

**Adi Gold Mining Pvt. Ltd.**

Subsidiary of Pebble Creek Mining Ltd.  
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July 1 2009

**Re: Environmental Clearance, Askot Copper-Zinc-Lead-Silver-Gold Mining Project  
Didihat Tehsil, Pithoragarh District, Kumaon, Uttarakhand, India**

The following 10 pages are the final Environmental Clearance letter dated June 12, 2009, as received by Adi last week from the Ministry of Environment and Forests.

MoEF requires that this letter be posted on Adi's web site.

A further requirement is that the letter be summarised and published in newspapers in the project area, and that evidence of publication be provided to the Ministry. Adi did this last week. Two regional Hindi language papers were selected: Amar Ujala ("Eternal Light") and Dainik Jagaran ("Daily Awakening").

The letter contains the terms and conditions of Environmental Clearance. The list of terms and conditions given below appears formidable, however the various elements are consistent with good workmanship and comply with international standards. Continuous monitoring of conditions and periodic reporting of the same is also the norm. Adi is committed to operating a modern, clean mine that does not disturb its neighbours or surroundings.

Adi and its employees and consultants who worked long and hard over the years assembling data and designing the environmental protection program thank the Ministry and its Expert Appraisal Committee for the close attention given to the Askot Project at its hearings and in its review of the written submissions.

Any queries to Adi may be addressed to the President at the address given above or to the email address [info@pebcreek.com](mailto:info@pebcreek.com), with a copy to the Chairman at [singhai@pebcreek.com](mailto:singhai@pebcreek.com).

[http://www.pebcreek.com/env\\_clear.pdf](http://www.pebcreek.com/env_clear.pdf)

**No. J-11015/434/2008-IA.II(M)**

Government of India  
Ministry of Environment & Forests

Paryavaran Bhavan,  
C.G.O. Complex, Lodi Road,  
New Delhi-110 003.

Dated the 12<sup>th</sup> June, 2009

To

M/s Adi Gold Mining Pvt. Ltd.  
(A subsidiary of Pebble Creek Resources Ltd. Canada),  
D-4, Commercial Complex,  
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**Subject: Multi-Metal Mining Project of M/s Adi Gold Mining Pvt. Ltd. located in Village(s) Baira, Rasagadi, Barigaol, Dhaulakot, Bigoury, Dewal, Gadali, Hinkot & Toonikhola, Tehsil Didihat, District Pithoragarh, Uttarakhand - environmental clearance regarding.**

Sir,

This has reference to your letter No. 'Nil' dated 22.09.2008 and subsequent letters dated 06.02.2009, 11.02.2009, 03.04.2009 and 21.04.2009 on the subject mentioned above. The proposal is for opening of a new mine for production of 0.18 million tonnes per annum (million TPA) of multi metal and setting up of a beneficiation plant of 600tonnes per day(TPD) capacity within the mine lease area. The multi metal ore contains ores of copper, lead and zinc metals with associated gold, silver and others metals. The total mine lease area of the project is 386ha, out of which 55.5ha is an agricultural land, 275ha is forestland, 50.4ha is grazing land and 5.1ha is surface water bodies. Area proposed for excavation is 21.3ha, an area of 13.42ha is kept for over burden dump, 4.96ha for infrastructure, 2.66ha for roads, 6.96ha for green belt, 6.43ha for tailing pond, 7.4ha for township, 0.2ha for explosive magazine and 322.67ha is others (virgin area). The Kali River is flowing in the buffer zone of the mine at a distance of 2km from the mine lease boundary. In addition, a number of hill streams (nallahs) flow within the lease area. The Askot Nallah and the Gurma Gadh are two of the many seasonal drains forming drainage system of the lease area. Modification/ diversion in the existing natural drainage pattern has not been envisaged. The Askot Musk Deer Wildlife Sanctuary is reported to be located at a distance of 500m from the northern boundary of the mine lease. In support of this, a letter dated 09.02.2009 from the Additional Chief Wildlife Warden, Government of Uttarakhand along with an authenticated map has been provided. Six reserve forests namely Devchula RF (2.15km North West), Payan RF(2.25km North East), Sirtha RF(2.5km North West), Gandhura RF (4.7km North), Lori RF(7Kkm South West) and Majtham RF(7.75km North East) are located in the buffer zone of the mine. The mine working will be underground mechanized using cut and fill method and involving drilling and blasting. The targetted production capacity of the mine is

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1,80,000TPA (0.18 million TPA) and the life of mine is 20years. The ore taken out from the mine will be transported through the trucks to the mill. The concentrates will be dispatched by road to the nearest rail heads at Tanakpur and Kathgodam at a distance of about 200km and 280 km respectively from the project site. The beneficiation plant (Concentrator) is located within the mine lease. The ore will be subjected to crushing and screening and the valuable minerals will be separated from the gangue material. Froth flotation will be taken up for separation of copper, lead and zinc concentrates. The tailing slurry generated during the beneficiation process will be fed to hydro cyclone for separation of coarser particles. The coarser mill tailings will be transported through a 100mm dia pipeline from the hydro cyclone to the stopes. The slime portion will be sent directly to tailing pond through a pipeline. The tailing dam is proposed in the plain land available near village Bheliya, which is at a distance of 3km from the concentrator. The size of the tailing dam will be 130m x 125m. At the centre of the dam a dome will be constructed and 200mm dia pipe will be fixed at the dome for taking out decanted water from the tailing dam. The topography of the area is hilly at an elevation above mean sea level ranging from 675m to 1265m. The mine lease area falls in seismic zone IV. It has been reported that the ultimate working depth of mine will be 825m RL and the water table in the region follows the topography of the area and reported to vary between 600m RL to 800m RL. The peak water requirement for the project is estimated as 1720m<sup>3</sup> per day, which includes 1400m<sup>3</sup> per day for mill operations. The total mine discharge is expected to be around 900m<sup>3</sup> per day. About 500m<sup>3</sup> per day of fresh water for the project will be pumped from the nearby surface water body. Surface run off from the mine and office areas during rains will be channelised through drains to a sedimentation pond, which will be later released into surface nallahs. It has been reported that in the entire project area, there are 285 land oustees and 4 families to be displaced (homestead); the compensation package for the project affected families will be in accordance to the guidelines mentioned in the National R&R Policy, 2007. Approximately, 1400tonnes per month of top soil will be generated, which will be preserved for its use during reclamation. It is estimated that 1,40,240m<sup>3</sup> of OB/waste will be generated during the first five year of mining operations, out of which 56,092m<sup>3</sup> will be used for construction of roads, leveling of areas, colony etc. and remaining 84,138m<sup>3</sup> of waste will be stacked in the earmarked area. There will be one external dump having maximum projected height of 30m. In addition, it is estimated that 2,53,759m<sup>3</sup> of mineral rejects will be generated during the first five years, out of which 1,94,531m<sup>3</sup> will be used for backfilling purpose and 59,228m<sup>3</sup> will be discharged in the tailing pond. Green belt will be raised in an area of 6.96ha. The Consent to Establish from the Uttarakhand Environment Protection & Pollution Control Board was obtained on 05.05.2008 for production of 600TPD. The Public hearing of the project was held on 09.10.2006 for production of 600TPD involving mining lease area of 386ha and for beneficiation of ore. The Indian Bureau of Mines had approved the mining plan of the project on 02.09.2008 for lease area of 386ha. The capital cost of the project is Rs.13,680Lakhs and the capital cost for the environmental protection measures is proposed as Rs.205.2Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.16Lakhs.

2. The Ministry of Environment and Forests has examined the application in accordance with Section 12 of the EIA Notification, 2006 read with para 2.2.1(i) (a) of the Circular No.J-11013/41/2006-IA.II(I) dated 13.10.2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Multi-Metal Mining Project of M/s Adi Gold Mining Pvt. Ltd. for an annual production capacity of 1,80,000tonnes (0.18million tonnes) by underground mechanized method and setting up of a beneficiation plant of 600TPD capacity, involving mining lease area of 386ha, subject to implementation of the following conditions and environmental safeguards.

#### **A. Specific Conditions**

- (i) Prior clearance from the Standing Committee of National Board for Wildlife shall be obtained before commencement of work at site due to location of the mine lease within 500km from Askot Musk Deer Wildlife Sanctuary. The conditions/safeguards as stipulated by the Standing Committee of the National Board for Wildlife shall be implemented in the project.
- (ii) The project proponent shall obtain Consent to Establish and Consent to Operate from the Uttarakhand Environment Protection & Pollution Control Board and effectively implement all the conditions stipulated therein.
- (iii) Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.
- (iv) Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.
- (v) Environmental clearance is subject to grant of forestry clearance. Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 275ha forestland involved in the project shall be obtained before starting mining operation in that area. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance.
- (vi) Environmental clearance is subject to approval of the State Landuse Department, Government of Uttarakhand for diversion of agricultural land for non-agricultural use.
- (vii) The project proponent shall develop fodder plots in the non-mineralized area in lieu of use of grazing land.
- (viii) The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken for protection and conservation of the Askot Nallahand the Gurma Gadh and also while diverting the 1<sup>st</sup> order and 2<sup>nd</sup> order streams emanating from the mine lease during the course of mining operation.

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- (ix) The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.
- (x) The over burden generated during the mining operation shall be stacked at earmarked dump site only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. There shall be one external over burden dump having maximum projected height of 30m. Proper terracing of the OB dump shall be carried out so that the overall slope of the dump shall be maintained to 28°. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo-textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Lucknow on six monthly basis.
- (xi) Catch drains and siltation ponds of appropriate size shall be constructed around the mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Askot Nallah, the Gurma Gadh and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly.

Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Askot Nallah, the Gurma Gadh and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

- (xii) Regular monitoring of subsidence movement on the surface over working area and impact on water bodies/vegetation/structures/ surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
- (xiii) All the mine entries shall be above the highest flood level to avoid any anticipated flooding of mine from the surface water during the rainy season.
- (xiv) In areas where subsidence is anticipated in shallow mineral occurrence, such areas be identified and provided with garland drains to ensure draining of water and avoid ingress of the same in to the under ground mine.

- (xv) The project authorities shall check the possibility of existence of fault(s) before deciding about the thickness of safe barrier required to be maintained between the working face and the water bodies, if any, in consultation with the Director General Mines & Safety (DGMS). De-pillaring should also be carried out after taking prior approval of the DGMS.
- (xvi) The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.
- (xvii) The effluent from the ore beneficiation plant shall be treated to conform to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.
- (xviii) The decanted water from the tailing dam shall be re-circulated and there should be zero discharge from the tailing dam. Acid mine water, if any, shall be neutralized and reused within the plant.
- (xix) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM such as haul road, loading and unloading point and all transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xx) Green belt of 7.5m width shall be developed in the safety zone around the mining lease area. In addition plantation shall be raised in an area of 13.42ha around over burden dump, 2.66ha along roads, 6.43ha around tailing pond, around township, infrastructure etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 trees per ha.
- (xxi) Regular monitoring of water quality for surface water sources as well as ground water sources shall be carried out. The groundwater shall be monitored downstream of beneficiation plant as well as tailing dam upto groundwater table and surface water monitoring shall be carried out in the upstream and downstream of the nallahs flowing in and around the project site, Kali River, Askot Nallah and the Gurma Gadh and record of monitored data should be maintained and submitted on six monthly basis to the Ministry of Environment and Forests, its Regional Office, Lucknow, the Central Ground Water Authority, the Regional Director Central Ground Water Board, the Pollution Control Board and the State Pollution Control Board.
- (xxii) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xxiii) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and

constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year, pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office, Lucknow, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.

- (xxiv) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the project area shall be carried out and records maintained.
- (xxv) Groundwater and surface water in and around the mine shall be regularly monitored at strategic locations for heavy metals such as Ni, Co, Cu, Pb, Zn and Cd. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and State Pollution Control Board.
- (xxvi) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water, if any), required for the project.
- (xxvii) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.
- (xxviii) Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.
- (xxix) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.
- (xxx) The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 km from proposed mine.
- (xxxi) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.
- (xxxii) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation.
- (xxxiii) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

- (xxxiv) The critical parameters such as SPM, RSPM, NO<sub>x</sub> in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closure shall be monitored periodically. Further, quality of discharged water shall also be monitored (TDS, DO, PH and TSS). The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location in public domain. The circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry [www.envfor.nic.in](http://www.envfor.nic.in) shall also be referred in this regard for its compliance.
- (xxxv) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely leopard etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Pan so prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Lucknow.
- (xxxvi) Acid mine water, if any, has to be treated and disposed off after conforming to the standards prescribed by the competent authority.
- (xxxvii) Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to the Ministry of Environment and Forests and its Regional Office, Lucknow.
- (xxxviii) Land oustees and land losers/affected people shall be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of Project Affected Families (NPRR).
- (xxxix) A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

## **B. General conditions**

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (ii) No change in the calendar plan including excavation, quantum of mineral copper, lead, zinc ore and waste should be made.
- (iii) Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO<sub>2</sub> & NO<sub>x</sub> monitoring. Location of the stations should be decided based on the



meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

- (iv) Data on ambient air quality (RSPM, SPM, SO<sub>2</sub> & NO<sub>x</sub>) should be regularly submitted to the Ministry including its Regional office located at Lucknow and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (v) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- (vi) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.
- (vii) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
- (viii) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

- (ix) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- (x) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Lucknow.
- (xi) The project authorities should inform to the Regional Office located at Lucknow regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xii) The Regional Office of this Ministry located at Lucknow shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.
- (xiii) The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Lucknow, Central Pollution

Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests, Lucknow.

- (xiv) A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion/representation has been received while processing the proposal. The clearance letter shall also be put on the web site of the company.
- (xv) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.
- (xvi) The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Lucknow.

3. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

5. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made thereunder and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Uttarkhand and any other Court of Law relating to the subject matter.

6. Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.

  
12/6/19

**(SATISH C. GARKOTI)**  
**Additional Director (S)**

**Copy to:**

- (i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.

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- (ii) The Secretary, Department of Mines & Geology, Government of Uttarakhand, Secretariat, Dehradun.
- (iii) The Secretary, Department of Environment, Government of Uttarakhand, Secretariat, Dehradun.
- (iv) The Chief Wildlife Warden, Government of Uttarakhand, Secretariat, Dehradun.
- (v) The Chief Conservator of Forests, Central Region, Ministry of Environment and Forests, B-1/72, Sector-A, Aliganj, Lucknow-226020.
- (vi) The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office complex, East Arjun Nagar, New Delhi-1100032.
- (vii) The Member Secretary, Central Ground Water Authority, A-2, W3, Curzon Road Barracks, K.G. Marg, New Delhi-110001.
- (viii) The Chairman, Uttarakhand Environment Protection & Pollution Control Board, E-115, Nehru Colony, Hardwar Road, Dehradun, Uttarakhand.
- (ix) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (x) The District Collector, Pithopragarh District, Uttarakhand.
- (xi) EI Division, Ministry of Environment and Forests, Paryavaran Bhavan, C. G. O. Complex, Lodi Road, New Delhi-110 003.
- (xii) Monitoring File.
- (xiii) Guard File.
- (xiv) Record File.