TECHNICAL CONSIDERATIONS ON INFRASTRUCTURE REHABILITATION OF THE JIU'S VALLEY MINING BASIN

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Abstract Existing technological infrastructure in the Jiu's Valley mining basin has a high degree of physical wear and maintain its operation requires significant rehabilitation works to change the design component and an upgrade to increase performance or imposing as its abandonment recovery depending on the circumstances and their economic value when the decision to close the mine.

Introduction

Recovery of mining infrastructure in the Jiu Valley mining basin is a long process and not many times with many risks and difficulties in its deployment. Its implementation requires a long-lasting material and logistical effort and well organized from the decision makers for the final result should be measurable and effective. This recovery operation is carried out in phases mining infrastructure and coordinated since the mine closure process is a tortuous process with many large financial and technical-productive recovery is in many cases as a central objective of not strike cost the mining company on the acquisition of additional equipment / mining equipment, and reuse them to be in maximum security conditions.

Working methodology used in the work of the technical-productive recovery mining

In order to operationalize the decision to recover the existing mining infrastructure is necessary to achieve its prior analysis, followed by the establishment of order and priority of making recovery capability at that time and theto establish the logical framework on how to recovery followed finally by the possibilities of its recovery, that is recovered for reuse infrastructure.

Putting this methodology will be under a recovery plan based on an approved rehabilitation program drawn up by each unit adapted to the geo-mining and mining-technical infrastructure that the existing productive. To complete this process specialist teams are necessary in this type of operation, according to the technical design of closure, so the implementation schedules for such operations.

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Equipment will be recovered as follows:
· lifts (scraper conveyor, conveyor belt, winches, rails, monorail equipment, gearboxes, electric motors);
· combine (combining forward and / or slaughter);
· support elements (hydraulic columns, beams GSA, SG-23 plates);
· elements ventilation (fans, ventilation pipes, air ducts flanged bushings)
· drainage facilities (water pumps, high pressure pumps) and accessories (pipes and hoses, hydraulic fluid);
· power plants and transport supply (transformers, caskets, electric cables);
· telecommunications installations and control systems (phones, cable telegrizumetric captured methane).

Recovery program is based on a comprehensive recovery plan and it has often heavy, being made with specialized personnel well established in terms of livestock, and the qualifications needed for recovery operations with the schedule of operation of the mine.

Recovery plan includes the following technical-productive activities:
· Location on topographic plans of the mine (area, area) of equipment / machinery existing at date of analysis

The landscape plans will set the limit mining perimeter, that will identify areas , which will close. In the mining stopes there, preparatory work, suites, galleries, inclined planes, vertical wells (blind or days) and special mining (rooms, pump house, niche, materials storage).
• Identifying and inventorying infrastructure by drawing up a list.

The list will contain all technical details of the physical condition of equipment potentially recoverable from zone / area proposed to be closed. Information obtained in this process will be used to select equipment / machinery possible to recover.

Components of each device is assigned an identification number to be able to make a detailed description, which will include: localization, technical and physical state estimation and age of equipment, being accompanied by such photographs to be identified and determined.
·Establishing score

Corresponding to each equipment / machinery in the existing / proposed area to be closed,

depending on its features and shares, determine a score, which is a complex process and requires an analysis based on criteria they have set the number of 11, defined that are assigned importance weights from 4% to 14% in order for recovery (Table no.1).

In turn the criteria are identified by five characteristics that are given notice of reliability expressed qualitatively and quantitatively. Score is calculated with the equation:

$$S = \sum_{1}^{11} P_i \cdot N_i \quad (1)$$

where: - P_i the weight of criterion i;

- N_i Note Feature creditworthiness given criterion i.

The following shows you the decision to recover its own proposal, which differs from the currently known and applied, as indicated in manual mine clearance, by:

- Changes and additions to the criteria;
- Redistribution of the weights;
- Detailer characteristics;
- Qualitative and quantitative characteristics of reliability by providing notes;
- Decision on the recovery of equipment, tools based on a scoring scale.

· Decision and selection of equipment or components that can be recovered.

In this stage there are cases that require a mandatory rehabilitation, required by law, environment, safety. In these circumstances the decision to recover without the need for evaluating equipment. In other cases it is necessary to select equipment based on scores established for recovery equipment. I propose the following classification of the solutions on how to restore the economic and technical infrastructure at a mine subject to the closing process.

If:

S = [1 ÷ 2] - total surrender (100%) (2)

S = (2 ÷ 3] - partial abandonment (50%) (3)

S = (3 ÷ 4] - partial recovery (50%) (4)

S = (4 ÷ 5] - total recovery (100%) (5)

Decision recovered infrastructure

Taking into account that the decision is taken on the recovery of the equipment is taken into account only the economic aspects with reference to the recovery of equipment, this process requires a global approach using a range of criteria including analysis and other technical issues such as type related to the usefulness, reuse or replacement of infrastructure in other subunits recovered for its intended initial mining

Finality recovery plan will involve the recovery or reuse of technical-productive recovered. Recovery arrangements for equipment that can be recovered will be given to the following possibility:

· Capitalization through sale;

· Redistribution in mining subunits;

· Dropout underground taking full or partial cost recovery as a landmark.

The estimated cost of recovery equipment compared to the amount resulting from the capitalization is one of the indicators that determine the presentation of proposals to restore or forsake them.

The final decision for the recovery of technical-productive if the mine closes below is systematized in figures no.1 and 2.

Depending on the recovery of costs (Cr), proceeds from the sale (Vv) and acquisition costs (Ca) may be taken the following decisions on the recovery of technical-productive to be recovered from the underground:

a. Sale of infrastructure recovered if:

Vv> Cr> Ca (6)

Recovery can be made either through sale to other economic units (other than those belonging to CNH SA Petrosani), or as scrap metal.

b. Reuse of infrastructure recovered if:

Vv <Cr <Ca (7)

Given that not all equipment can be reused, but only partly because of the technical condition and wear large, the total cost of recovery is less than the purchase price.

For certain equipment where recovery is required (for electrical equipment such as motors, fans, electric winches or cables) they will reuse.

c. Abandonment of infrastructure recovered if:

Cr> Vv> Ca (8)

Table 1 *Analysis model of the status of equipment / machinery*

Nr. UNIT.	Criterion	The weight criterion, P_i	Characteristic criterion	Note creditworthiness, Ni		
				Qualitative	Quantitave	**SCORE** $S=\sum_{1}^{11} P_i \cdot N_i$
1.	ACCESSIBILITY	**P_1=10%=0,10**	Very Inaccessible	very unfavorable	**1**	
			Inaccessible	unfavorable	**2**	
			Difficult	good	**3**	
			Accessible	favorable	**4**	
			Easily accessible	very favorable	**5**	
2.	TECHNICAL AND PHYSICAL CONDITION	**P_2=12%=0,12**	Unusable	very unfavorable	**1**	
			Very old	unfavorable	**2**	
			old	good	**3**	
			Usable	favorable	**4**	
			New	very favorable	**5**	
3.	MAINTENANCE HISTORY	**P_3=4%=0,04**	Destroyed	very unfavorable	**1**	
			Partially degraded	unfavorable	**2**	
			Replaced main components	good	**3**	
			Replaced secondary components	favorable	**4**	
			There were no interventions	Very favorable	**5**	
4.	DISTANCE TO SURFACE TRANSPORT	**P_4=6%=0,06**	5-10 km	very unfavorable	**1**	
			3-5 km	unfavorable	**2**	
			1-3 km	good	**3**	
			0,5-1 km	favorable	**4**	
			0-0,5 km	very favorable	**5**	
5.	DIFFICULTIES TRANSPORTATION	**P_5=6%=0,06**	Non/transportable	very unfavorable	**1**	
			Special transport	unfavorable	**2**	
			Mechanical transport	good	**3**	
			Monorai transport	favorable	**4**	
			Manual transport	very favorable	**5**	
6.	DEGREE OF DEGRADATION	**P_6=7%=0,07**	Degraded 100%	very unfavorable	**1**	
			Degraded 75%	unfavorable	**2**	
			Degraded 50%	good	**3**	
			Degraded25 %	favorable	**4**	
			New	foarte favorabil	**5**	
7.	SAFETY ZONE	**P_7=9%=0,09**	Risk of subsidence	very unfavorable	**1**	
			Danger of explosion	unfavorable	**2**	
			Fire Danger	good	**3**	
			Flood Risk	favorable	**4**	
			Area harmless	very favorable	**5**	
8.	RESIDUAL VALUE	**P_8=14%=0,14**	Amortized 100%/quashed	very unfavorable	**1**	
			Amortized75%	unfavorable	**2**	
			Amortized 50%	good	**3**	
			Amortized 25%	favorable	**4**	
			New	very favorable	**5**	
9.	DEGREE OF MERCHANTABILITY	**P_9=14%=0,14**	unsalable	very unfavorable	**1**	
			marketable 25 %	unfavorable	**2**	
			marketable 50 %	good	**3**	
			marketable 75%	favorable	**4**	
			Total marketable	very favorable	**5**	
10.	DEGREE OF REUSABLE	**P_{10}=14%=0,14**	There can be reused	very unfavorable	**1**	
			Reuse 25%	unfavorable	**2**	
			Reuse 50 %	good	**3**	
			Reuse 75%	favorable	**4**	
			Total Reuse	very favorable	**5**	
11.	LEGISLATIVE AND ENVIRONMENTAL CONSTRAINTS	**P_{11}=4%=0,04**	Total Constraints	very unfavorable	**1**	
			Significant Constraints	unfavorable	**2**	
			Point Constraints	good	**3**	
			Significant constraints	favorable	**4**	
			Without constraints	very favorable	**5**	

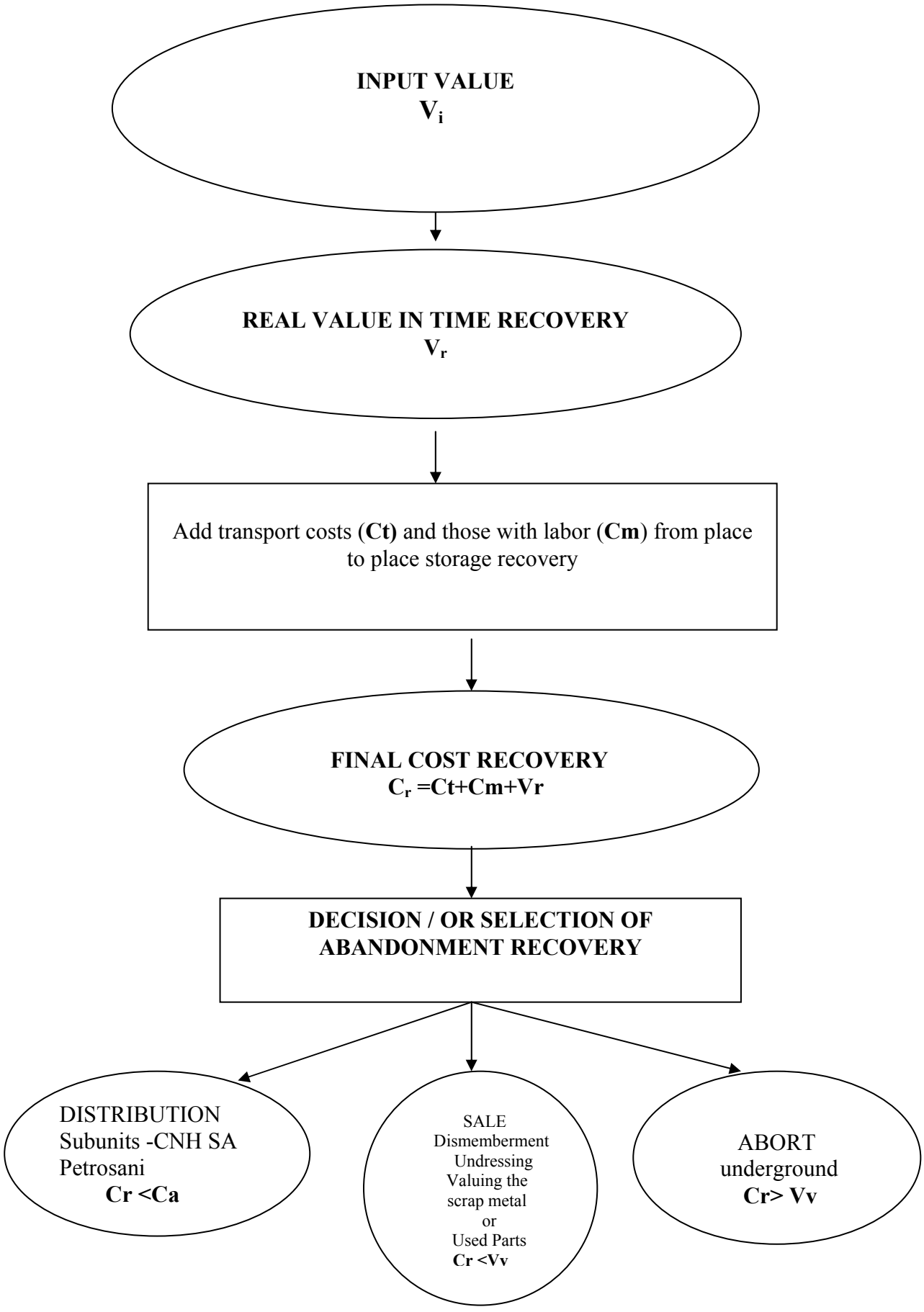

Fig. 1 *Decision analysis on the recovery of machinery / equipment*

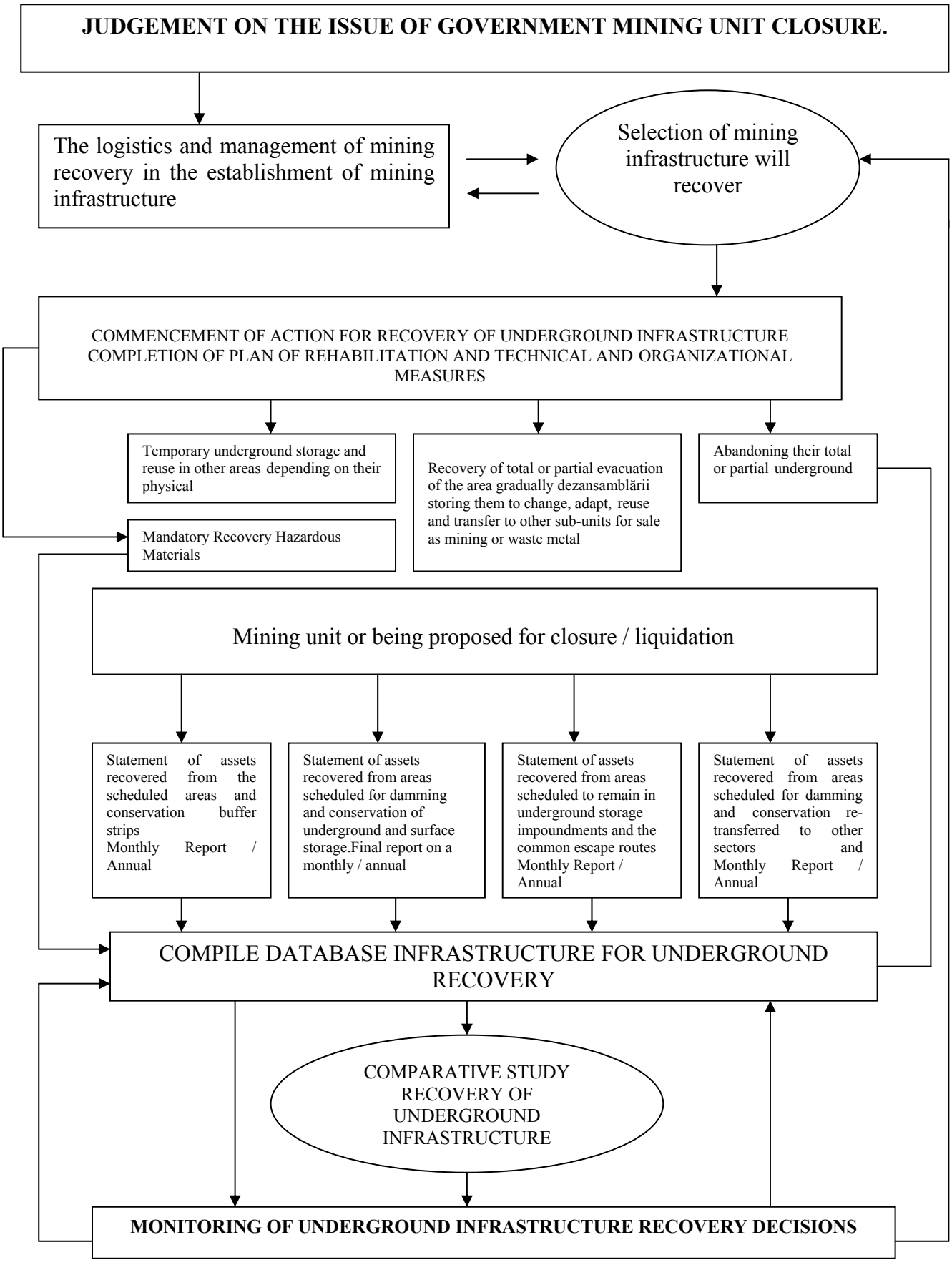

Fig.2 *Systematization decision on the recovery of underground infrastructure*

Technical and organizational measures for disposal, transport and storage of equipment / machines that will be recovered

All areas will be subject to mine action recovery, is important in order to be doing it. It will be phased in gradually, following a certain priority in the proceedings.

Measures will be taken in the recovery action are:

· Setting order of priority and vital for consumers to be retained in office;
· Decommissioning of technical equipment;
· Decommissioning of power stations and electricity distribution points;
· Decommissioning of electric power stations correlated with the program closing;
· Dismantling of force 6 kV;
· Disposal facility 0.4 kV;
· Order of removal and installation of electromechanical equipment and materials will be recovered for use;
· Removal, plant and equipment recovered;
· Removing technological equipment used in closing the connections to the area;
· Works for dismantling the constructs electromechanical;
· Works necessary for the recovery of materials, equipment, facilities, vehicles and other assets that can be recovered;
· Recovering technology and transportation equipment;
· Loading-unloading and transport electromechanical equipment and installation;
· Storing and evaluating the technical condition of equipment recovered.

Conclusions

Recovery of underground infrastructure is done through monthly reports, quarterly and annually by subunits-CNH SA Petrosani subordinate to it in the existing recovery capability.

Given that recovery action is a complex program that involves many costs, especially with living labor to support the mining sub paper proposes a relatively simple and clear methodology for deciding on the correct and efficient recovery technical-productive mines under liquidation process.

Motion made will be considered useful to those interested and involved in this process.

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