यूरेनियम कॉरपोरेशन ऑफ इंडिया लि.
(भारत सरकार का संस्थान)

URANIUM CORPORATION OF INDIA LTD
(A Govt. of India Enterprise)

An ISO 9001 : 2008, ISO 14001 : 2004, IS 18001 : 2007 Company

From,
GM (Mines)
UCIL Jaduguda

To,
Divisional Forest Officer
Dhalbhum (Jharkhand)

Dated : 25/04/2015

Dear Sir,

Subject : UCIL proposal in form B No FP/JH/MIN/10632/2015 for diversion of 134.42 hectares of forest land in Ichra, Bhatin, Mechua (Jaduguda) Mining Lease under Section-2 of the proposals by the State Governments and other authorities in respect of renewal of leases, which have been earlier, granted clearance under Forest (Conservation) Act, 1980.

With reference to letter no. 1184 dated 16.04.2015 regarding above subject our compliance is attached I hope that this will suffice the requirement. We humbly request you to upload the part –II of the form B at the earliest so that the application could be processed further.

With regards,

For Uranium Corporation of India Limited

S.C.Bhowmik
GM (Mines) UCIL Jaduguda

जादुगोड़ा माइन्स, सिंहभूम (पूर्व), झारखण्ड – 832102 JADUGUDA MINES, Singhbhum (East), Jharkhand - 832102

Phone : 0657-2730122/222/353, Fax : 0657-2730322
E-mail : uranium@ucil.gov.in , Website : www.ucil.gov.in

1. **Regarding quantity of forest land**

UCIL had obtained Mining Lease over an area of 531.21 hectares of land in mouza Ichra, Mechua, Bhatin and Tilaitand for a period of 20 years from 16.10.1967 which included 134.424 hectare of forest land. Subsequently UCIL applied for renewal of mining lease on 04.12.1986 for first renewal and on 01.09.2006 for second renewal. Jaduguda mine was in operation under the deemed lessee provision after 16.10.1987. The mine was stopped from 07.09.2014 as per instruction received from District Mining officer to stop the production activities of the mine. Presently the first and second renewal has been obtained on 07.10.2014. The second renewal is valid till 08.10.2034.

UCIL had obtained approval for diversion of 154.464 hectares forest land on 20.04.1998 with no time limit of its validity. The area included in the approval consisted of 134.424 hectares of forest land within mining lease and 20.04 hectares of land outside the lease to be used for non mining activity. The validity of diversion of 134.424 hectare of forest land in the lease hold area has been terminated due to the provision of coterminous. As per clarification F.No 2-1/2003-FC (Pt.III) Dated 05.09.2005. For starting mining activity in the lease hold area (mouza Ichra, Mechua, Bhatin and Tilaitand) UCIL has to apply for diversion of forest land again. The forest land taken for non mining activity (20.04 hectares) has not been included in the application as it is outside the mining lease.

The letter no. 577 dated 06.08.2013 refers to guidelines issued by ministry of Environment and forest Govt. of India dated 01.02.2013. which states that the forest area approved under the FC Act should not be lesser than the total forest area included in the Mining lease approved under the Mines and Minerals(Development and Regulation) Act,1957(MMDR Act). Both necessarily have to be the same.

20.04 hectares of forest land is outside the mining lease area and is in no way associated with mining activity and is not approved under the MMDR act 1957. This land is being used for disposal of waste generated by ore processing plant and not the mines. The details of 20.04 (15.70+4.34) hectares land are as under.

a) 15.70 hectares of forest land used for second stage tailing pond for which penal compensatory for 31.40 hectares has been deposited.

b) 4.34 hectares of forest land is for third stage tailings pond (waste disposal area of ore processing plant).

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2. **Cost benefit analysis of the project**

Uranium Corporation of India Limited (UCIL), a Government of India undertaking under the Department of Atomic Energy (DAE) has the sole responsibility of mining and processing of the uranium ore in India.

The data related to production and reserve of uranium is **classified information** under section 18 of atomic energy act, 1962 and rule 11 of atomic energy rules 1984 (working of the mines, minerals and handling of prescribed substances) . However the unclassified data has been furnished as per the proforma.

Parameters for evaluation of benefit not withstanding loss of forest.

Sl.no	Parameters	Benefit per annum
1	Increase in Productivity attributable to the specific project Uranium ore	Data is classified as per atomic energy act
2	Benefit to economy from uranium mining-.	Data is classified as per atomic energy act
3	No of population benefited	More than 5000 including indirectly benefited
4	Employment potential	1036
5	Cost of acquisition of facilities on non forest land wherever feasible	Nil
6	Loss of (a) agriculture (b) animal husbandry production due to diversion of forest land	Nil
7	Cost of rehabilating the displaced person as different from amount from compensation amounts given for displacement	Nil
8	Cost of supply of free fuel wood to workers residing in or near forest area during the period and construction	Operations in the mining lease have been started in 1967. Alternative fuel like LPG is being supplied though Co-operative stores.UCIL has provided subsidized electricity to its employees

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3. **Purpose wise breakup.**

Total area

Component	Forest land for underground use (Ha)	Forest land for surface use(Ha)	Village
Sewage Treatment plant		1.773	Ichra
Waste disposal area		17.06	Bhatin and Mechua
Surface mining facilities		14.91	Ichra, Bhatin and Mechua
Underground Mining activities	100.681		Ichra, Bhatin and Mechua
TOTAL	**100.681**	**33.743**	

Village wise land schedule

S. No	Mouza	Plot No. as per Settlement		Forest land		Total Forest land		Class of Forest
		1934-35	1960-61	Hectares	Acres	Hectares	Acres	
1	Ichra	1163	1352	2.914	7.2	45.12	111.49	PF
			1353	1.813	4.48			PF
		1158(P)	RF(P)	38.62	95.43			RF
		1049(P)	1122	1.773	4.38			PF
2	Mechua	1057	1138	16.548	40.89	34.776	85.93	PF
		1115	1176	7.123	17.6			PF
		1119(P)	1243(P)	11.105	27.44			PF
3	Bhatin	1390(P)	RF(P)	53.824	133	54.528	134.74	RF
		1373(P)	1713(P)	0.704	1.74			PF
			Total	134.424	332.16	134.424	332.16	

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4. **Reclamation plan**

Signed copy of the reclamation plan is attached.

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5. **Mining plan**

Mining plan cannot be provided due to the following reasons.

Uranium Corporation of India Limited (UCIL), a Government of India undertaking under the Department of Atomic Energy (DAE) has the sole responsibility of mining and processing of the uranium ore in India.

The data which represents or illustrate the mining, milling, processing etc is **classified information** under section 18 of atomic energy act, 1962 and rule 11 of atomic energy rules 1984 (working of the mines, minerals and handling of prescribed substances) .

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6. **Georeferenced and shape file**

Hard copy of the georeferenced map has been attached along with our proposal and the soft copy of the georeferenced map (in pdf format) and shape file (in kml format) has been uploaded along with the form B.

However a CD containing the georeferenced map and shape file is being attached.

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7. **Undertaking**

UCIL agrees to comply with any condition(s) that state government/ Central government may impose from time to time with regard to payment of Compensatory afforestation, NPV etc or any other circulars, guidelines etc under forest conservation act 1980.

GM(Mines)
UCIL Jaduguda

Reclamation plan of Jaduguda mines

The reclamation & closure plan spreads over the entire life of mine. Practice of Horizontal Cut & Fill method of mining minimizes the subsidence. Broadly, the closure & reclamation plan for Jaduguda mine is envisaged as follows:

Horizontal Cut and Fill (HCF) method of underground mining is being carried out since the inception of the mine, where the deposit is accessed by vertical shaft. As concentration of work is mainly below ground, insignificant land is degraded due to mining operation. Moreover, stowing is being carried out for filling the underground voids concurrent to the mining. At the end of closure of the mine, all access leading to underground workings will be sealed to ensure maximum security. The schematic diagram & methodology adopted for sealing of decline is as follows:

Sealing of Shaft:

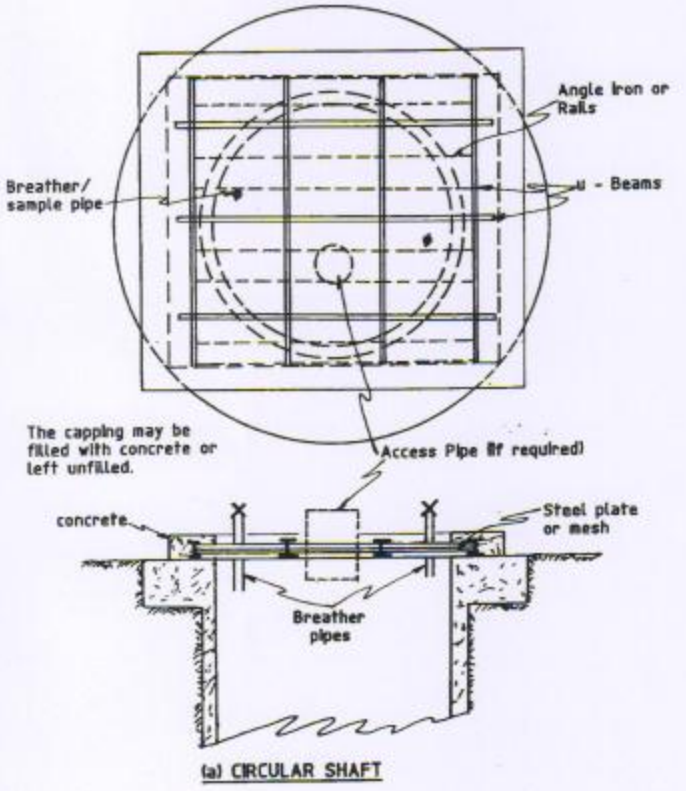
The selection of closure and sealing method of shaft will depend on site-specific conditions. Possible measures include:

1.Enclosure with safety fence or wall: A sufficient area needs to be enclosed to allow for subsidence. The fence should be extended along the line of the excavation until rock cover is sufficient to ensure protection. The fence should be properly maintained while shaft remains unsafe. But this is temporary arrangement and on permanent sealing, regular supervision is not required.

2. Surface Covers and Caps: These can be used to help prevent accidental access, illegal dumping and injury to animals or persons, usually in conjunction with enclosures, but they will not protect against subsidence nor support heavy loads. When covering or capping, concrete and/or steel plates, or other similar treatment should be used to raise the cover above ground level to avoid accidental loading. Covers should be sufficiently large

to prevent burrowing around the edges. Accordingly, it is preferred that caps (for shafts) be made of reinforced concrete supported around the periphery of the shaft by solid bedrock for at least one metre.

The schematic diagram showing the sealing/capping of shaft is given below:



(a) CIRCULAR SHAFT

Waste Management

Jaduguda is an old underground mines, the solid waste generation is insignificant (< 1.4 % of ore production). Total waste generated during mining is used to fill the void in underground workings. Practically no solid waste is generated from the mining operation.

Top Soil Management

As underground mining is being carried out at Jaduguda, the generation of topsoil is very negligible. No management plan has been envisaged for this purpose.

Infrastructure

A closure plan for the industrial area and the associated infrastructure including the ROM stockpile area, workshop, administrative area and other miscellaneous facilities is described below in table 1

Table 1

Decommissioning & Closure of Facilities and Proposed Actions

Task	Decommissioning & Closure of facilities	Actions to be taken
A	Magazine for explosives	All explosives, detonators & other blasting accessories will be removed after closing of mine and building would be dozed down to make level.

Task	Decommissioning & Closure of facilities	Actions to be taken
B	Industrial Area Infrastructure # Workshop # Sub-station # Fueling Station	Mine work shop will be maintained in a good condition & will be used for training purpose. Sub-station will be left for UCIL use as the process plant at Jaduguda will continue to run inspite of closure of Jaduguda mine, as ore from Narwapahar, Bhatin, Bagjata etc. will continue to feed the plant. Fuelling pumps will remain to serve the equipments of plant.
C	Office and Infrastructure • Mine Office • VTC • First aid, fire office • Canteen • Water Pipelines • Electrical lines • Connecting roads	Mine administrative office, VTC, canteen, first aid & fire centre will remain as it. These will be converted to UCIL main training place for mining, mechanical, electrical personnel. Water pipe lines/electrical lines in underground will be withdrawn. Connecting roads will be maintained in a good condition.
D	Tailing Pond	All tailing ponds will be decommissioned and reclaimed as per necessary guideline, on closure of the mine. Moreover, once, tailing pond attains its maximum capacity, reclamation activity starts in conjunction of mining activity.

Disposal of Mining Machinery

On closure, the health of the underground mining machinery will have to be judged and if it will be found in good running condition, they will be transferred to the other projects. Otherwise the machinery will be declared scrape and will be disposed off.

Safety & Security

Such a method of mining is being followed that the mine can be filled with the waste rock, generated during mining or process plant tailings concurrent to the extraction of the mineral. Thus there should not be any damage on account of subsidence on the surface due to extraction of ore. Moreover, all the openings like adits, shaft, ventilation shafts, bore holes etc. will be sealed on closure of the mine. Thus no safety measurement after mine closure has been envisaged.

Disaster management & risk assessment

Identification of hazards

There are various factors, which can create disaster in underground metalliferrous mining industry. These hazards are as follows:

(a) Subsidence

(b) Inundation

(c) Surface Fire (Electrical and Oil).

(d) Roof fall

Apart from above, there is one more concern area in case of uranium mining, which is

(e) Radiological hazards

Experience of operating establishments of UCIL has revealed that most of

the accident occurs due to the human failure. However, the disaster management plan has been considered for the prevailing conditions.

(a) Subsidence

Subsidence is an important aspect of underground mining activity. As the mining is carried out at greater depth and stowing is done in the void created by mining, so no surface subsidence is anticipated. Moreover, rock mass of Jaduguda mine is also quite competent.

(b) Inundation

An inundation is an irruption of water from workings of the same mine or of an adjoining mine or from surface water bodies. As such, there is no major surface water bodies/river except one seasonal nala (Jhuria). No cracks reaches on the surface due to underground working therefore leakages from surface is not anticipated. Moreover all the openings were kept above the highest flood level of the area to prevent inundation from flooding.

(c) Fire

In uranium underground mines fire can occur due to electrical faults. Regular maintenance of all the electrical fitting and wiring is carried out to prevent out break of fire. All the electrical safety norms of DGMS are strictly followed. Spillage of waste oil and fuel oil may result in fire. Sufficient nos. of portable fire extinguishers has been provided at strategic locations near the fuel store, waste oil storage area, fuel-filling area and DG sets to take care of any eventuality.

There are risks of fire at the electrical substation and transformers. Dry and foam type portable fire extinguishers are available at the electrical substation and control room. In case of any electrical fire, the personnel on duty shall shut down the electrical fire and inform the shift-in-charge. Personnel trained in dealing with electrical fires will be summoned. The fire

area will be cordoned off till the fire is fully extinguished and remain so until all wreckage and debris is cleared away. After effecting necessary repairs the power will be restored. The clearance for restoration of power shall be given only by the shift-in-charge.

As soon as any fire is reported, the shift-in-charge shall assume the function of disaster controller. In case of serious fire and depending on the gravity of the situation, the Mines Manager may be summoned to assume charge. Personnel trained in dealing with fires will be summoned. Meanwhile the hospital will be informed to standby to handle casualties. The fire area will be cordoned off till the fire is fully extinguished and remain so until all wreckage and debris is cleared away.

(d) Roof fall

The roof fall can also damage the man and material. To prevent the damage from roof fall, a systematic support rule is followed. After preparation systematic support system for stope, gallery and drift approval is obtained from DGMS before implementation.

Economic Repercussion of Closure of Mine & Manpower retrenchment

Local employment

The mine has already employed the nos. of executives, skilled and unskilled manpower. The categories wise nos. is placed in table 2.

Table 2

Existing manpower

Category	Manpower
Executive	21
Supervision	28
Workers	917
Total	**966**

The project is having two types of employment generation potential, which are as follows:

Direct employment

Agriculture, business, and service were major source of income in the study area before inception of the mine. The unemployment was quite common in the study area. The project had generated lot of employment to the local persons by direct recruitment by the company. The company also conducts a no. of vocational training for the surrounding villagers to boost the self employment in the area.

Indirect employment

Regarding employment and income, the indirect effects was likely to be much stronger and widespread due to its multiplier effect. Increase of population in the study area as a result of the project had led to higher demand for food. As a consequence, price of food was increased. The project brought infrastructural development in the study area, which multiplied in employment generation significantly.

The mine closure will not leave people jobless as the persons who will not attain the superannuation at the time of closure, they will be retained by the UCIL and re-deployed at different working mines or any upcoming projects as per their skills & area of work. Some of them can also be engaged in the reclamation & closure activities. Moreover, some of the skilled workers can also be absorbed in the process plant depending on the vacancy.

Compensation

As discussed above the UCIL doesn't have any plan for retrenchment of local workforce, the provision of compensation can not be envisaged at this stage. If in near future, any such situation arrives, it will be taken care of at that point of time.

Satellite occupation

The mine has generated substantial satellite occupation to the locals in the form of small contractual jobs. As UCIL is also operating other mines in the nearby area, the local contractors will be given suitable jobs related to these mines. Besides they can be deployed for mine closure activities as per their competencies. Thus closure of the mine will not affect the local contractors.

Engagement in rehabilitation work

As stated earlier the local contractors having competencies in the closure activities will be deployed for rehabilitation & closure work of the mine.

This can also generate short-term employment of local workers.

Envisaged repercussion on society

The local people will be engaged at mine through contractual jobs, directly,

indirectly employed with the company, they will retained and re-deployed in the UCIL's other mine or upcoming projects depending on their level of competencies. Thus the society will not be substantially affected with the closure of the mine.

Time schedule for abandonment

The schedule of operation for decommissioning is estimated in table 3 below:

Table 3

Schedule for Abandonment

Task	Operation	Duration in years
A	Withdrawing underground machinery, pipelines, cables etc. from mine	2
B	Shifting & disposing off equipment	1.0
C	Sealing of Shafts	1.5

*Note: 1 April 2009 is taken as base year i.e. start date for preparation of modified mine plan.

Abandonment cost

The abandonment cost at the time of mine closure has been broadly estimated and given in the table 4.

Table 4

Cost of decommissioning and abandonment

Task	Operation	Cost basis	Cost in Rs.
A	construction of garland drains		500,000
B	Sealing of 3 nos of adits		650,000
C	Shaft Capping & Sealing	Rs. 4,00,000 per shaft	400,000
D	Seal & rehabilitate ventilation fans.	Rs. 2,00,000 per ventilation adit	400,000
E	De-watering Bores pluggers	Rs. 25,000 per borehole	50,000
F	Demolish and remove conveyors & gantries	Rs. 1,500 per metre	450,000
G	Removal of underground pipe fitting, ducts, electrical lines etc.	Rs. 5,00 per metre	820,000
H	Removal of underground crushers, transformers, auxiliary fans, others fixed structures		1,000,000
I	Demolition high standing structure, buildings		500,000
J	Shifting of equipment		100,000
K	Contingency (10%)		487,000
Total			**5,357,000**

*This is a broad cost estimates, based on the 1st quarter 2009.

The total closure cost works out to be Rs. 53.57 Lakh.

Financial Assurance

Financial assurance is to be calculated as per Rule 23 F of amended MCDR 1988, which says that for "A" category mines, the amount of financial assurance shall be rupees twenty five thousand, per hectare of the mining lease area put to use for mining and allied activities.

S.C.Bhowmik
GM (Mines) UCIL Jaduguda