



**RASHTRIYA ISPAT NIGAM LIMITED  
VISAKHAPATNAM STEEL PLANT, VISAKHAPATNAM – 530 031**

**MATERIALS MANAGEMENT DEPARTMENT  
(Purchase Wing)  
BLOCK-A, ADMINISTRATIVE BUILDING  
VISAKHAPATNAM STEEL PLANT  
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**NOTICE INVITING EXPRESSION OF INTEREST  
FOR SUPPLY OF LOW ASH COKING COAL**

**Ref : Pur. 7.17.0021/07033 Dtd. : 11.07.2007**

RINL invites Expression of Interest from Overseas Suppliers having their own mines / Marketing rights for supply of Low Ash Coking Coal. Details of the Information to be furnished and the Technical specifications of Coal required by RINL are placed in the website [www.vizagsteel.com](http://www.vizagsteel.com).

Interested parties can download the details and submit their EOI. All such EOIs received within a period (to be decided by RINL/VSP), shall be evaluated at a time.

**GENERAL MANGER(MM)**

## **INVITATION FOR EXPRESSION OF INTEREST FOR SUPPLY OF LOW ASH COKING COAL TO RINL ON LONG TERM BASIS.**

### **Introduction**

Rashtriya Ispat Nigam Ltd (RINL), a Public Sector undertaking under the Ministry of Steel, Govt. of India, located in the Port city of Visakhapatnam, India and having an annual production capacity of 3.2 million tonne of crude steel, envisages to enhance its production capacity of 6.3 million tonne by 2007. An approx. quantity of 4.0 million tonne of Low Ash Coking Coal per annum is being imported at present and the requirement is likely to increase with the increased production of crude steel in the coming years.

Long Term Agreements are generally concluded by RINL for a period of three years preferably with buyer's option to extend by another two years, with established suppliers of Coal having their own mines or marketing rights. The quantities and prices are mutually finalized on annual basis before commencement of each delivery period.

In order to broaden the supplier-base, Expression of Interest (EOI) are invited from eligible reputed overseas coking coal producers/mine owners/suppliers who are interested in supplying Low Ash Coking coal as per Technical Specifications enclosed at **ANNEXURE - I** on long term basis to RINL.

### **Eligibility criteria for submission of EOI**

The following category of Overseas coal producers/ mine owners/suppliers are invited to express their interest for supply of Low Ash Coking Coal :

1. The suppliers should preferably own/manage and control the mines producing Low Ash Coking Coal.
2. The Suppliers who are having sole marketing rights from the major mine owners and with those potential suppliers who have exported not less than 0.3 million tonnes of Low Ash Coking Coal in the preceding two years.
3. The EOI bidder should agree that, in case their offer is considered by RINL for acceptance, the first ship load of the coal will be supplied as an industrial trial cargo. On successful usage of coal in RINL, they shall be considered entering into long term agreement.
4. The Coking Coal Producer / Supplier should not have any legal proceedings pending in a court of law against RINL.

### **Information Required**

The interested overseas coal producers/suppliers may submit their expression of interest (EOI) along with the following information/data/documents/printed and illustrated literatures/brochures covering the following aspects :

1. Detailed information of the Coal Producer(s)/Owner(s) of Coking Coal Mines/Coal Supplier alongwith their latest published Annual Accounts and Annual Report to the Shareholders. These documents should clearly show the exact nature of ownership.
2. Country of origin of coking coal.
3. Name(s) and Location of the coal seam(s)/coal mine(s)  
(Coal Suppliers to provide name and address of the mine owner also)
4. Nature of the mining operations (open-cast or underground etc.).
5. Estimated reserves of coking coal in million metric tons as at the time of submission of the offer and unexpired period of mining rights for the coal seam(s)/mine(s) offered.
6. Production capacity of Coking Coal Mines and average annual production of washed/unwashed Low Ash Coking coal for the last three years and future production estimates.
7. Quantity exported of low Ash Coking Coal during the last three years from the mine from which coal is offered with user/buyer name and country.
8. Port(s) of shipment and its distance from the mines/washery and mode of transportation of washed/unwashed coking coal to the port(s) of shipment.
9. Brand name(s)/any other specific name(s) of the coal(s) offered and also whether the coal(s) indicated is from a new mine/seam intended to be developed or existing operational mine/seam.
10. Details of the coal(s) and the quantity offered as per the formats enclosed along with Test Reports of the coal from any of the reputed international test houses at **Annexure-II**.
11. The bidder should specifically confirm as to which specification (RINL-1, RINL 2, RINL 3 or RINL 4) the coal offered by them, matches to.
12. Name, address, Phone number, Fax number, E-mail of contact person.
13. Details of the test certificate(s) submitted.
  - i) Ref.No. and date of the test certificate.
  - ii) Name of the test house which issued the test certificate.
  - iii) Brand of coal and names of coal mine and seam for which the test certificate is issued.

14. Whether the offered coal is a straight coal or a blend (Both straight and blended coals are acceptable), however, the offered coal should not be a blend of more than three constituent straight coals. In case of a straight coal offered, it should be confirmed that the offered coal is from a single mine and single seam. In case of a blend offered, the name and percentage of the blend constituents be indicated along with the test results for all properties for individual coal constituents (straight) as well as for the blend offered. Name(s) of the mine(s) and the seam(s) and percentage of constituents in the blend be indicated as per the following format :

S.No.	Name of Coal Mine	Name of Coal Seam	Constituent Percentage (%)
1.			
2.			
3.			

15. Quantity of the coal offered annually (separately for each offered coal brand/name)

16. Period for which the offered coal(s) can be supplied.

**NOTE :**

1. The existing long term suppliers of Low Ash coking coal to RINL need not apply again against this notice.
2. This is categorically stated that this is not a request for proposals. After review of the EOIs received, a shortlist will be prepared and subsequent action will be taken. Submission of EOI by a firm, therefore does not automatically guarantee that the firm will be invited for further discussion on the subject or for signing of supply agreement. RINL reserves the right to change or cancel these requirements and/or the EOI process at any time.
3. The parties having Coals with different specification can also submit their EOI if they so desire but specifically stating the nearest RINL specification & explicitly confirming the difference over the nearest RINL specification. However, the decision of RINL to consider them or not would be final and binding.
4. In the event of an expression of interest being considered by RINL for acceptance, both the coal supplier and the coal producer, if different parties, shall be required jointly to conclude the Agreement with RINL and both the parties shall be jointly and severally responsible for the due and timely performance of the Agreement and the coal supplier will be required to produce an undertaking to the effect from the coal

producer along with full guarantee and warranty for the coal offered for supply. In the event of such supplier not being able to produce the undertaking from the coal producer, the supplier will be required to submit a Letter of Authority from the coal producer in that regard furnishing the details of the coal mine, coal brand and the offered coal quantity with coal specifications and delivery period.

5. RINL will deal directly and exclusively with the overseas supplier and no agency arrangements are acceptable to RINL. The interested supplier should give an undertaking to the effect in the proforma enclosed at **Annexure – III**.
6. All the information / documents furnished with the bid are liable to be verified and in case of misrepresentation/forgery noticed at any stage, RINL shall take action such as non-consideration of EOI / bid / termination of order along with forfeiture of bid bond, if any. Decision of RINL in such case shall be final and binding.

The EOI be delivered at the address mentioned below:

GENERAL MANGER(MM),  
3<sup>rd</sup> Floor, `A' Block,  
Main Administrative Building,  
Rashtriya Ispat Nigam Limited,  
Visakhapatnam Steel Plant,  
Visakhapatnam 530 031.  
Andhra Pradesh  
INDIA.

Phone : +91 891 2519533 / 2519036

Fax : +91 891 2518753 / 2519756 / 2518036

Email : [matl.mgmt@vizagsteel.com](mailto:matl.mgmt@vizagsteel.com)/ [guptask@vizagsteel.com](mailto:guptask@vizagsteel.com) / [anrao@vizagsteel.com](mailto:anrao@vizagsteel.com)/  
[vijju@vizagsteel.com](mailto:vijju@vizagsteel.com) / [venkayyaj@vizagsteel.com](mailto:venkayyaj@vizagsteel.com)

Web : [www.vizagsteel.com](http://www.vizagsteel.com)

## 1.0 TECHNICAL SPECIFICATIONS FOR RINL COAL - 1

S. No	Spec. Number	Technical Parameters	Unit (Limit)	RINL COAL - 1	
				Coking	
				Specification	
				Desired	Absolute
1 a)	001	Size (0-50 mm)	%	100	100
1 b)	002	Fraction below 0.50mm	% (Max)	20	25
2	003	Total Moisture(As received)	% (Max)	8	10
3		<i>Proximate analysis( on air dry basis)</i>			
3 a)	004	Volatile Matter	% (Range)	25-27	24-28
3 b)	005	Ash	% (Max)	8	10
3 c)	006	Inherent Moisture	% (Max)	1.5	2
3 d)	007	Fixed Carbon	By Difference	By Diff.	By Diff.
4 a)	008	Sulphur	% (Max)	0.5	0.7
4 b)	009	Phosphorus	% (Max)	0.1	0.1
5		<i>Coking Properties</i>			
5 a)	010	Crusible Swelling Number/Free Swelling Index	Num (Min)	7	6
5 b)	011	Gray King Type	Num (Min)	G 5	G 3
5 c)		<i>Audibert-Arnu Dilatometer test:</i>			
	012	Soften Temperature (T1)	°C		
	013	Max contraction Temp. (T2)	°C		
	014	Max dilatation Temperature (T3)	°C		
	015	Contraction	%		
	016	Dilation	%		
	017	Total dilation	%	100-150	100 Min
5 d)		<i>Gieseler Plastometer Test</i>			
i)	018	Initial Softening Temp at 1 ddpm.	°C (Min)	410 +/- 15	410 +/- 15
ii)	019	Temperature of Max fluidity	°C (Min)		
iii)	020	Plastic range at 1 ddpm	°C (Min)	65	50
iv)	021	Maximum Fluidity	ddpm (Min)	1000	600
6		<i>Petrographic Analysis</i>			
6 a)	022	MMR of Vitrinite	% (Range)	1.11-1.17	1.11-1.17
6 b)	023	Vitrinite Distribution (V <sub>9</sub> -V <sub>14</sub> )	% (Min)	100	95
6 c)	024	Vitrinite	% (Min)	60	55
6 d)	025	Break up of Vitrinite % ( V <sub>5</sub> ,V <sub>6</sub> ,V <sub>7</sub> .....V <sub>18</sub> )			
6 e)	026	Total Reactives	% (Range)		
6 f)	027	Total Inerts	% (Range)		
6 g)	028	Mineral Matter	%		
6 h)	029	Composition Balance Index(CBI)	% (Range)		
7		<i>Ash Fusion Temperatures</i>			

7 a)	030	Deformation Temp (DT)	°C		
7 b)	031	Hemi Sphere Temp(HT)	°C		
7 c)	032	Sphere Temp(ST)	°C		
7 d)	<b>033</b>	<b>Free Flow Temp (FT)</b>	°C	<b>1500 Min</b>	<b>1500 Min</b>
8	034	Hard Groove Index	Num		
9		<u><b>Ultimate analysis:</b></u>			
9 a)	035	Carbon	%		
9 b)	036	Hydrogen	%		
9 c)	037	Nitrogen	%		
9 d)	<b>038</b>	<b>Oxygen</b>	%	<b>4.5</b>	<b>5</b>
10		<i>Properties of coke produced by straight carbonisation of Coal(S) offered:</i>			
10 a)	040	Coke yield	%		
10 b)	041	Micum index M40	%		
10 c)	042	Micum index M10	%		
10 d)	043	CSR	%		
10 e)	044	CRI	%		
11	Carbonization Study				
11 a)	045	Contraction by Sole Heated Oven (SHO) for test coal sample	%		
11 b)	046	Expansion pressure during carbonization of the test coal in the movable wall oven	in KPA/Psi		
12	047	Complete analysis of Coal ash			
		SiO <sub>2</sub>	%		
		Al <sub>2</sub> O <sub>3</sub>	%		
		Fe <sub>2</sub> O <sub>3</sub>	%		
		MgO	%		
		MnO	%		
		P <sub>2</sub> O <sub>5</sub>	%		
		SO <sub>3</sub>	%		
		Na <sub>2</sub> O	%		
		K <sub>2</sub> O	%		
		<b>Total Alkali(K<sub>2</sub>O+Na<sub>2</sub>O)</b>	%	<b>2</b>	<b>2.5</b>
<b>13</b>	<b>048</b>	<b>Relative degree of oxidation (Transmittance)</b>	%	<b>94</b>	<b>90</b>

## 2.0 TECHNICAL SPECIFICATIONS FOR RINL COAL - 2

S. No	Spec. Number	Technical Parameters	Unit (Limit)	RINL COAL - 2	
				Coking	
				Specification	
				Desired	Absolute
1 a)	<b>001</b>	<b>Size (0-50 mm)</b>	<b>%</b>	<b>100</b>	<b>100</b>
1 b)	<b>002</b>	<b>Fraction below 0.50mm</b>	<b>% (Max)</b>	<b>20</b>	<b>25</b>
2	<b>003</b>	<b>Total Moisture(As received)</b>	<b>% (Max)</b>	<b>8</b>	<b>10</b>
3		<i>Proximate analysis( on air dry basis)</i>			
3 a)	<b>004</b>	<b>Volatile Matter</b>	<b>% (Range)</b>	<b>19-23</b>	<b>19 Min</b>
3 b)	<b>005</b>	<b>Ash</b>	<b>% (Max)</b>	<b>8</b>	<b>10</b>
3 c)	<b>006</b>	<b>Inherent Moisture</b>	<b>% (Max)</b>	<b>1.5</b>	<b>2</b>
3 d)	<b>007</b>	<b>Fixed Carbon</b>	<b>By Difference</b>	<b>By Diff.</b>	<b>By Diff.</b>
4 a)	<b>008</b>	<b>Sulphur</b>	<b>% (Max)</b>	<b>0.6</b>	<b>0.8</b>
4 b)	<b>009</b>	<b>Phosphorus</b>	<b>% (Max)</b>	<b>0.1</b>	<b>0.1</b>
5		<i>Coking Properties</i>			
5 a)	<b>010</b>	<b>Crusible Swelling Number/Free Swelling Index</b>	<b>Num (Min)</b>	<b>8</b>	<b>6</b>
5 b)	<b>011</b>	<b>Gray King Type</b>	<b>Num (Min)</b>	<b>G 5</b>	<b>G 3</b>
5 c)		<i>Audibert-Arnu Dilatometer test:</i>			
	012	Soften Temperature (T1)	°C		
	013	Max contraction Temp. (T2)	°C		
	014	Max dilatation Temperature (T3)	°C		
	015	Contraction	%		
	016	Dilation	%		
	<b>017</b>	<b>Total dilation</b>	<b>%</b>	<b>100-150</b>	<b>100Min</b>
5 d)		<i>Gieseler Plastometer Test</i>			
i)	<b>018</b>	<b>Initial Softening Temp at 1 ddpm.</b>	<b>°C (Min)</b>	<b>410 +/- 15</b>	<b>410 +/- 15</b>
ii)	019	Temperature of Max fluidity	°C (Min)		
iii)	<b>020</b>	<b>Plastic range at 1 ddpm</b>	<b>°C (Min)</b>	<b>60</b>	<b>50</b>
iv)	<b>021</b>	<b>Maximum Fluidity</b>	<b>ddpm (Min)</b>	<b>600</b>	<b>300</b>
6		<i>Petrographic Analysis</i>			
6 a)	<b>022</b>	<b>MMR of Vitrinite</b>	<b>% (Range)</b>	<b>1.2-1.3</b>	<b>1.2-1.35</b>
6 b)	<b>023</b>	<b>Vitrinite Distribution (V<sub>9</sub>-V<sub>14</sub>)</b>	<b>% (Min)</b>	<b>80</b>	<b>70</b>
6 c)	<b>024</b>	<b>Vitrinite</b>	<b>% (Min)</b>	<b>60</b>	<b>55</b>
6 d)	025	Break up of Vitrinite %			
		( V <sub>5</sub> , V <sub>6</sub> , V <sub>7</sub> ..... V <sub>18</sub> )			
6 e)	026	Total Reactives	% (Range)		
6 f)	027	Total Inerts	% (Range)		
6 g)	028	Mineral Matter	%		
6 h)	029	Composition Balance Index(CBI)	% (Range)		



7		<u>Ash Fusion Temperatures</u>			
7 a)	030	Deformation Temp (DT)	°C		
7 b)	031	Hemi Sphere Temp(HT)	°C		
7 c)	032	Sphere Temp(ST)	°C		
7 d)	<b>033</b>	<b>Free Flow Temp (FT)</b>	°C	<b>1500 Min</b>	<b>1500 Min</b>
8	034	Hard Groove Index	Num		
9		<b><u>Ultimate analysis:</u></b>			
9 a)	035	Carbon	%		
9 b)	036	Hydrogen	%		
9 c)	037	Nitrogen	%		
9 d)	<b>038</b>	<b>Oxygen</b>	%		
10		<i>Properties of coke produced by straight carbonisation of Coal(S) offered:</i>			
10 a)	040	Coke yield	%		
10 b)	041	Micum index M40	%		
10 c)	042	Micum index M10	%		
10 d)	043	CSR	%		
10 e)	044	CRI	%		
11	Carbonization Study				
11 a)	045	Contraction by Sole Heated Oven (SHO) for test coal sample	%		
11 b)	046	Expansion pressure during carbonization of the test coal in the movable wall oven	in KPA/Psi		
12	047	Complete analysis of Coal ash			
		SiO <sub>2</sub>	%		
		Al <sub>2</sub> O <sub>3</sub>	%		
		Fe <sub>2</sub> O <sub>3</sub>	%		
		MgO	%		
		MnO	%		
		P <sub>2</sub> O <sub>5</sub>	%		
		SO <sub>3</sub>	%		
		Na <sub>2</sub> O	%		
		K <sub>2</sub> O	%		
		<b>Total Alkali(K<sub>2</sub>O+Na<sub>2</sub>O)</b>	%	<b>2</b>	<b>2.5</b>
<b>13</b>	<b>048</b>	<b>Relative degree of oxidation (Transmittance)</b>	%	<b>94</b>	<b>90</b>

### 3.0 TECHNICAL SPECIFICATIONS FOR RINL COAL - 3

S. No	Spec. Number	Technical Parameters	Unit (Limit)	RINL COAL - 3	
				Soft Coking	
				Specification	
				Desired	Absolute
1 a)	<b>001</b>	<b>Size (0-50 mm)</b>	<b>%</b>	<b>100</b>	<b>100</b>
1 b)	<b>002</b>	<b>Fraction below 0.50mm</b>	<b>% (Max)</b>	<b>25</b>	<b>30</b>
2	<b>003</b>	<b>Total Moisture(As received)</b>	<b>% (Max)</b>	<b>8</b>	<b>10</b>
3		<i>Proximate analysis( on air dry basis)</i>			
3 a)	<b>004</b>	<b>Volatile Matter</b>	<b>% (Range)</b>	<b>28-32</b>	<b>26-34</b>
3 b)	<b>005</b>	<b>Ash</b>	<b>% (Max)</b>	<b>8</b>	<b>10</b>
3 c)	<b>006</b>	<b>Inherent Moisture</b>	<b>% (Max)</b>	<b>1.5</b>	<b>2</b>
3 d)	<b>007</b>	<b>Fixed Carbon</b>	<b>By Difference</b>	<b>By Diff.</b>	<b>By Diff.</b>
4 a)	<b>008</b>	<b>Sulphur</b>	<b>% (Max)</b>	<b>0.6</b>	<b>0.8</b>
4 b)	<b>009</b>	<b>Phosphorus</b>	<b>% (Max)</b>	<b>0.1</b>	<b>0.1</b>
5		<i>Coking Properties</i>			
5 a)	<b>010</b>	<b>Crusible Swelling Number/Free Swelling Index</b>	<b>Num (Min)</b>	<b>4</b>	<b>3</b>
5 b)	<b>011</b>	<b>Gray King Type</b>	<b>Num (Min)</b>	<b>G</b>	<b>G</b>
5 c)		<i>Audibert-Arnu Dilatometer test:</i>			
	012	Soften Temperature (T1)	°C		
	013	Max contraction Temp. (T2)	°C		
	014	Max dilatation Temperature (T3)	°C		
	015	Contraction	%		
	016	Dilation	%		
	<b>017</b>	<b>Total dilation</b>	<b>%</b>	<b>50-100</b>	<b>50 Min</b>
5 d)		<i>Gieseler Plastometer Test</i>			
i)	<b>018</b>	<b>Initial Softening Temp at 1 ddpm.</b>	<b>°C (Min)</b>	<b>395 +/- 15</b>	<b>395 +/- 15</b>
ii)	019	Temperature of Max fluidity	°C (Min)		
iii)	<b>020</b>	<b>Plastic range at 1 ddpm</b>	<b>°C (Min)</b>	<b>50</b>	<b>45</b>
iv)	<b>021</b>	<b>Maximum Fluidity</b>	<b>ddpm (Min)</b>	<b>300</b>	<b>150</b>
6		<i>Petrographic Analysis</i>			
6 a)	<b>022</b>	<b>MMR of Vitrinite</b>	<b>% (Range)</b>	<b>0.85-0.95</b>	<b>0.80-0.95</b>
6 b)	<b>023</b>	<b>Vitrinite Distribution (V<sub>9</sub>-V<sub>14</sub>)</b>	<b>% (Min)</b>	<b>100(V<sub>5</sub>-V<sub>9</sub>)</b>	<b>95(V<sub>5</sub>-V<sub>9</sub>)</b>
6 c)	<b>024</b>	<b>Vitrinite</b>	<b>% (Min)</b>	<b>50</b>	<b>45</b>
6 d)	025	Break up of Vitrinite %			
		( V <sub>5</sub> , V <sub>6</sub> , V <sub>7</sub> ..... V <sub>18</sub> )			
6 e)	026	Total Reactives	% (Range)		
6 f)	027	Total Inerts	% (Range)		
6 g)	028	Mineral Matter	%		
6 h)	029	Composition Balance Index(CBI)	% (Range)		

7		<u>Ash Fusion Temperatures</u>			
7 a)	030	Deformation Temp (DT)	°C		
7 b)	031	Hemi Sphere Temp(HT)	°C		
7 c)	032	Sphere Temp(ST)	°C		
7 d)	<b>033</b>	<b>Free Flow Temp (FT)</b>	°C	<b>1450 Min</b>	<b>1450 Min</b>
8	034	Hard Groove Index	Num		
9		<b><u>Ultimate analysis:</u></b>			
9 a)	035	Carbon	%		
9 b)	036	Hydrogen	%		
9 c)	037	Nitrogen	%		
9 d)	<b>038</b>	<b>Oxygen</b>	%		
10		<i>Properties of coke produced by straight carbonisation of Coal(S) offered:</i>			
10 a)	040	Coke yield	%		
10 b)	041	Micum index M40	%		
10 c)	042	Micum index M10	%		
10 d)	043	CSR	%		
10 e)	044	CRI	%		
11	Carbonization Study				
11 a)	045	Contraction by Sole Heated Oven (SHO) for test coal sample	%		
11 b)	046	Expansion pressure during carbonization of the test coal in the movable wall oven	in KPA/Psi		
12	047	Complete analysis of Coal ash			
		SiO <sub>2</sub>	%		
		Al <sub>2</sub> O <sub>3</sub>	%		
		Fe <sub>2</sub> O <sub>3</sub>	%		
		MgO	%		
		MnO	%		
		P <sub>2</sub> O <sub>5</sub>	%		
		SO <sub>3</sub>	%		
		Na <sub>2</sub> O	%		
		K <sub>2</sub> O	%		
		<b>Total Alkali(K<sub>2</sub>O+Na<sub>2</sub>O)</b>	%	<b>2</b>	<b>2.5</b>
<b>13</b>	<b>048</b>	<b>Relative degree of oxidation (Transmittance)</b>	%	<b>93</b>	<b>90</b>

#### 4.0 TECHNICAL SPECIFICATIONS FOR RINL COAL - 4

S. No	Spec. Number	Technical Parameters	Unit (Limit)	RINL COAL - 4	
				Coking	
				Specification	
				Desired	Absolute
1 a)	<b>001</b>	<b>Size (0-50 mm)</b>	<b>%</b>	<b>100</b>	<b>100</b>
1 b)	<b>002</b>	<b>Fraction below 0.50mm</b>	<b>% (Max)</b>	<b>20</b>	<b>25</b>
2	<b>003</b>	<b>Total Moisture(As received)</b>	<b>% (Max)</b>	<b>8</b>	<b>10</b>
3		<i>Proximate analysis( on air dry basis)</i>			
3 a)	<b>004</b>	<b>Volatile Matter</b>	<b>% (Range)</b>	<b>28-34</b>	<b>38-34</b>
3 b)	<b>005</b>	<b>Ash</b>	<b>% (Max)</b>	<b>5</b>	<b>8</b>
3 c)	<b>006</b>	<b>Inherent Moisture</b>	<b>% (Max)</b>	<b>1.5</b>	<b>2.5</b>
3 d)	<b>007</b>	<b>Fixed Carbon</b>	<b>By Difference</b>	<b>By Diff.</b>	<b>By Diff.</b>
4 a)	<b>008</b>	<b>Sulphur</b>	<b>% (Max)</b>	<b>0.6</b>	<b>0.8</b>
4 b)	<b>009</b>	<b>Phosphorus</b>	<b>% (Max)</b>	<b>0.1</b>	<b>0.1</b>
5		<i>Coking Properties</i>			
5 a)	<b>010</b>	<b>Crusible Swelling Number/Free Swelling Index</b>	<b>Num (Min)</b>	<b>8</b>	<b>6</b>
5 b)	<b>011</b>	<b>Gray King Type</b>	<b>Num (Min)</b>	<b>G3</b>	<b>G</b>
5 c)		<i>Audibert-Arnu Dilatometer test:</i>			
	012	Soften Temperature (T1)	°C		
	013	Max contraction Temp. (T2)	°C		
	014	Max dilatation Temperature (T3)	°C		
	015	Contraction	%		
	016	Dilation	%		
	<b>017</b>	<b>Total dilation</b>	<b>%</b>	<b>100-150</b>	<b>100 Min</b>
5 d)		<i>Gieseler Plastometer Test</i>			
i)	<b>018</b>	<b>Initial Softening Temp at 1 ddpm.</b>	<b>°C (Min)</b>	<b>410 +/- 15</b>	<b>410 +/- 15</b>
ii)	019	Temperature of Max fluidity	°C (Min)		
iii)	<b>020</b>	<b>Plastic range at 1 ddpm</b>	<b>°C (Min)</b>	<b>65</b>	<b>50</b>
iv)	<b>021</b>	<b>Maximum Fluidity</b>	<b>ddpm (Min)</b>	<b>5000-10000</b>	<b>4000-15000</b>
6		<i>Petrographic Analysis</i>			
6 a)	<b>022</b>	<b>MMR of Vitrinite</b>	<b>% (Range)</b>	<b>0.9-1.05</b>	<b>0.9-1.10</b>
6 b)	<b>023</b>	<b>Vitrinite Distribution (V<sub>9</sub>-V<sub>14</sub>)</b>	<b>% (Min)</b>	<b>70</b>	<b>65</b>
6 c)	<b>024</b>	<b>Vitrinite</b>	<b>% (Min)</b>	<b>70</b>	<b>65</b>
6 d)	025	Break up of Vitrinite %			
		( V <sub>5</sub> , V <sub>6</sub> , V <sub>7</sub> ..... V <sub>18</sub> )			
6 e)	026	Total Reactives	% (Range)		
6 f)	027	Total Inerts	% (Range)		
6 g)	028	Mineral Matter	%		
6 h)	029	Composition Balance Index(CBI)	% (Range)		

7		<u>Ash Fusion Temperatures</u>			
7 a)	030	Deformation Temp (DT)	°C		
7 b)	031	Hemi Sphere Temp(HT)	°C		
7 c)	032	Sphere Temp(ST)	°C		
7 d)	<b>033</b>	<b>Free Flow Temp (FT)</b>	°C	<b>1500 Min</b>	<b>1500 Min</b>
8	034	Hard Groove Index	Num		
9		<b><u>Ultimate analysis:</u></b>			
9 a)	035	Carbon	%		
9 b)	036	Hydrogen	%		
9 c)	037	Nitrogen	%		
9 d)	<b>038</b>	<b>Oxygen</b>	%		
10		<i>Properties of coke produced by straight carbonisation of Coal(S) offered:</i>			
10 a)	040	Coke yield	%		
10 b)	041	Micum index M40	%		
10 c)	042	Micum index M10	%		
10 d)	043	CSR	%		
10 e)	044	CRI	%		
11	Carbonization Study				
11 a)	045	Contraction by Sole Heated Oven (SHO) for test coal sample	%		
11 b)	046	Expansion pressure during carbonization of the test coal in the movable wall oven	in KPA/Psi		
12	047	Complete analysis of Coal ash			
		SiO <sub>2</sub>	%		
		Al <sub>2</sub> O <sub>3</sub>	%		
		Fe <sub>2</sub> O <sub>3</sub>	%		
		MgO	%		
		MnO	%		
		P <sub>2</sub> O <sub>5</sub>	%		
		SO <sub>3</sub>	%		
		Na <sub>2</sub> O	%		
		K <sub>2</sub> O	%		
		<b>Total Alkali(K<sub>2</sub>O+Na<sub>2</sub>O)</b>	%	<b>2</b>	<b>2.5</b>
<b>13</b>	<b>048</b>	<b>Relative degree of oxidation (Transmittance)</b>	%	<b>93</b>	<b>90</b>

**IN CASE OF NON-AVAILABILITY OF COALS MEETING THE ABOVE SPECIFICATIONS, TENDERERS CAN OFFER COALS NEAREST TO THE ABOVE SPECIFICATIONS. RINL SHALL HAVE THE OPTION AT ITS OWN DISCRETION TO CONSIDER SUCH OFFERED COALS. THE DECISION OF RINL IN THIS REGARD WILL BE FINAL.**

## ANNEXURE - II

### PROFORMA OF THE TECHNICAL PARAMETERS TO BE GIVEN BY THE TENDERER IN THE FORM OF TEST CERTIFICATE ALONG WITH THE OFFER.

S. No	Spec. Number	Technical Parameters	Unit (Limit)	Testing Standard (BS/ISO/ASTM/BIS)			
				BS	ISO	ASTM	BIS
1 a)		Sampling Method	%	BS1017-1-1989(1999)	ISO 1988-1975/ ISO 13909-Part2-2000	D 2234/D 2234M-03	IS 437-79
1 b)	001	Size (0-50 mm)					
1 c)	002	Fraction below 0.50mm	% (Max)	BS 1016-109-1995(2000)	ISO 1953-1994	D 4749-87	
2	003	Total Moisture(As received)	% (Max)	BS 1016-1 -1973 (1999)	ISO 589-1981	D 3302-02/D 2961-01	IS:1350(Part - 1)1984
3		<b>Proximate analysis( on air dry basis)</b>				D 5142-04	
3 a)	004	Volatile Matter	% (Range)	BS 1016-part 104.3-1998	ISO 562-1998	D 3175-02	IS:1350(Part - 1) 1984
3 b)	005	Ash	% (Max)	BS 1016-part 104.4-1998	ISO 1171-1997	D 3174-04	
3 c)	006	Inherent Moisture	% (Max)	BS 1016-part 104.1999	ISO 11722-1999	D 3173-03	
3 d)	007	Fixed Carbon	By Difference				
4 a)	008	Sulphur	% (Max)	BS 1016-106.4-1-1993	ISO 334-1992		IS:1350(Part - 3)1969
4 b)	009	Phosphorus	% (Max)	BS 1016-9-1977	ISO 622-1981	D 2795	IS:1350(Part-5)1979
5		<b><u>Coking Properties</u></b>					
5 a)	010	Crusible Swelling Number/Free Swelling Index	Num (Min)	BS 1016-107:1991(2000)	ISO 501-1981	D 720-91(1999)	IS:1353-1993
5 b)	011	Gray King Type	Num (Min)	BS 1016-107.2-1991(2000)	ISO 502- 1982		IS:1353-1993
5 c)		<b><u>Audibert-Arnu Dilatometer test:</u></b>		BS 1016-107.3:1990(2000)	ISO 8264-1989	D 5515-1997(2004)	
	012	Softening Temperature (T1)	°C				
	013	Maximum contraction Temperature (T2)	°C				
	014	Max.dilatation Temp. (T3)	°C				
	015	Contraction	%				
	016	Dilation	%				
	017	Total dilation	%				
5 d)		<b>Gieseler Plastometer Test</b>		BS 6127	(ISO 7404)	D 2639-1998	
i)	018	Initial Softening Temp at 1 ddpm.	°C (Min)				
ii)	019	Temperature of Max fluidity	°C (Min)				
iii)	020	Plastic range at 1 ddpm	°C (Min)				
iv)	021	Maximum Fluidity	ddpm (Min)				
6		<b><u>Petrographic Analysis</u></b>		BS 6127	(ISO 7404)	D 2797 D 2798 D 2799-91	IS:9127-1992
6 a)	022	MMR of Vitrinite	% (Range)				
6 b)	023	Vitrinite Distribution (V9-V14)	% (Min)				
6 c)	024	Vitrinite	% (Min)				

6 d)	025	Break up of Vitrinite % (V <sub>5</sub> , V <sub>6</sub> , V <sub>7</sub> , ..., V <sub>18</sub> )					
6 e)	026	Total Reactives	% (Range)				
6 f)	027	Total Inerts	% (Range)				
6 g)	028	Mineral Matter	%				
6 h)	029	Composition Balance Index(CBI)	% (Range)				
7		<b>Ash Fusion Temperatures</b>		BS 1016-113-1995(2000)	(ISO-540-1995)		IS:12891-1990
7 a)	030	Deformation Temp (DT)	°C			D 1857-04	
7 b)	031	Hemi Sphere Temp(HT)	°C				
7 c)	032	Sphere Temp(ST)					
7 d)	033	Free Flow Temp (FT)					
8	034	<b>Hard Groove Index</b>	Num	BS 1016-112-1995	ISO-5074-1994	D 409-02	IS:4433-79
9		<b>Ultimate analysis:</b>		BS 1016-6-1997		D 5373-02	IS:1350(Part-4)
9 a)	035	Carbon	%	BS 1016-106.1:1997	ISO 625-1996	D 3178	
9 b)	036	Hydrogen	%	BS 1016-106.1:1997	ISO 625-1996	D 3178	
9 c)	037	Nitrogen	%	BS 1016-106.2:1997	ISO 333-1996	D 3179	
9 d)	038	Oxygen	%		ISO 1994-76		
9 e)	039	Sulphur	%	BS 1016-106.4	ISO 334-1992	D 3177	
10		Properties of coke produced by straight carbonisation of Coal(S) offered:					
10 a)	040	Coke yield	%				
10 b)	041	Micum index M40	%	BS 1016-108.2-1992	ISO -556-1980	D 3402-93	IS 1354-1992
10 c)	042	Micum index M10	%				
10 d)	043	CSR	%	BS 4262-1994-Appendix-C	ISO 18894	D 5341-1999	
10 e)	044	CRI	%				
11		Carbonization Study					
11 a)	045	Contraction by Sole Heated Oven (SHO) for test coal sample	%			D 2014-97(2004)	
11 b)	046	Expansion pressure during carbonization of the test coal in the movable wall oven	in KPA/Psi				
12	047	Complete analysis of Coal ash				D 6349-01 &	
		SiO <sub>2</sub>	%			D 6357-00	
		Al <sub>2</sub> O <sub>3</sub>	%				
		Fe <sub>2</sub> O <sub>3</sub>	%				
		MgO	%				
		MnO	%				
		P <sub>2</sub> O <sub>5</sub>	%				
		SO <sub>3</sub>	%				
		Na <sub>2</sub> O	%				
		K <sub>2</sub> O	%				IS:1355-84
		Total alkali(K <sub>2</sub> O+Na <sub>2</sub> O)	%				
13	048	Relative degree of oxidation(Transmittance)	%			D 5263-93 (2001)	

## ANNEXURE - III

PROFORMA FOR  
UNDERTAKING FOR NON-ENGAGEMENT OF AGENT TO DEAL WITH RINL  
(Please see 5 at NOTE of Invitation for EOI)

No.....

Date :

To

GENERAL MANGER(MM),  
3<sup>rd</sup> Floor, 'A' Block  
Main Administrative Building,  
Rashtriya Ispat Nigam Limited,  
Visakhapatnam Steel Plant,  
Visakhapatnam 530 031.  
Andhra Pradesh  
INDIA.

Dear Sir,

**Sub: Your EOI No. Pur.7.17.0021/07033 Dtd. : 11.07.2007**

We ..... (Name of the Bidder), fully understand that RINL would deal directly and exclusively with us for the subject EOI and no agency arrangements are acceptable to RINL.

We, hereby, undertake that we shall deal directly with RINL and have not engaged any Agent to deal with RINL for the subject EOI.

Yours faithfully,

(NAME)

For and on behalf of M/s. ....

(Name of the bidder)

Note: This Undertaking should be on the Letter-Head of the Bidder and should be signed by a person competent and having the power of attorney to bind the Bidder.

**RINL VIGILANCE → TOLL FREE NO.1800 425 8878**