points were discussed.

1. Uran plant is flaring approximately 60000 to 120000 Nm^3 of hydrocarbon gas per day. The source of this gas is from seals of various rotating equipments, flare purge points, pressure safety valves etc. This is technical, operational and safety requirement and can not be stopped, as of now

2. Uran is already planning flare gas recovery unit (FGRU) to recover valuable hydrocarbon which is at present being flared which will in turn stop emission to the environment. However there are many difficulties as under for executing suitable project.

    a. The quantity of the gas is very less and not constant.
    b. Pressure of the gas is very low (300-400 mm H_2O)
    c. Temperature of the gas not constant.
    d. No suitable technology/Process available.

e. There is no past experience regarding operation and maintenance in ONGC or other industries under similar circumstances. This involves a great risk for the project to be undertaken.

In view of this, the FGRU is getting delayed and there is probability that the Project may be dropped.

3. However, in view of communication received from Head- Environment management, all members agreed to have renewed look & undertake implementation of flare gas recovery project both, as a challenge & necessity due to sustainability.

4. To overcome all envisaged difficulties it was decided to form a dedicated core team comprising members from operation and maintenance and give the FGRU top priority.

5. Members also opined that Uran may also look into other projects such as NOx control from stack emission, CO_2 emission from gas sweetening units etc.

R. Kher 23/11/01
CE(P
Incharge-PMG

OIL & NATURAL GAS CORPORATION LTD,
Corporate Safety Health & Environment Management
Bengal Chemical Bhavan-II
502, Veer Savarkar Marg, Prabhadevi,
Mumbai – 400025
Phone: 24386619 Fax: 24366501

NOTE

ONGC/CSHE/ONGC Annual Report/2002-03 Date: 31.8.2002

From: A.B.Chakraborty, GM-Head HSE, BCB-II, Mumbai

To: Shri S.Vasudeva, Head-Corporate Communication, New Delhi

Subject: Global Compact Principles—A draft on specific points

Kindly refer to your telecon regarding environment related information on the principles 7, 8 & 9 of Global Compact for inclusion in the ONGC annual report, details are as under:

PRINCIPLE 7: Business should support a precautionary approach to environmental challenges.

Keeping in view the long term sustainable development by addressing environmental issues, the environment policy was issued in 1983 which covers all the environmental aspects significant to the organization's activities, operation and product. One of the ONGC's corporate missions is **"Abiding commitment to Health, Safety and Environment to enrich quality of community life".**

To make environment and company business mutually supportive, due concern towards environment protection is built at the design stage of the facilities. National & international environmental standards/guidelines are followed and adopted at all work centers.

Exploration and Production of oil & gas is specialized job, cost intensive and involves associated environmental effects. Suitable precautionary steps are undertaken / initiated to meet the environmental challenges. As a proactive measure, hazards have been assessed, control measures are in place and in the event of need there is emergency preparedness. The exploration, production, processing and refining of hydrocarbons result in generation of oily liquid effluent, a range of hazardous wastes namely chemical sludge, tank bottom sludge, drill cuttings, left over chemicals, drilling fluids, brines, chemicals and oil containers etc.

Steps to meet the environmental challenges are adequately taken care of by the following:

Environment management systems:

Environment management system based on ISO 14001 has been adopted and implemented in the organization since 1998. During 2000-01, two Installations were certified to ISO 14001, during 2001-02, four more Installations were certified and in 2002-03, 33 Installations were certified during 2003-04 we expect to cover all major installations as currently the implementation is continuing at over 60 Installations at different stages. This is to ensure EMS benchmarking to International Standards.

Oil spill control and response management:

Besides equipping with the Tier-I facilities as required under the National oil spill disaster contingency plan (NOS-DCP), we have taken the membership of the Oil spill response Ltd., U.K. (OSRL) – A Tier- III center to seek assistance, if required. The Oil Spill response contingency plan duly approved by the Coast Guard, in place.

PRINCIPLE 8: Undertake initiatives to promote greater environmental responsibility

In ONGC, it is our endeavor to achieve higher standards beyond the statutory requirements and excel in all spheres including environmental performance. Some of the activities / initiatives mentioned below ensure greater environmental responsibility.

Environment Impact Assessment:

EIA study is a valuable tool in eliminating or mitigating the undesirable effects on the environment. A comprehensive EIA has already been undertaken earlier for the Western offshore areas. For any new project or expansion, environmental clearance is obtained as a statutory requirement and EIA along with risk assessment forms part of the study undertaken through reputed institutes like NEERI.

Air emission monitoring and control:

The system of online monitoring and mobile air monitoring labs (Van) is in place and the data is monitored on regular basis. Besides obtaining the air / water consents from SPCBs, the environment statements are submitted on regular basis. Third party monitoring is also undertaken by the SPCB approved agencies.

Abandonment/restoration of sites:

Drill sites which are not required after exploration assessments, are restored to its normal surroundings and adequate compensation is paid to the land owners for the same.

Green belt development program:

We have an yearly program of **tree plantation** in place since 1989. Guidelines have been issued for tree plantation. Special drive has been undertaken towards the mangrove plantations in the past three years at identified marine coastal areas.

Marine ecological survey:

Pre monsoon and post monsoon Marine **environmental monitoring** is undertaken by IPSHEM utilizing the scientific vessel and following a cruise grid plan. This is to ensure that the marine organisms are not affected due to offshore operations.

Global warming concerns:

All possible efforts are continuing to ensure reduction of emissions that contribute to global warming. The gas flaring has been reduced significantly and "Zero gas flaring" has been given special impetus. Phasing out of the HALON- the fire extinguishing medium, with suitable substitute is in progress, to fulfill the Montreal Protocol recommendations.

Corporate environmental reporting:

We are in the process of developing suitable methodology to bring in place the Corporate Environmental Reporting, as is being done by other International majors.

It would be based on the "Global Reporting Initiative (GRI)" Guidelines. Suitable consultant for the job is under finalization.

PRINCIPLE 9: Encourage the development and diffusion of environmental friendly technologies

Some of the environmentally sound technologies adopted are as under:

Liquid effluent management:

We have 21 onland effluent treatment plants which are adequate to handle the current level of effluent generated. More ETPs have been planned. In Offshore, we have the produced water conditioners and sewage treatment plants to handle liquid effluents. Third party audit of all ETPs was undertaken by NEERI, Nagpur during July-Aug. 2002 to ensure that the functioning is in conformity to required standards. The audit reports have been received and wherever necessary, the action plan has been drawn for rectification / improvement.

Solid waste management:

Collection and disposal of solid wastes is accorded priority. Different types of solid wastes generated offshore are brought to shore for disposal. Some of the solid waste (Chemical sludge) is disposed off in secured landfill sites which are duly approved by SPCBs. The storage facilities as sludge lagoons have been created

Bio degradation / remediation program:

We have an Institute (INBIGS) which is devoted towards bio-technology and tectonic studies. Different types of microbes (Bacteria) have been developed which are used for the Bio-remediation program. Bio-remediation program by using IOC-TERI Super Zapper Bacteria as a pilot project is also currently in hand.

Clean development mechanism (CDM):

Replacement of equipment / Machines / processes with reduced energy consumption and emissions, is accorded top priority and long term plan has been drawn for implementation in phases at the Installations. Various cleaner technologies to reduce the pollution load and to conserve natural resources have been implemented / continuing. There is scope of earning **Emission Reduction Credits** along with improving the environmental performance. The CDM issues are under active consideration for future scope & work.

To reduce, recover, recycle and reuse the wastes / emissions for conserving natural environment, more clean technologies have been implemented / continuing at all major installations. Some of these are the following

- Modification of the flare tips to ensure complete combustion of any emissions
- Recycling low pressure gas to ensure minimal flaring and resource conservation
- Use of treated oil field effluent for reservoir injection (pressure maintenance) thereby conserving water
- Recycling of tank bottom sludge, lead- acid and lead-nickel batteries, spent oil and empty chemical / POL containers etc.
- Bio-remediation of oily sludge and the soil soaked with spilled oil
- In the desalter plant, the salt content of the crude oil is removed making it environment friendly for the refineries
- In the sulphur recovery system, the gas and condensate carrying H_2S gas is treated in sulphur recovery unit wherein liquefied oxidation catalytic process is used to convert H_2S into

elemental sulphur, in solid palletized form. Process, thus, makes the product environment friendly to customer's process

- Use of box flaring to prevent emission of light and heat to the surroundings.
- Oil recovery units (Hydro cyclones) to reduce oil content (ppm) in effluent prior to discharge.
- VOC recovery system

Leveraging environmental performance:

To enhance competitiveness, we would be looking forward to leveraging our environmental performance both at the National / International level.

A.B.Chakraborty
GM-Head HSE