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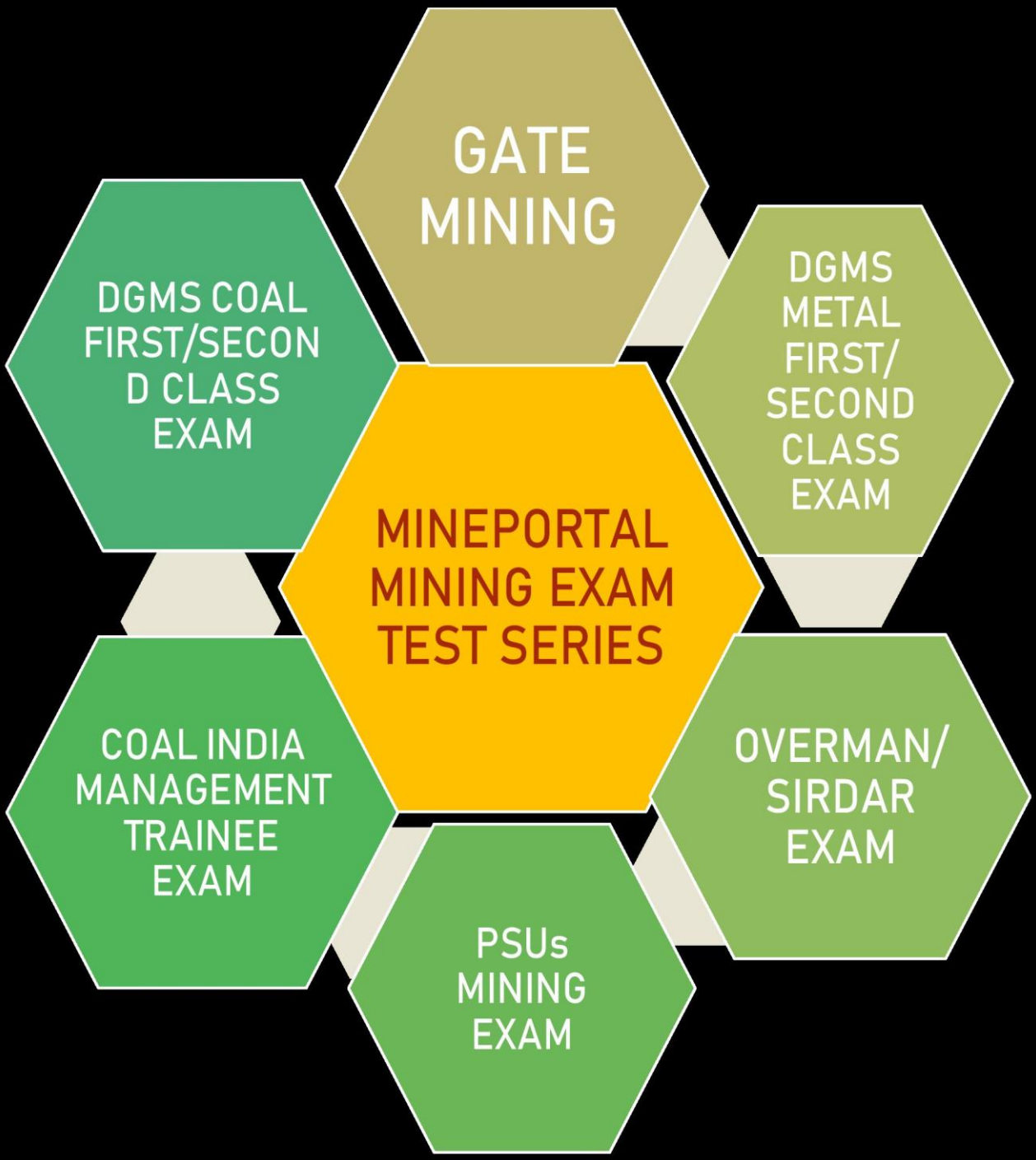

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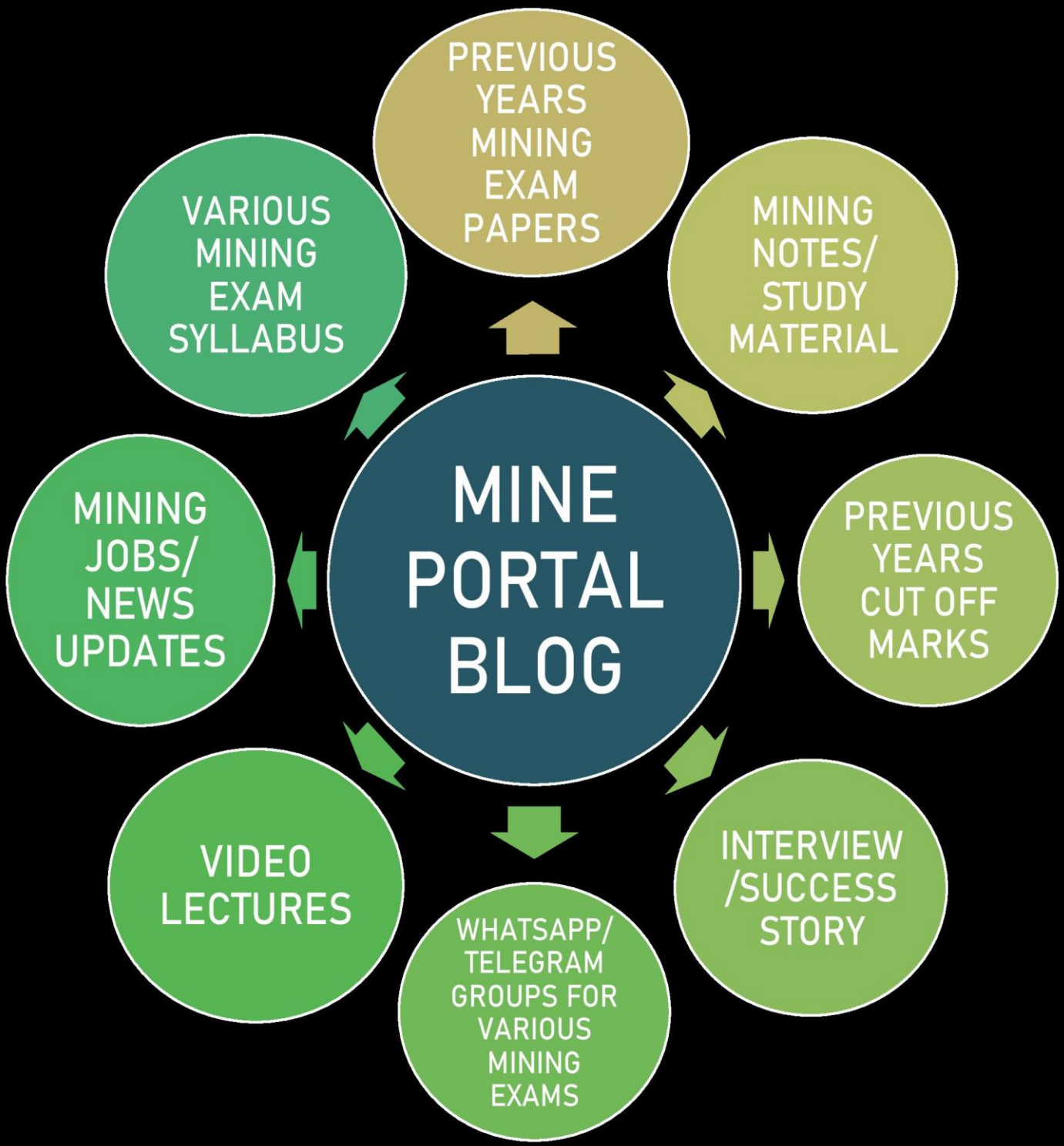

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Important notes from DGMS 2019 circulars

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Color coding:
Red- Must remember
Green- Give a read
Black- Not important from exam point of view

DGMS Technical Circular No. 1 of 2019

Subject: Safe conduct of operations in Workover Oil/Gas Mines.

In accordance with the deliberations of the workshop and also detailed discussions with various stake holders, the following recommendations were arrived at in respect of any workover oil/gas mine in operation:

1. It shall be ensured that no person carries any electric device or any means capable of causing fire in workover area within **30m** from any tank, separator, oil well, oil/gas manifold at the installation including in Zone-2 hazardous area.
2. Only adequately and appropriately trained persons under the Mines Vocational Training Rules, 1966 on safe conduct of various operations shall be employed at the installation.
3. No person without suitable fire-proof vests shall be permitted to enter into any workover place which is likely to contains dangerous level of hydrocarbons.
4. Any operation connected to conduct of workover shall be carried out under supervision of an Official/Installation Manager.
5. Job Safety Analysis to be carried out before commencement of operation at the installation.
6. A system for effective handling, conduit and/or safe disposal of hydrocarbon gases through a properly constructed and maintained flare stack shall be provided to prevent accumulation.
7. A system of continuous monitoring and detection for hydrocarbon gases in addition to monitoring by portable spot gas detection shall be provided. And records of such detections shall be kept.
8. Protective systems such as Automatic Fire Detection and Suppression System (AFDSS), engine coolant temperature sensors etc. are provided and maintained on every internal-combustion (IC) engine.
9. It shall be ensured that every Draw Works is provided with a Fail-Safe braking system so as to get automatically applied in case of any pneumatic/hydraulic component failure.
10. It shall be ensured that equipment maintenance shall be carried out as per the procedure and schedule as per OEM guidelines/recommendations.
11. It shall be ensured that the entire workover area is kept under effective CCTV surveillance to monitor all operations closely.
12. Care shall be taken to ensuring that various SOPs made in connection with workover operations shall be in accordance with OMR 2017 and relevant OISD guidelines issued from time to time.

DGMS Technical Circular No. 2 of 2019

Subject: Safety provisions for Diamond Wire Saw Machines and its Operations.

To address the risks associated with Diamond wire saw cutting operations in Mines, following safety provisions shall be strictly adhered with:

1) **Design of diamond wire saw machines & diamond wire ropes:**
   a) In addition to requirements covered under Regulation 172 of The Metalliferous Mines Regulations 1961, the procedures described for identifying hazards and estimating & evaluating risks during relevant phases of the Machine Life Cycle and for the elimination of hazards or for the provision of risk reduction mentioned in Indian Standard-IS:16819(*Safety of Machinery-General Principles for Design-Risk Assessment and Risk Reduction)* shall be strictly followed during design and manufacture of Diamond Wire Saw cutting Machines. The remaining hazards and risks, if any, shall clearly be stated along with protective measures to be adopted and danger areas involved in Equipment Manual supplied with machine by OEM.
   b) Suitable Guard behind the drive pulley to stop the wire motion towards the rear of machine and to intercept flying off elements in case of wire breakage shall be provided in the machine.
   c) Plastic coated Diamond Wire Rope shall be used in the machine. Plastic coating on the wire keeps a constant separation between the beads and reduces the likelihood of the fling off of elements (Diamond beads springs and/or spacers) in case of wire breakage. Further, the plastic coating protects the steel cable from abrasive action of cuttings. Adequate numbers of Guide pulleys for rope shall be provided in the machine.
   d) The rope cutting speed and rope tension during operation of the machine greatly contribute to life of the rope. Improper cutting speed and rope tension aggravate fatigue failure of the rope. The manufacturer shall prescribe details of optimum cutting speed and rope tension in the Equipment Manual.

2) **Operation and Maintenance:**
   a) Diamond Wire Saw Machine Operators/Technicians shall be adequately trained in safe operation/proper maintenance of Machine and the rope.
   b) When cutting is performed, tracks on which the machine operates shall be placed on properly leveled ground.
   c) Machine Control Panel shall be mounted inside a substantially built and easily transportable operator cabin with adequate seating facility so as to protect the operator from Whiplash of wire rope & flying off elements during rope breakage and also to provide protection from heat, dust and rain etc.
   d) The operator's cabin with Machine's control panel shall be placed by the side of the cut plane and at an adequate distance, depending on the height on the height of the cut If several cutting operations are carried out, the cabin shall be so positioned that the operator is not endangered by rope failure and dangers arising thereof.
   e) Proper wedges and/or support(s) shall be provided to prevent uncontrolled movement of block being cut so as to avoid injury to persons in the vicinity and to prevent snapping of Diamond wire rope due to trapping or jamming during the cutting operations.
   f) The Manager, in consultation with Engineer of the Mine, shall specify adequate danger areas for protection from the flying off elements and shall ensure that persons are not deployed within the danger zone/area during operation of the machine.
   g) Detailed Codes of Practice for operation and Maintenance of Diamond Wire Saw Machine shall be framed by Manager of the Mine in consultation with Engineer of the mine and the same shall be enforced.

DGMS Technical Circular No. 3 of 2019

Subject: Guidelines for implementation of Safety Management Plan in mines

1) **Formulation of SMP:**
   1. Corporate management of mines shall take necessary steps to enhance the techniques of perceiving danger, drawing appropriate control measures with framing of sequential proceduring of measures to adopted, apportioning responsibilities and realistic time lines for executing procedures.
   2. Corporate management of mines shall hold structured training programmes on regular basis to sensitize the stakeholders (workmen/supervisors/managers) about their role in formulation and management of SMP.
   3. For now, the categorization and/or ranking of risks for hazard identification may be done by using any of the two methods as explained in DGMS (tech) (S&T) circular No. 05, dated 2nd April 2016 2016 and DGMS (Tech) Circular (MAMID)/01 date 10th March 2014. however, this is an area into which, the corporate management could invest adequate resources engaging appropriate agencies on a continuous scale for bettering various techniques of hazard identification on a scientifically justified basis.

2) **Implementation of SMP on an auditable mode:** for Breaking the current static status of the non-implementation up SMP on an auditable scale in mines, the following pre-requisites are to be carefully evaluated.
   1. The formulated SMP on an acceptable scale with various principal hazards having been identified by proper stake holding groups from the mine and with the assistance of experts in the field wherever necessary.
   2. For each identified principal hazard, there are one or more mechanism involved in the control plan, which are well detailed in respect of the controls and procedures.
   3. For each procedure a set of procedures, the names and designations of persons made responsible for the execution of the procedures on a unique or shared basis as the case may be, shall be clearly indicated (herein referred to as the 'person responsible').
   4. That, for every procedure detailed as above, the envisaged time of completion **shall not be shown in days** but **only as a clear date.**
   5. For the formulated SMP document, a unique number shall be allocated and mentioned at the top of each page for all future reference purposes. the formulated SMP document shall be suitably numbered on each page and also properly indexed item wise. Care Shall be taken to having an appropriate protocol for document numbering and indexing purposes.
   6. The formulated SMP documents so prepared shall be approved/ accepted/ vetted in writing at the level of the nominated owner of the mine.
   7. The approved/ accepted/ vetted SMP document by the nominated owner in writing shall be suitably bound and a copy of the same shall be made out to every stakeholder including 'person responsible' in the control plans.

3) **Initial steps of implementation:** For the purpose of implementation, the time-line shall be deemed to commence from the date of approved/acceptance/ of the SMP document in writing by the nominated owner.

4) **Major steps of impelemtation of the approved/accepted/ agreed SMP.**

   1. For every **procedure in the control plan**, a **chronological order of mitigative actions** taken created in a document from hereinafter referred to as the '**work plan**'.
   2. The created work plan is essentially a textual document containing one or more pages of various directions, instructions, etc., in writing as maybe made at various levels of Management hierarchy during the course of proceeding towards the logical conclusion of the completion of the procedures.
   3. Every workplan shall be captioned on the top of the cover page with a unique reference number. blue the captioned number, the particular procedure of the approved/ accepted/ agreed SMP document for which this work plan is being made along with the page number and the indexed item number as shown thereat, clearly mentioned as the subject of the work plan.
   4. Below the subject, details of the person responsible and the target date as contained in the

approved/ accepted/ agreed SMP document shall be mentioned.

5. After this, the 'person responsible' shall initiate in writing, the chronological steps as may be required of him to accomplishing the procedure, by referring the work plan to appropriate levels in the management hierarchy for decisions, sanctions, approvals, etc. from this point onwards the word plan may take a journey through various levels of the management hierarchy in accordance with the notings contained thereat. At no point can anyone participate in the journey of the work plan take any plea of missing the caption as mentioned above with a clear timeline. **Therefore, all such involved levels in the journey are morally and officially bonded to the outcome of the procedure in respect of the time involved at individual levels and the delivery made.**
6. The final outcome of the workplan shall be the statement of completion of the procedure by the 'person responsible', **presented in writing to the authority which can accept the outcome as such or order appropriate modifications, etc., in writing.**
7. After completion of the procedure as acknowledged by the accepting authority in writing in the work plan, a mention to this effect shall be made in the control plan of the approved/ accepted/ agreed SMP clearly indicating the date of completion and the reference number of the work plan.
8. The workplan so made shall be preserved for audit/examination, at a later date.
9. Likewise, **similar sets of workplans** shall be **prepared in respect of all other procedures in the control plan of** approved/accepted/agreed SMP **for each identified principal hazard and appropriate entries to this effect as mentioned at para 7. are** made in the approved/accepted/agreed SMP document.
10. **After all workplans as above** are completed for all the identified principal hazards and appropriate entries made in the approved/accepted/agreed SMP document, the **first cycle of the journey of SMP may be considered as ready for audit.**
11. Complete internal audit of the SMP shall then be **taken-up initially by the ISO of the company** by constituting a team appropriately for the purpose. **The scope of the audit shall include both formulation and implementation of SMP, along with examination of all supporting documents, workplans, etc.** After satisfactory internal audit, any external audit may also be conducted as may be deemed fit by the management.
12. **If not accepted by the audit team**, various queries as may be raised by the audit team shall have to be addressed accordingly within a justified time frame as may be fixed by the audit team, to enabling re-audit.
13. On satisfactory completion of audit, **the SMP may be classified as having completed on complete cycle.** The audit team shall accordingly certify in writing, affixing signatures with date of the audit team members.
14. The management shall then commence review of the SMP in the second cycle in which, the earlier identified hazards are generally not expected to be repeated.
15. All such audited and certified SMP shall be **carefully preserved for future references, scrutiny, etc**.

5) **Outcome of each cycle of SMP:** After each cycle, the following vital information will be available for critical review and further process refinement in the subsequent cycles.
   1. Mismatch, if any, on the assessment of time for completion of various procedures at the time of formulation of control plans, with the actual time taken.
   2. Areas of any generic procedures as may have been decided while formulating SMP, to be appropriately improved with finer detailing.
   3. Apportioning of responsibilities to appropriate persons for easier and effective completion of the allocated procedures in the control plan of SMP.
   4. Adequate scope of better understanding of the intricacies of various mining processes thereby, enhancing managerial/supervisory/functioning skills amongst various stake holders.

6) **Conclusions:**
   1. With repeated cycles of SMP accomplished in serious earnest, various mining systems/processes/work procedures will automatically get refined to better both process safety and efficiency while also proactively empowering all the stake holders.
   2. **However, the true essence of SMP will be realized only by appropriately digitizing the entire SMP implementation methodology as mentioned above, leading to radical transformation and irreversible betterment of the safety status and various mining systems/processes/work procedure in place in mines.**