



Oil and Natural Gas Corporation Limited
Corporate Health, Safety and Environment
8th Floor, South Tower, Scope Minar,
Laxminagar, New Delhi - 110092
Phone: 22406020; Fax: 22406681

No.: CHSE/LAQ-SOP-Restoration/2015-16

Date: 02.12.2015

From: ED- Chief HSE, Delhi

To: ED Chief - ER, Dehradun

Sub: SOP for restoration of abandoned drill sites after incorporating the suggestions of EC

A committee was constituted by Director (Onshore) to frame a Standard Operating Procedure (SOP) for restoration of abandoned drill sites keeping in view the constraints being faced for restoration of the abandoned drill sites and to be coordinated by CHSE.

After taking inputs from all the work centers the draft SOP was put up to EC for approval. EC while approving the SOP in its 471st meeting advised following:

- I. Lessons learnt by peer companies and in other industries be also studied and if found suitable, the same be included in the SOP. Further EC desired that civil jobs in the restoration be done through Rate Contract.
- II. LAQ manual be suitably amended to incorporate the SOP for Restoration of abandoned drill sites.

The committee along with CHSE studied the procedure for abandonment of drill site by Oil India and Cairn India Ltd. Both the companies are following the guidelines and regulations issued by DGMS, MoEF, SPCB, CPCB etc. These procedures are similar to the SOP proposed by the Committee. In fact, the SOP prepared by ONGC is more comprehensive as it also suggests timelines for carrying out various activities. Hence, no changes have been proposed in this regard. Long term rate contract for civil jobs have been included in the SOP.

The final SOP for restoration of abandoned drill site is enclosed for your necessary action to incorporate the same in the LAQ Manual.

The concerned Assets/Basins are advised to take necessary action in this regard.

M. C. Das
(M. C. Das) 02.12.15

Copy for kind information to:

1. Director (T&FS)
2. Director (HR)
3. Director (Expl) - I/C HSE
4. Director (Onshore)
5. Director (Finance)
6. **Asset Managers** - Ahmedabad/Mehsana/Ankleshwar/Rajahmundry/Assam
7. **Asset Managers** - Agartala/Cambay/ Cauvery/CBM
8. **Basin Managers** - Jorhat/FB, Dehradun/**Head** - CFB, Silchar/RFB, Jodhpur

STANDARD OPERATING PROCEDURE FOR RESTORATION OF ABANDONED DRILL SITES

ONGC acquires land on temporary basis for carrying out drilling of wells in the onshore assets/basins. The land is acquired from the farmers either through SPLAO (Special Land Acquisition Officer) or with mutual consent. These acquisitions are initially on temporary basis. Subsequently some of them may be converted to permanent acquisition in accordance with Land acquisition (LA) act.

In case the well is abandoned and ONGC does not have the usage for the land, the same has to be returned back to the owner. As per the provisions of the LA Act, the Environment Protection (EP) Act and rules made thereunder by MoEF; the land has to be restored to its near original form before being handed over to the land owner. This is also mandatory for getting the Environment clearance (EC) from MoEF for drilling of development and exploratory wells.

Presently, the Land Acquisition Manual of ONGC specifies that restoration may be undertaken either by ONGC through civil department or restoration cost as worked out by civil department based upon latest SOR rates which may be paid directly to the land owner in lieu of restoration after obtaining his consent to do the same.

This procedure has faced bottlenecks in absence of clear cut guidelines for implementation and also it has been seen that in most of the cases where the payment for restoration was made to the land owners, they were not restoring the land to the near original condition leading to contraventions of guidelines issued by MoEF.

This has resulted in Govt. Audit para from CAG on "avoidable payment of Rs. 8.04 Crore towards rental charges due to abnormal delay in restoration and surrender of abandoned drill sites and approach roads". Hence there was an urgent requirement for framing of guidelines on restoration & surrender of land to land owner.

Keeping in above in view, Director (Onshore) constituted a committee consisting of following members for developing a Standard Operating Procedure (SOP) for Restoration of abandoned drill sites.

1. Shri V.N. Yadav, DGM (Civil), Assam Asset (now Ahmedabad Asset)
2. Shri K K Pandey, DGM (Chemistry), Ahmedabad Asset
3. Shri S K Chaturvedi, DGM(HR), Ahmedabad Asset

The policy formation has to be coordinated by Corporate HSE. The Committee after detailed deliberations submitted the report to Director (Onshore). Corporate HSE invited suggestions on the Draft Policy from all the concerned Work-centres. The suggestions were examined by the Committee and the draft SOP was put up to EC by Corporate HSE. EC in its 471st Meeting approved the Standard Operating Procedure (SOP) for restoration of abandoned drill-sites and advised as follows :

- i. EC further desired that lessons learnt by peer companies and in other industries be also studied and if found suitable, the same may be included in the SOP. Further, EC desired that civil jobs in the restoration be done through Rate Contract.
- ii. EC also desired that LAQ manual be suitably amended to incorporate the SOP for Restoration of abandoned drill sites.

Accordingly, the committee along with CHSE studied the procedure for abandonment of drill-sites by Oil India and CAIRN India Ltd. Both the companies are following the guidelines and regulations issued by DGMS, MoEF, SPCB, CPCB etc. These procedure are similar to the SOP proposed by the Committee. Infact, the SOP prepared by ONGC is more comprehensive as it also suggest timelines for carrying out various activities.

THE STANDARD OPERATING PROCEDURE (SOP) FOR RESTORATION OF ABANDONED DRILL-SITES as approved by EC in its 471st Meeting shall be as follows :

1. Restoration of the abandoned drill sites should be done by ONGC prior to surrender of land to Land owners.
2. Sequential activities of restoration.
 - i. (a) For all new sites, at the time of acquisition, photographs should be taken of the site from all four corners and the soil should be tested for record purpose. Photographs should also be taken before taking up of restoration work at site and after completion of restoration works.
Action : LAQ & Civil Engg.
 - (b) Appropriate Plugging of well to be done once the well is declared abandoned in accordance to the applicable Regulation(s).
Action: Drilling services, Sub Surface group (Development location) / Basin (Exploratory locations)
 - (c) All building / foundations / structures / hardening materials etc. to be demolished. In case of deeper foundations / pile foundations, demolition should be done up to a depth of 1.2 meters from original surface.
Action : Civil Engg.
- ii. The soil investigation / sampling of soil of drill site land should be carried out to determine soil parameters prior to start of execution of civil construction work. Soil parameters should also be determined after restoration of site to ascertain restoration of land to near original condition.
Action : Civil Engg., Asset HSE
- iii. In-situ treatment (treatment by way of bioremediation if oil is present, treatment of waste water and its disposal, segregation of drill cuttings etc. at the drill site itself) of waste chemical, drilling mud fluid, drill cuttings etc. after plugging of well shall be done at the locations where transportation and evacuation of waste pit are not possible.
- iv. At all work centres of ONGC, suitable sites shall be identified and developed for remediation of drilling wastes and oily sludge and for waste civil construction material. Preferably two

places (landfill) should be identified – one for demolished civil construction material and another for waste chemical & drilling mud fluid, drill cutting etc. Responsibility of constructing required disposal pits, fencing / boundary wall etc. and to maintain these places shall be with Surface team for hazardous waste disposal and with civil engg. Section for disposal of civil materials respectively.

Action: LAQ, Civil, Asset HSE, Surface group.

- v. All civil structural material to be taken to the identified sites. All drill cuttings, oil, sludge to be transported to identified pit and quantified.
Action: Drilling services, Sub Surface group (Development location) / Basin (Exploratory locations), Asset HSE.
- vi. Convey the decision for surrender of land and status of waste chemical, drilling mud fluid, drill cuttings etc. (Treated or untreated) to LAQ, Asset HSE & Civil Engg. Section.
Action: Sub Surface group (Development location) / Basin (Exploratory locations)
- vii. Obtaining necessary approval of identified disposal land (Land fill for drilling waste) by ONGC from statutory body.
Action: Asset HSE
- viii. To explore the feasibility to re-use demolished construction materials.
Action: Civil Engg. Section.
- ix. Administrative approval and Expenditure sanction is to be accorded by Sub Surface group (Development location) / Basin (Exploratory locations) as per provision of BDP. Estimates shall be prepared by civil engg. Section as per frozen scope of work by the committee.
Action: Sub Surface / Basin, Civil
- x. Convey completion of restoration work to LAQ, Asset HSE, Sub Surface group (Development location) / Basin (Exploratory locations).
Action : Civil Engg. Section.
- xi. Convey completion of restoration work to State pollution control board / MoEF / other statutory bodies.
Action : Asset HSE
- xii. Surrender of Land to Land owners.
Action : LAQ Section

Note :

- i. Asset HSE shall be nodal section to monitor restoration process.
- ii. Prior to undertaking site restoration of site, the well should be appropriately plugged in accordance to the applicable Regulation(s).
- iii. Committee comprising of representatives from civil engg. Section, Sub Surface group (Development location) / Basin (Exploratory locations) & HSE (Asset / Basin) should prepare scope of work for restoration.

- iv. Civil section should take all the measures required for demolition of the structures, concrete foundations, if required option for blasting concrete structure may be considered. In case of pile foundations or in deeper foundations, minimum clearing of these materials should be done up to a depth of 1.20 meters from finished ground level after restoration.
- v. Unused / waste Drilling mud fluid / Chemical from waste pit and drill cuttings should be removed prior to back filling of the pit. Disposal of these materials should be done at a pre identified place either common TSDF or a facility created by ONGC. Also, possibility may be explored to recycle the recyclable waste like oily sludge, spent oil etc. to the authorized recyclers.
- vi. Proper photographic records should be maintained of the site right from acquisition of land, Post civil construction activities, post drilling activities and post restoration of site.
- vii. Compliance with the guidelines for disposal of solid waste, drill cutting and drilling fluid for onshore drilling operations notified vide GSR 546(E) dated 30th August, 2005 as mentioned in the conditions stipulated by Ministry of Environment and Forest in award of environmental clearance for location should be addressed as per Annexure - I.
- viii. Overall co-ordinator for restoration of drill site activities shall be done by I/c LAQ.
- ix. The following parameters may be considered during soil analysis:
 - i. Porosity
 - ii. Water Holding Capacity
 - iii. Permeability
 - iv. Moisture
 - v. Particle size distribution
 - vi. Cation Exchange Capacity
 - vii. Electrical Conductivity
 - viii. Organic carbon
 - ix. Sodium Absorption Ratio
 - x. pH
 - xi. Calcium
 - xii. Magnesium
 - xiii. Sodium
 - xiv. Potassium
 - xv. Heavy Metals

- o The suggested time frame for different activities w.r.t SOP, is as follows :-

Activity	Responsibility	Suggested Time Frame (Working days)	Cumulative days
Decision of abandonment.	SST/F Base/ST	-	-
Site Clearance after plugging of the well.	Drilling/Work over/ST	-	-
Decision regarding surrender and restoration of the land and information to LAQ.	SST/F Base/ST	Start Time 0 days	0 days
In – situ treatment of waste chemicals, drilling mud fluid, drill cutting etc.	Drilling / HSE	Three months	-
Intimation to Civil for estimation and information to concerned farmers for restoration & surrendering process.	LAQ	5 days	5 days

Restoration by Civil Engg. section : (Estimation based on joint inspection report complying regulatory requirement). Committee for JIR shall consist of members from Civil, SST/FB/ST and HSE.	Civil	30 days	35 days
Submission of estimate to LAQ.	I/C Civil	3 days	38 days
Proceedings and recommendations of estimate by in house board comprising of Civil, Forward base/SST/ST, Finance and LAQ. Creation of PR	LAQ/Board I/C Civil	10 days	48 days
Administrative Approval & expenditure sanction under 8.9 of BDP 2014	I/C LAQ I/C HR-ER Head SST/ FB ASM L1	20 days	68 days
Concurrence, Expenditure Sanction and convey the same to I/C Civil	I/C Finance L1	7 days	75 days
Tendering Process a. Normal tendering as per requirement b. Through Rate Contract*	I/c Civil	60 days 90 days	135 days
Execution / restoration work	I/c Civil	90 days	225 days
Intimation to be given to HSE and LAQ after restoration.	I/C Civil	5 days	230 days
Restoration information to State Pollution Control Board and Regional MOEF.	HSE	3 days	233 days
Surrendering of restored land.	LAQ	45 days	278 days

* In case of tendering in each case, the total execution and tendering time for each site shall be 278 days. In case of long term rate contract, one time activity of finalising the rate contract shall be 90 days and thereafter execution of restoration work for each site shall be 218 days.

Process & Time frame for surrender of land by LAQ :

Activity	Suggested Time Frame (Working days)
Start of procedure for surrendering of restored land.	
◦ First communication to farmer informing about completion of restoration work and to accept the possession of the land.	10 days
◦ After 15 days of first communication, visit of committee comprising of representatives from Civil, HSE, Finance, LAQ and SPALO wherever attached with ONGC at restored site with land owner(s). If land owner is not willing to take the possession of restored site, proceeding are drawn and second communication may be issued to land owner/s informing that the site has been restored and if possession is not taken by him/them, then ONGC will not be liable to pay the rent after expiry of 15 days of date of the second communication.	20 days
◦ Surrender of land	15 days
Total	45 days

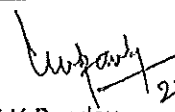
- Time frame restoration work by Civil Engg. section after accord of A/A & E/S if normal tendering procedure for each case is followed :

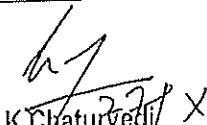
Activity	Suggested Time Frame (Working days)
Tendering activities / evaluation & award of work	60 days
Execution period	90 days
Total	150 days

- Time frame restoration work by Civil Engg. section in case of long term rate contract is followed :

Activity	Suggested Time Frame (Working days)
Tendering activities / evaluation and award of work	90 days
Execution of work at each site	90 days


V.N. Yadav
DGM (Civil)


K.K. Pandey
DGM (Chemistry)


S.K. Chaturvedi
DGM (HR)