



WESTERN COALFIELDS LIMITED
CIN OF WCL : U10100MH1975GOI018626
Website – www.westerncoal.in
Reg. Office: Coal Estate, Civil Lines,
Nagpur(M.S) – 440001

Office of the Director (Tech.) Operation
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फाइल क्रमांक.: वेकोलि/निदेशक(तकनीकी)संचालन/सचिव/ 178

दिनांक:- 05.01.2021

प्रति,
क्षेत्रीय महाप्रबंधक
सभी क्षेत्र (पाथाखेड़ा के सिवा)

विषय: SYSTEM IMPROVEMENT REGARDING OBR MEASUREMENT

सन्दर्भ: Self-contained note vide E-office file no. E-547746 dated 04.08.2020

- Vigilance department has suggested for half yearly measurement by inter area team in addition to measurement by CMPDI annually for OBR. In the revised Yellow Book (2020) the same has been incorporated. AGMs of the concern areas are advised to implement the provisions of clause 4(d), 4(e) and 4(f) of Yellow Book (revision-2020) for quarterly/Half yearly and annual measurement of OBR.
- As per Vigilance observation/suggestion for approving of HOE bills for payment by AGMs, same has been incorporated in the SOP duly approved by the competent authority (circulated vide letter no. वेकोलि/महाप्रबंधक(उत्पादन)/2020/795 dated 02.01.2021 and E-655602). The concerned AGMs are advised to act accordingly.
- As per observation of Vig.Deptt, coal production from face to stock should invariably be weighed before being dumped in the stock yard. The same provision also exists in the Yellow Book Revision-2020.

The matter is being taken up by E&T Deptt., for expeditious installation of 100 Te weigh bridge for coal transportation from face to stock yard by HOE means and installation of 150 Te weigh bridge for coal transportation from face to stock yard in departmental mines. The timeline framed for installation of 100Te WB for transportation in HOE mines is 31.05.2021 and timeline for successful completion of trial run (Phase-I) in one of the areas for departmental dumpers is 30.06.2021. Subsequently necessary action will be taken for installation of such road WBs at other areas based on the successful performance of the same in Phase-1.

GM(E&T) & AGMs of Areas are advised to adhere to the timeline for installation of WB, as above.

Contd....Page-2

- AGMs shall ensure that GPS/GPRS installed in vehicles are kept fully functional as per SOP issued for IT initiatives. GM(E&T) to ensure the supply and installation of required numbers of GPS/GPRS at earliest possible.
- The coal top exposure measurement figures are to be reconciled monthly by unit/sub area and quarterly by area. The concerned SAM and Area Survey Officer are to monitor the same. Any variation if observed is to be examined and the reasons thereof is to be recorded for variation for future reference.
- As per Yellow Book 2020, measurement of Over Burden is to be done by using any of the system i.e. 3D TLS and/or ETS. Procurement of 3D TLS is under process at WCL and till such time ETS system is to be used for this purpose.
- As advised by letter No. WCL/Prodn/ GM(Prodn)/ 2020/ 775 Dtd.23.12.2020 AGM's are requested to ensure the CCTV surveillance 24 x7 in coal stock yards.

This issues with approval of competent authority.

भवदीय



निदेशक(तक.)संचालन के तकनीकी सचिव

Copy to:

- D(T) ~~OP~~, WCL
- GM(Vigilance)
- GM(Prod)
- GM(E&T)
- TS to D(T)/P&P



E-656380
Western Coalfields Limited

मिनीरत्न कंपनी (A Miniratna Company)
(कोल इंडिया लि. की अनुषंगी कंपनी)
(A Subsidiary of Coal India Limited)



विभाग :- उत्पादन

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CIN - U10100MH1975GOI018626 www.westerncoal.nic.in

पंजी.का.:कोयला विहार, सिविल लाइन्स, नागपुर(महाराष्ट्र)-440001 /Regd. Off. : Coal Estate, Civil Lines, Nagpur(MS) - 440001

Department : Production

FAX: 0712 -2512351

Tel. No 0712-2512351

सदर्व क्रमांक : वे०को०ली /महाप्रबंधक (उत्पादन) /2020/

797

दिनांक : 04-01-2021

To,

The General Manger (Vig.)
Western Coal fields Limited.
Seminary Hills, Nagpur

Subject : STANDARD OPERATING PROCEDURE(SOP) FOR OBR MEASUREMENT AND BILLING OF HOE WORKS IN ALL MINES OF WCL.

Dear Sir,

Please find enclosed here with, SOP approved by competent authority, for OBR measurement and billing of HOE works in all mines of WCL. The same has been circulated vide letter ref : No. सदर्व क्रमांक : वे०को०ली /महाप्रबंधक (उत्पादन) /2020/ 795 दिनांक : 02.01.2021 (computer no. E655602) to all AGMs to ensure strict implementation / compliance of the SOP with effect from 02.01.2021.

This for kind information please.

Thanking you ,

Yours faithfully

04.01.2021
GM(Prod.), WCL
NAGPUR

Copy to :

T.S. to D.Tech(Oprn.) & T.S. to D.Tech(P&P.) : For kind information



Western Coalfields Limited

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(कोल इंडिया लि. की अनुबन्धी कम्पनी)
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विभाग:- उत्पादन

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Department : Production

FAX: 0712-2512351

Tel. No 0712-2512351

सदर क्रमांक : वेकोली /महाप्रबंधक (उत्पादन) /2020/

795

दिनांक : 2/1/21

To,

The Area General Manger
Ballarpur Area/ Chandrapur Area/ Majri Area/Wani Area/Wani North Area
Nagpur Area/ Umrer Area/ PENCH Area/ Kanhan Area
Western Coal fields Limited.

Subject : STANDARD OPERATING PROCEDURE(SOP) FOR OBR MEASUREMENT AND BILLING OF HOE WORKS IN ALL MINES OF WCL.

Dear Sir,

Please find enclosed here with, SOP approved by competent authority, for OBR measurement and billing of HOE works in all mines of WCL. It is requested to circulate the SOP to all concerned officials & Staff of Area & Units who are involved in HOE OBR measurement and billing and to ensure strict implementation / compliance of the SOP with immediate effect.

Thanking you

Yours faithfully,

21/1/2021

GM(Prod.), WCL
NAGPUR

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**STANDARD OPERATING PROCEDURE FOR OBR MEASUREMENT
AND BILLING OF HOE WORKS IN ALL MINES OF WCL**

After issue of LGA for HOE works, following systems will be followed.

INITIAL SURVEY MEASUREMENT

1. Before initial survey of HOE work, three or more masonry pillars shall be constructed as base survey station for HOE mines. The pillars shall be so constructed that they are inter-visible and are of permanent nature. Colliery authority has to ensure that such survey pillars are well kept till end of the HOE work. In case of any unavoidable circumstances, proper action shall be initiated by colliery for establishing new survey pillar with information and consultation with subsidiary HQ and concerned authority. Each pillar shall be numbered and recorded on the Plan accordingly.
2. Coordinates of approved boundary of HOE excavation patch, dump area and transport route be determined at every curve point and at suitable intervals to accurately demarcate boundary on the ground. These boundary co-ordinates of cutting area and dumping area should be maintained for future reference.
3. A base line shall be laid down with Masonry pillars erected at 30 mtr. Interval, another line shall be laid at right angles to this base line, on which also masonry pillars shall be erected at 30 mtr. Interval. These two lines shall become the reference lines which shall be utilized for making quarry sections. Site for such masonry pillars shall be selected on solid ground to avoid any disturbances. This base line is for preparing cross sections of mine at 10 metre interval preferably in Dip Rise Direction of the Mine. In case, it is not practicable to extend the base line up to dump area, a separate base line shall be established w.r.t. the permanent base Stations of the Colliery for dump area.
4. Traverse stations are to be fixed and demarcated with pillars around the HOE patch and a close traverse survey is to be carried out from base survey stations. The traverse pillars/stations and base line pillars shall be fixed in such a manner that these pillars will be available till completion of HOE work.
5. Before scanning of a HOE patch, all bushes and trees, dwelling etc. within the area are to be removed, if there is any waterlogged area it has to be dewatered, so that the actual surface can be scanned. In extreme unavoidable condition, where scanning is not possible for any particular area, the spot data of such area may be taken by ETS, which are to be incorporated with the scan data as an input data for preparation of plan to get actual profile of the mine.
6. At least 3 (Three) permanent traverse survey stations preferably at 250mtrs minimum spacing along with co-ordinates (NEZ) of close traverse around HOE patch certified by colliery surveyor, Manager and sub Area Manager shall be given to CMPDI/Inter Area team.
7. CMPDI/Inter Area team will cross-check the co-ordinates (NEZ) of base survey stations supplied by Mine and subsequently CMPDI team will carry out initial survey of HOE cutting patch and Inter Area team will carry out initial survey of dump area and route (from starting point of cutting patch to starting point of dump) with the help of Terres-

trial Laser Scanner/Electronic Total Stations in presence of unit/ area authority and preferably in presence of contractor or his authorized representative.

8. The total HOE patch, dump Area/route should be completed preferably in one go. If initial survey is not completed in one go, then Mine officials will record the reason of the same and have to inform production department in writing regarding further action plan for initial survey of balance patch to be completed in next spells with reason for each spell. The initial survey of total HOE patch should be completed in three spells. If initial survey is not likely to be completed in 3 spells the justification of the same should be recorded at the time of 1st & 2nd spell itself and competent approval is to be obtained for initial survey more than 3 spells stating reasons through production department.
9. Mine/Area shall submit the HOE/dump boundary Co-ordinates to CMPDI/Inter Area Team for incorporating HOE boundary on initial plan.
10. After carrying out initial survey by CMPDIL, the initial plan of the cutting patch of HOE, duly signed by CMPDIL, will be submitted. After submission by CMPDIL this initial plan of cutting patch shall be signed by Mine Surveyor, Manager, Sub Area Manager, Area Survey Officer, GM(Oprn) and Area General Manager of the Area and contractor or his authorized representative. If GM(Oprn) is not available, the Staff Officer (Min) will sign the same, and Dump route survey shall be carried out by Inter Area Team, the initial plan of dump plan and route shall be prepared jointly by Inter Area Team and Mine Surveyor/ Survey Officer. The initial plan of dump and route shall be signed by Inter Area Team, Mine Surveyor, Manager, Sub Area Manager, Area Survey Officer, GM(Oprn) and Area General Manager of the Area and contractor or his authorized representative. If GM(Oprn) is not available, the Staff Officer (Min) will sign the same. The plan shall be submitted to production department for acceptance of initial plan by production department.
11. After acceptance of initial plans by production deptt. the HOE work shall be started.
12. If the departmental workings are adjacent to HOE patch, a suitable barrier of at least 10 mtr. width at top between departmental patch and HOE patch shall be maintained throughout the contract, till final survey of HOE patch is done. For operation of departmental patch, if shifting/re-locating of barrier is required, it will be done by obtaining competent approval through production department.
13. On the basis of initial plan submitted by CMPDI/Inter Area Team and accepted by production department, the sections shall be prepared at 10 meter interval which will form initial profile of HOE patch/dump Area.

MONTHLY SURVEY MEASUREMENT OF EXECUTED QUANTITY OF OB AND COAL

14. At the end of the every month or at the beginning of the successive month, Mine Surveyor / Survey Officer along with contractor or his authorized representative will carry out survey for executed quantity of OB/Coal in HOE patch with the help of Electronic Total Station/Terrestrial Laser Scanner. On the basis of survey data, plan shall be prepared on a scale of 1:500. The plan shall be signed by contractor or his autho-

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nized representative, Mine Surveyor/Survey Officer, Manager, Sub Area Manager, Area Survey Officer and GM(Oprn) of the Area. If GM(Oprn) is not available, the Staff Officer (Min) will sign the same.

15. The initial sections shall be updated with monthly survey data/plan and volume of OB removal/Coal evacuation will be calculated with the cross-sectional Area method/Software.

While measuring Over Burden Removal, the levels up to the top of the seam are only relevant; if the coal top is approachable i.e. the seam is not affected due to subsidence or under fire. If the seam is either caved in or under fire, Area management shall take appropriate decision as per standard systems, depending on the situation for measurement and computation of volume of Over Burden extracted.

Responsibility of the mine authorities - when coal seam is exposed, the levels (RL) of the top of the seam shall be taken before the coal is extracted. Similarly, the levels of the floor of the seam shall be taken before the area is back filled or allowed to get drowned. The coal production figure should also be analyzed with coal top exposure measurement figure, monthly by unit/sub area and qtrly by area and variation may be examined and proper reason be recorded for variation by officers who analyzed it. The same may also be carried out during half yearly and Annual measurement.

16. The volume calculated shall be signed by contractor or his authorized representative, Mine Surveyor/Survey Officer, Manager, Sub Area Manager, Area Survey Officer and GM(Oprn) of the Area. If GM (OPRN) is not available, the Staff Officer (Min) will sign the same.

17. Monthly bill shall be raised, with supported documents i.e. Measurement book, bill forms, monthly survey plan, sections, volume calculation sheet etc. The bill will be signed by Mine Surveyor/Survey Officer, Manager, Sub Area Manager, and contractor or his authorized representative. The bill will be submitted to Sub Area finance deptt. for scrutiny and after signature then bill to be forwarded to Area for scrutiny of Area survey officer and GM (Oprn). If GM(Oprn) is not available, the Staff Officer (Min) will sign the same. After due certification by Area survey officer and GM(Oprn), the bill will be approved by Area General Manager and then it is submitted to Area Finance for payment.

All OB and Coal Bills under HOE contracts should be approved by Area General Manager. Accordingly for subsequent month, same procedure shall be adopted. Progressive volume shall be calculated by cross sectional method/Software. The monthly executed quantity will be derived by deducting progressive quantity paid till immediate previous month from current monthly measurement and bill shall be processed after following same procedure mentioned at the beginning of point No. 16.

QUARTERLY MEASUREMENT OF EXECUTED QUANTITY OF OB AND COAL

18. In addition to monthly measurement of HOE by Mine surveyor, every quarterly measurement of HOE patch for executed quantity of OB and Coal will be carried out latest before 10th of next month by inter Sub Area Team, constituted by Area General Manager along with Mine Surveyor, Survey officer, Area Survey Officer and contractor or his authorized representative. The Area level Team will carry out Survey of HOE patch, plan shall be prepared on a scale of 1:500, sections shall be updated and pro-

gressive volume calculated on the basis of cross sectional area method/Software. The all above plans/sections and volume calculation sheets shall be signed by Mine Surveyor/Survey Officer, Manager, Sub Area Manager, Area Survey Officer, General Manager (Opm), quarterly team members and contractor or his representative and Area General Manager. If GM (Opm) is not available, the Staff Officer (Min) will sign the same.

19. In case of over burden removal, variation shall be determined by comparing with the firm reported quantity with quarterly measured quantity, And payment shall be made for lesser quantity between cumulative monthly measured quantity and quarterly measured quantity.

ANNUAL MEASUREMENT BY CMPDI FOR EXECUTED QUANTITY OF OB AND COAL

20. Annual measurement of executed quantity of HOE patch shall be carried out by CMPDI team, accompanied by Mine Surveyor/Survey Officer, Area Survey Officer and contractor or his authorized representative. The quantity derived by annual measurement will be signed by CMPDI Officials, Mine Surveyor/Survey Officer, Manager, Sub Area Manager, Area Survey Officer, General Manager (Opm), if General Manager (Opm) is not available, the Staff Officer (Min) will sign the same, Area General Manager and contractor or his authorized representative. The sections shall be updated on the basis of Annual measurement plan.

Whenever CMPDI submits the annual measured quantity report, this quantity will be reconciled with paid quantity for that particular period i.e. period of annually measured quantity. If any variation is observed, the same will be adjusted in immediate next month's bills of contractor for payment purpose.

AT THE END OF THE CONTRACT

21. At the end of the contract, the final measurement of executed quantity will be carried out by CMPDI, accompanied by Mine Surveyor/Survey Officer, Area Survey Officer and contractor or his authorized representative. The final executed quantity derived by Final measurement will be signed by CMPDI, Mine Surveyor/Survey Officer, Manager, Sub Area Manager, Area Survey Officer, General Manager (Opm), Area General Manager and contractor or his authorized representative. If GM(Opm) is not available, the Staff Officer (Min) will sign the same. The sections shall be updated. On the basis of final executed quantity, revised estimate will be prepared and after approval of Revised Estimate and acceptance of final plan by production department, final bill will be raised. The final bill will be signed by Mine Surveyor/Survey Officer, Manager, Sub Area Manager, and contractor or his authorized representative. The bill will be submitted to Sub Area finance dept. for scrutiny and signature then bill to be forwarded to Area for scrutiny of Area survey officer and GM (Opm). If GM(Opm) is not available, the Staff Officer (Min) will sign the same. After certification by Area survey officer and GM(Opm), the bill will be signed by Area General Manager & then it will be submitted to Area Finance for payment.
22. At the end of the contract, the dump survey is also to be carried out by Inter Area Team. After survey of final dump, plans and sections shall be prepared & updated, based on updated plans and sections, final dump quantity shall be calculated by cross

section area method/ software. The actual lead and lift shall be calculated and compared with awarded lead and lift, if any variation is observed then appropriate action shall be taken.

23. The final plan of HOE patch & dump plan shall be submitted to production department for acceptance along with executed quantity, dumped quantity, lead, lift. Any variation if observed in lead, saving in quantity/excess in quantity along with the reason for the same shall be submitted to production department.

24. The final bill will be raised only after acceptance of final plan and revised estimate approved.

25. Part survey shall be carried out as under:

- 1. Part final survey of HOE patch shall be done by CMPDI as follows:
 - a) OB removed by HOE up to certain level (De-Capping level).
 - b) Final bench profile or Part thereof, whenever benches finalized.
 - c) For Release of Barrier between HOE and Deptt work survey shall be carried out.
 - d) Final Coal floor survey of HOE works

If CMPDI is unable to carry out the above survey, then CMPDI will inform in writing for their unavailability and then above related survey will be carried out by Inter Area Team and report shall be submitted to CMPDI for taking consideration in their final report.

- 2. Part final survey of HOE patch shall be done by approved Inter Area Team as follows:
 - a) Whenever coal is exposed by HOE, Coal top survey.
 - b) Parting survey in multi coal seam.
 - c) Change of strata survey i.e. RH to BC soil/Soft, BC soil/soft to Hard, Hard to Coal top, coal to parting.
 - d) Any other survey as denied by CMPDI in writing shall be carried out by Inter Area team.

For any part final survey of HOE patch as referred above in clause 1(a,b,c,d), CMPDI team will be called for survey. If CMPDI is unable to carry out part final survey and they inform in writing for their unavailability, in such situation the part final survey will be carried out by Inter Area Team and a copy of the same shall be submitted to CMPDI and one copy of the part final survey plans shall be submitted to production department.

3. Whenever coal seam is exposed, the levels of the top of the seam will be taken before the coal is extracted by Inter Area Team. Similarly, the levels of the floor of the seam shall be taken by CMPDI immediately before area is backfilled or allowed to get drowned.

4. The data of part final survey carried out by Inter Area team shall be submitted to CMPDI for incorporating data for volume calculation.

5. The Mine /Area should ensure that, all HOE works are executed as per the approved proposal in all respect and strictly following all the guidelines regarding HOE works. Any deviation/ change shall be done only after getting Competent Approval.

Guidelines for part final survey on change of strata:

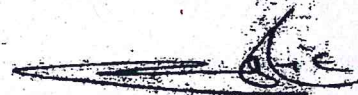
- A. An Intra area committee shall be constituted by concerned AGM, for recommendation on part / full completion of BC soil/ Soft soil/ RH for change of strata from RH to BC Soil/ BC Soil/soft soil to Hard OB.
- B. BC soil/Soft soil/RH part final survey shall be carried out by Inter Area Team and these final levels of BC Soil/Soft Soil/RH shall be considered as initial levels of next layer of OB removal. These part final surveys shall be submitted to Production deptt for future references.
- C. Based on part final RLs surveyed by inter area survey for BC Soil/Soft Soil/RH, the Intra area committee constituted for the purpose shall calculate and certify the quantity of BC Soil/Soft Soil/RH separately for finalization of RE.

Note: Where there is any contradiction/ ambiguity in the guidelines mentioned in this SOP in comparison to Yellow Book or guidelines issued under Yellow Book, the provisions/ guidelines of Yellow Book shall prevail.

Maintenance of record/plan.

- i. All survey data, i.e. initial, part final, quarterly, annual and final (NEZ) shall be signed by CMD/ Inter Area Team, Mine/Area Officials and contractor. All the data in soft copy as well as in hard copy as adhered in yellow Book shall be kept at mine and Area Office for future reference.
- ii. Initial plan, part final plan, quarterly plan, Annual plan and final plan signed by all concerned will be kept at Mine/Area Office and one copy of the same shall be submitted to production department.
- iii. All plans /sections for excavation area shall be prepared on a scale 1:500 and for dump area in 1: 500/ 1:1000/ or any other suitable scale.

Area General Manager shall ensure implementation of the above SOP for system of OB measurement and monthly billing of HOE work. Assistance required for measurement and billing, if any, such as Survey Manpower, Survey Instrument and software etc shall be provided by Area General Manager of respective area.


29.12.2020
महाप्रबंधक (उत्पादन),
वेस्टर्न कोलफील्ड्स लिमिटेड
नागपुर