

URANIUM CORPORATION OF INDIA LTD.
 (A Government of India Enterprise)
 Tummalapalle Uranium Project
 (P.O.) M.C. Palle, Vemula (M), YSR District, Andhra Pradesh-516349

ANNEXURE-1

Sl. No	Description of material	Quantity
1.	Design, Supply, Replacement, Installation, Tracking, Drilling, Curbing, Alignment, Testing And Commissioning Of Transporter Main Belt For 110m ² Horizontal Belt Filter as per the Technical Specifications and scope of supply and work, Special conditions as per Annexure-A, B attached	02 Sets

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**TECHNICAL SPECIFICATIONS & OTHER CLAUSES ARE DETAILED AS
BELOW:**

ANNEXURE-A

**DESIGN, SUPPLY, REPLACEMENT, INSTALLATION, TRACKING, DRILLING,
CURBING, ALIGNMENT, TESTING AND COMMISSIONING OF TRANSPORTER MAIN BELT
FOR HORIZONTAL BELT FILTER REQUIRED FOR EXISTING PLANT OF URANIUM
CORPORATION OF INDIA (UCIL) AT TUMMALAPALLE, ANDHRA PRADESH**

PRE-BID CLARIFICATION

It shall be the responsibility of the bidder to ensure that the tender has been submitted in the required format and as per the requirements and terms & conditions of the tender document and no change should be made therein. In the event of any doubt regarding the terms & conditions/ formats, the person(s) concerned may seek clarification in this regard from UCIL before submission of the tender. Such clarifications should be necessarily obtained at least 5 days before the due date/extended due date for submission of the tender. Bidder shall, thereafter, submit their offer strictly as per terms and conditions of Tender document. Delay in obtaining clarification shall not entitle the bidder to seek extension in the due date for submission of the tender.

UCIL shall not be obliged to respond to any queries which it receives after the deadline stipulated in tender. Any modification of the Tender Document, which may become necessary as a result of Pre-bid clarification/query, shall be made exclusively through issue of an Addendum/Corrigendum. The Addendum/Corrigendum, if any, will be uploaded on GeM tender portal/UCIL's website and it shall become part of the Contract Document. However, in case any query remains un-replied, it shall be construed that in respect of those queries, the respective stipulation of the tender document shall continue to apply and/ or no new stipulations made w.r.t. those queries.

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ANNEXURE-B**I) TECHNICAL SPECIFICATIONS, SCOPE OF WORK**

DESCRIPTION OF WORK: Design, Supply, replacement, installation, tracking, drilling, curbing, alignment, testing and commissioning of main drainage belt along with new Wear belts and Seal Strips set for Alkali leach belt filter complete in all respects as per specifications attached.

Sl.no	Material description	UOM	Quantity	Remarks
1	Transporter belt/drainage belt	Number	02	
2	Seal strips – UHMWPE	Set	02	
3	Wear belt endless	Set	02	
4	Ripple curb	Meters	280	
5	Required adhesives, consumables, tools, hardware's, fasteners	Lot	01	As per work requirement

A. SITE INSPECTION:

1. The Bidder shall visit the site for factual assessment of the area earmarked for the installation / replacement of drainage belt for horizontal belt filter before submission of the offer so that space constraint, existing restrictions, obstructions, limitations and site working conditions etc. can be understood before submission of offer. They should make themselves fully conversant with the conditions of tendering, general conditions and Special conditions etc.
2. The Bidder is advised to check the design, dimensions & specifications of drainage belt at site before submission of their offer.

B. SUPPLY:

1. The drainage belt is the most important component of every filtration plant. Every single belt is designed and tailored to meet all the requirements related to the plant process data. So supplied Drainage belt shall be identical to existing one suitable for Horizontal belt Filter capacity: 110 sq.mtr
2. Endless, drainage belt to be procured from M/s Dongil rubber belt co.ltd – South Korea/BELT TS – ITALY/ CONTITEC - GERMANY. The transporter belt shall have a minimum thickness of 33mm and shall be made of SBR with hardness of 60±5 Shore A & shall have polyester carcass. The main transporter belt shall have facility to reduce friction while moving on the Air boxes, Natural rubber lined belt support rollers / supports etc. Supply of two numbers (02 nos.) endless drainage belts identical to existing for Horizontal belt filter (HBF) system – for Leach slurry filtration, each having filtration area of 110 m² having specifications as below:

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Transporter belt/drainage belt

Sl.no	Particulars	Details
1	Belt grade	SBR
2	Width of belt	4200 +/- 5mm after trimming
3	Length of the belt	64830mm
4	Hardness	65 +/- 5 shore "A"
5	Carcass	4 polyester ply, type E200
6	Finish	Cloth impression on top of the belt, Bottom should be smooth
7	Impression free zone	100mm on both edges
8	Thickness of the belt	33mm
9	Top cover	18mm
10	Bottom cover	8mm
11	Grooving details	
A	Groove width	18mm
B	Rib width	9mm
C	Groove pitch	25mm
D	Groove depth at edge	13mm
E	Groove depth at centre	13mm
F	Groove length	4000mm
12	Splicing	Factory spliced

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- The drainage belt is most critical part of the filter. It shall be designed to carry the filter cloth, slurry and filter cake. It distributes the vacuum from the vacuum box in to the filtration area and transport the filtrate into the vacuum box.
- The drainage belt shall be grooved to provide maximum flow through the grooves with uniform vacuum distribution to form a uniform cake. The grooves are cut on automatic grooving equipment.
- For excellent shear strength in the carcass for all loads, the drainage belt shall be factory spliced. After installation, the belt will be tensioned, run and stabilized over the vacuum pan. The belt is then trimmed on the edges to stringent requirements for belt straightness.
- The belt edge flanges shall uniformly support the cloth edges, form a good vacuum seal and shall provide excellent flex life. The flanges will deform as they travel around the pulleys, to seek a state of lowest stress.
- The ends of each groove will be hand finished to a point 12mm (0.5") from the base of each flange. This is to provide uniform drainage in the belt and eliminate the possibility of any wet edges on the filter cake.
- The drainage holes are drilled in the centre of the belt through every other drainage "ridge" so as to maintain maximum strength of the belt through its centre. Each hole therefore drains two belt grooves. The edges of the holes are chamfered to maximize filtrate removal.
- Before submission of offer, bidders are requested to check above details physically at our site and to supply belt, other accessories as per the existing design and construction only. Any other data, if required, may be noted / communicated.

Sealstrips-UHMWPESupply of Sealstrip complete set for 110² filtration area Horizontal belt filters.**Each set Consists of Tail end sealstrip-01 no's Head end sealstrip-01 no's Flat sealstrip-18 no's**MOC: **UHMWPE**

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Wear belt endless

Wear belt technical specifications			
Duty To work as vacuum seal belt for horizontal belt filter under 600mm Hg vacuum. Top surface will be sealing surface and bottom surface will slide on UHMWPE slide blocks. Plain water will be lubricant. For Horizontal belt filter size 4.2mtr x 110 m ²			
Description	Specifications	Tolerance	Unit
Fabric tension Layer	Polyester, 3 ply		
Top layer	PVC Cover		
Bottom side	Fabric- Low friction		
Hardness Top side	55-60		Shore A
Force at 1% Elongation	45 da		N/cm
Belt thickness	6	± 0.5	mm
Belt width	50	± 2	mm
Belt Length	56850	± 25	mm
Joint type	Endless (closed end) - Hot spliced		
Thickness of top cover	0.5	+ 0 / 0.2	mm
Temperature range	Ambient Max 45 deg. C		deg 'C'
Bending Radius	Minimum normal flexing dia 250 mm back fixing dia 350 mm		

Belt Curbs (Ripple Type):

1. This is a Natural rubber molded section, which is bonded onto the outer edges of the transporter belt. These curbs have a hardness of 50 Shore A. The curb height is set at 125 mm, which is sufficient to allow adequate slurry depth while prevent liquid spillage in the feed zone and washing zones.

The curbs are angled so as to assist in accurately locating the cloth.

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Required adhesives, consumables, tools, hardware's, fasteners

1. Supply of other consumables like silicon sealant, packing strips, packing rubber, adhesives for joining of belt to curb etc.
2. Supply of required tools-tackles on returnable basis as per work requirement.
3. HBF supporting structures shall be cleaned properly and paintings shall be done to the complete unit. Scope of Paints is in the scope of Bidder only.
4. Any other related work in replacement of transporter belt including tools and consumables were in scope of bidder only.

SCHEDULE OF MAKES

Sl.No	Item	Make
1.	Drainage belt	M/s Dongil rubber belt co. Ltd – South Korea/BELTTS – ITALY/ CONTITEC – GERMANY
2.	Belt Curbs	-do-
4.	Wear belt	Indigenous
5.	SS-316 fasteners	APL/TVS/Unbrako
6.	Silicon sealant	Pidilite/Equivalent
7.	SS-316 packing strips	Indigenous, Party shall ensure confirmation of MOC

Scope of work

1. Dismantling of existing fume hood, mountings and accessories of existing transporter belt.
2. Removal of transporter belt by cutting into small pieces and transport them to near scrap yard about 2 km radius maximum.
3. Cleaning of belt filter structures and repainting.
4. Installation of transporter belt along with accessories, tracking, drilling, commissioning.

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C. SUPERVISION, INSTALLATION & COMMISSIONING OF THE DRAINAGE BELT

1. The drainage belt covered under this offer shall come in safe for shipment condition from source suppliers, since damage, misalignment or losses may occur in transit, a thorough and careful inspection & packing is recommended.
2. Safely unloading and handling of material at site / from store to erection site shall be in bidder's scope.
3. The party should have pool of experienced engineers, supervisors and technicians. Persons deputed at site should be capable to take-up the job assigned to them without need of any sort of training. This job shall have to be done by engaging experienced skilled manpower and required tools & tackles within mutually agreed time period.
4. The drainage belt along with other items after receipt and acceptance shall be erected and commissioned as per the agreed schedule, by your team (skilled/ unskilled labor) including tools and tackles under guidance and supervision of your service / erection engineers upon written information from us.
5. Drainage belt is to be replaced on the existing concrete floor in the Chemical House building at Tummalapalle Mill in such a way as not to affect the normal operation of the running plant.
6. The existing equipments in Chemical House should be kept running during entire installation / replacement period and area of execution will be made available on piecemeal basis broadly based on schedule to be prepared by contractor and approved by engineer – in – charge before commencement of work.
7. The diversion of instrumentation / electrical cables, pipe lines, removal and shifting of structural support / platform, launders etc. if found necessary, for the progress / completion of work will have to be covered under the scope of the work. After completion of work diverted items to be reinstalled in their original position.
8. Fabrication and installation of the mechanical structure, platform, beam etc. for handling & replacement of drainage belt. Required structural steel may be used from site as per availability.
9. Liaisoning with government authority for installation / supervision visit of representatives of M/s Dongil rubber belt co. ltd – South Korea / BELT TS – ITALY / CONTITEC – GERMANY shall under be in the scope of bidder only. UCIL will only forward the documents for approval of competent authority for issue of gate pass after fulfillment of statutory requirement. (if required)

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Tummalapalle Uranium Project

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10. Replacement of drainage belt includes
 - a) Dismantling of the old drainage belt & disposal to assigned place within 500 meters of UCIL premises.
 - b) Onsite installation of the new one endless drainage belt
 - c) Alignment of fair deck assembly & vacuum pan
 - d) Installation of new slide blocks and wear belt
 - e) Centering and tracking of drainage belt is in the scope of Bidder. If required they may depute assistance of M/s Dongil rubber belt co.ltd-South Korea/BELTTS-ITALY/CONTITEC - GERMANY
 - f) Lateral sides trimming is in the scope of Bidder. . If required they may depute assistance of M/s Dongil rubber belt co.ltd - South Korea/BELT TS - ITALY/CONTITEC - GERMANY (if required)
 - g) Application of lateral curbs by cold bonding by means of specific cements or by hot/cold vulcanization is in the scope of Bidder. If required they may depute assistance with the supervision of representative of M/s Dongil rubber belt co.ltd - South Korea/BELT TS - ITALY/ CONTITEC - GERMANY.
 - h) Drilling holes on drainage belt is in the scope of Bidder. If required they may depute assistance of representative of M/s Dongil rubber belt co.ltd-South Korea/BELTTS - ITALY/ CONTITEC - GERMANY if required.
 - i) Final tracking and belt stabilization is in the scope of Bidder only. If required they may depute assistance of M/s Dongil rubber belt co.ltd-South Korea/BELTTS-ITALY/CONTITEC - GERMANY if required.
 - j) Belt performance test and handing over by the Bidder.
11. Commissioning of the complete filtration system comprises successful continuous uninterrupted run of HBF with all accessories, electrical, instrumentation etc. for 7 days at desired performance as per NIT
12. Work completion period: Replacement work of each drainage belt to be completed in all respects within four (03) months from the date of giving shutdown of horizontal belt filter. Only one belt filter will be handed over for replacement work at a time. The next belt filter will be handed over only after completion of work of previous belt filter in all respect.
13. Removal of all scraps separately to designated area within 500mtr range as directed by the Engineer-in-charge.
14. Any other changes will be as per Minutes of Meetings & subsequent correspondences.
15. Any other items or work not specifically mentioned above but required for the replacement of drainage belt will have to be arranged by bidder with no extra payment

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D. HANDOVER FOR REPLACEMENT

Bidder shall take safety work permit from concerned section in-charge, safety department & electrical section to ensure isolation of control panel before start of replacement activity of drainage belt. UCIL will remove/dismantle & reassemble the following components before and after completion of work, if required:

- Feed distribution & overflow pipeline from feed flocculator
- HBF cake discharge repulper assembly and spray water lines
- Filter media
- HBF drive planetary gearbox and motor
- Limit switches & instruments
- Power supply in comer terminal to local equipments & earthlings

After removal of above items complete extractor unit with drainage belt will be handed over to the party for replacement of drainage belt as per standard procedure and guidelines by belt manufacture.

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E. EXCLUSIONS

The following articles and work do not form a part of the tender

1. Supply of HBF accessories like feed flocculator cum Distributor, Wash Distributor, Flap Dams, Vacuum Pipeline, Vacuum Box, Belt/repulper drive Reducer/Gear Box, Drainage Belt Support rollers, guide rollers, Side Gutters, Cloth Tracking arrangement, gravity take up roller, Limit switches, Drive & Tail pulley, Bearings, Safety Trip Switches, Drip pan, Cake discharge repulper unit, Filter Basin, Ventilation System etc.
2. Any kind of civil work in extractor area for replacement of drainage belt.
3. Raw water, Alkali leach feed water and lubricating oil.
4. Utilities (water, power, air, gas, etc.) and filter media required for commissioning of belt filter.
5. Feed slurry and water for the belt filter operation after startup.
6. Spares for maintenance of belt filter

F. TEST REPORT/DOCUMENTATION (3 set each):

Bidders shall submit the following documents

- Drainage belt and curb purchase certificate from manufacturer.
- Custom clearance and bill of entry for imported items.
- Pre-dispatch internal inspection/test reports of bought out items
- Drainage belt drawings showing overall length, width, thickness, cross sectional & carcass details, grooving and hole drilling pattern, curbing details, detailed specifications and MOC of belt etc.
- Drainage belt replacement standard procedure and guidelines by belt manufacture.

G. Facilities to be provided by UCIL:

- Utilities like power, water, compressed air etc. shall be provided by UCIL at free of cost
- EOT crane of 15 MT capacities are available on belt filter floor at feed end and discharge end of belt filter. It may be spared if any maintenance work is not going on in any other filters / subjected to availability.
- Handling equipment like Forklift, Crane may be provided subject to availability.
- Consumables like cutting gas cylinders, welding machine may be provided at site for a mutually agreed time period subject to availability

Guest House accommodation is not available at our site. Lodging/boarding for erection team to be arranged by bidder

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TECHNICAL SPECIFICATIONS OF HORIZONTAL BELT FILTER FOR WHICH DRAINAGE BELT IS REQUIRED

The drainage belt for HBF shall be designed for the following conditions:

		Leach Slurry HBF
a	Feed TPH of dry solid	21.37
b	Feed slurry consistency	50-63% solid (w/w)
c	Specific Gravity of solid	2.8
d	Specific Gravity of liquid	1.08
e	Temp. of feed slurry	70–80 ⁰ C
f	Sized distribution of solid in slurry	1% +48 mesh
		60% –200+325 mesh
		rest –48 and +200 mesh
g	Cake wash water	8 m ³ /hr
h	Cloth wash water	14 m ³ /hr
i	Belt wash water	7 m ³ /hr
j	Vacuum Box Seal	5 m ³ /hr
k	Belt lubrication water	nil
l	Support Deck air flow rate	8500 m ³ /hr
m	Cake moisture	16-18%
n	pH of slurry	8.5-10
o	Moisture content of discharge cake	16% (w/w)
p	Clarity of filtrate/washings	<1000 ppm solid
q	Belt width	4.2m
r	Soluble uranium loss in discharge cake of HBF	<2% (w/w) of total U ₃ O ₈ Present in the feed slurry to HBF.
s	Total volume of filtrate and washing generated	<1.0 m ³ per ton of dry solid filtered (inclusive of mother liquor)
t	Stages of washing	One with fresh and three with countercurrent washing by recycle.
u	Temperature of vapour entering vacuum pump	50 ⁰ C
v	Filtration area	110 Sq. mtr. Sq. mtr. Sq. mtr. Sq. mtr.
w	Vacuum pan length	30 meter
x	Duty	continuous
y	Air deck/vacuum pan MOC	SS-316
z	Operational vacuum	430-550 mm of Hg
aa	Capacity of vacuum pump	11000 m ³ /hr @ 550 mm of Hg

Type: Polyester mono
 multi fabric
 Thickness: 920
 micron (approx.)

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Air permeability: $1400 \pm 10\%$ (litres/m².sec@2mb)

Flocculent used: Synthetic Polyacrylamide (anionic grade)

H. TYPE AND QUALITY OF MATERIAL

The Supplier shall be deemed to have carefully examined and to have knowledge of the conditions, specifications, schedules, etc. forming part of the order. Any information thus had or otherwise obtained from UCIL shall not in any way relieve the Supplier from his responsibility for executing the supplies in terms of the order.

I. INSPECTION AND TEST

Manufacturer's material test certificate, where ever applicable, should be furnished along with each consignment.

J. TRANSIT INSURANCE

Transit Insurance policy shall be arranged by the Supplier to cover the risk against transit loss/ damage.

K. PACKING AND PROTECTIVE PAINTING

The Supplier shall include and provide for securely protecting and packing the material in accordance with the best practices so as to protect the supplies during transit till arrival at site under conditions, which may involve multiple handling, reshipment, storage, exposure to heat, moisture, rain, etc., and possibility of pilferage. The packing shall be as specified in the technical specification.

The Supplier shall be independently responsible for any loss, damage or depreciation to the supplies during transit as well as on account of faulty and insecure packing. Any damages so occurred to supplies shall be replenished by Supplier to site free of cost.

L. MARKING

Wherever applicable, all packages shall be clearly and properly marked in ENGLISH language with indelible paint by stenciling. All previous irrelevant marking shall be carefully obliterated. The Supplier shall ensure that the following are clearly stenciled with good quality non-fading paint on the packages (depending upon size of the packages).

- Name and Address of the Consignee
- Name of the Supplier
- Contract/P.O.No.
- Description
- Quantity
- Gross and Net Weights
- Transit Insurance Policy No. of the Supplier

Wherever necessary the packages shall be marked with special marking 'TOP', 'BOTTOM', 'DO NOT OVERTURN', 'FRAGILE', 'HANDLE WITH CARE', 'KEEP DRY', etc., as well as special symbol indicating the top. The position of centre of gravity shall be marked with vertical red line.