

CONDUCTOR DRIVING SERVICES



SCOPE OF SERVICES

- ▶ Integrated Conductor Driving Services
- ▶ Slots Recovery Services
- ▶ Supply of Pipe and Accessories



MAIN APPROACHES

One can highlight the following main approaches to running and cementing of conductor casing strings in offshore wells:

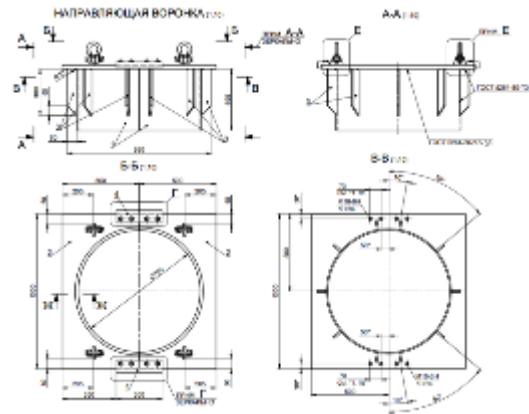
- ▶ Drilling with reaming the borehole followed by running and cementing of conductor casing;
- ▶ Driving conductor casing using a Jack-up Rig;
- ▶ Driving conductor casing using a floating crane before installation of top side;
- ▶ Driving conductor casing using drilling rig of a fixed platform.



MAIN ADVANTAGES OF DRIVING CONDUCTOR CASING

- ▶ Reliable leak proof of annulus;
- ▶ Unstable formations block off / Water or lost-circulation zones shut off;
- ▶ Eliminating risks of shallow gas blow out;
- ▶ Reduction of conductor RIH and cementing operations;
- ▶ Environmental friendly (zero discharge);
- ▶ No washout around neighboring conductor casing in clusters wells;
- ▶ Capability of driving deviated conductor casing strings.





INTEGRATED SERVICES

SELECTING CONDUCTOR CONNECTORS

Driving of conductor is practicable using both welded and special threaded connectors (by OSI, Frank's, NOV, Drill QUIP and others).

	Units	Dril-Quip		Frank's	NOV	Oil States		GE Oil & Gas
Connection brand		H-60DMT	H-60D	DDS	XLC-S	Leopard SD	Puma DF	SR-20
Nominal size	inch	30		30	30	30	30	30
Pipe wall thickness	inch	1		1	1	1	1	1
Outer diameter	inch	32,25		30	30	31,79	30	30
Inner diameters	inch	28		28	28	27,5	28	27
Compression strength	10 ⁶ lbf			4,269	3,545	5,175	5,466	5,000
Tension strength	10 ⁶ lbf	2,96		2,342	3,545	6,317	5,138	4,000
Bend strength	10 ⁶ ft-lbs	2,92		1,366	2,070	3,694	3,005	2,560
Internal pressure, at which tensions within a pipe body reach yield point	psi	4200		3266	1500	3500	3000	2000
Number of turns till complete make up	turns	5/8	2 1/2	7	6	5/8	4	6

INTEGRATED SERVICES

CONDUCTOR DRIVING OPERATIONS

Hammers Fleet from Leading Manufacturers

Diesel:

Pileco D36 – 13, 123 kJ;

Pileco D62 – 22, 224 kJ;

Hydraulic:

IHC S – 150, 150 kJ;

IHC S – 280, 280 kJ;



INTEGRATED SERVICES

CONDUCTOR DRIVING OPERATIONS

Tools for make up and running of conductor casing with threaded connections from leading manufacturers

- 200 ton spider elevator c/w slips and safety clamp;
- 150 ton side door elevator;
- PETOL SURGRIP belt tongs;
- Guide funnel;
- Cargo baskets;
- Auxiliary Equipment.



INTEGRATED SERVICES

CONDUCTOR DRIVING OPERATIONS

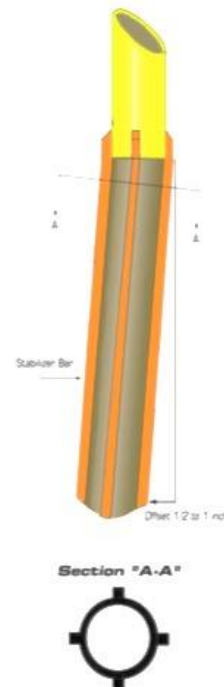
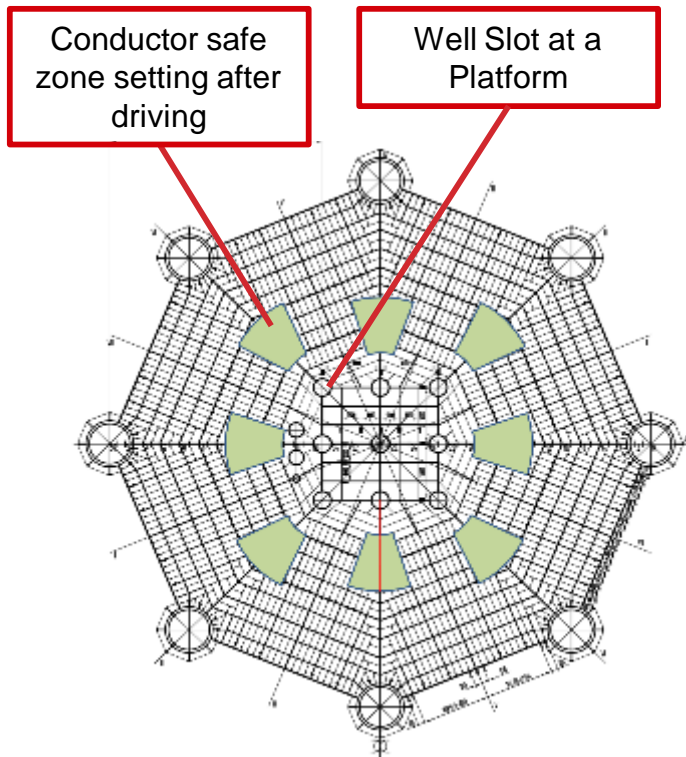
Followers (drive subs) for all types of connectors. Drive shoes for different geological conditions.



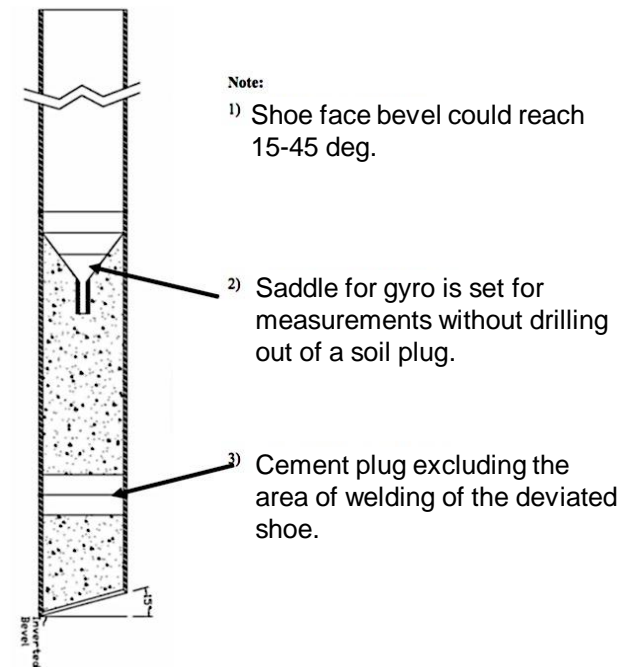
INTEGRATED SERVICES

DEVIATED CONDUCTOR DRIVING OPERATIONS

Deviated conductor driving operations allow for significant reduction of risks of boreholes collision during cluster well drilling in dense grid.



Deviated shoe



Plugged shoe with beveled cut

INTEGRATED SERVICES

DRILLING OUT OPERATIONS

In case of refusal during conductor driving operations one should drill out soil plug followed by sub-drilling if required.

- Multipurpose circulation basket for 30" conductor casing c/w hose;
- C-plate;
- 100 ton spider elevator with slips for 5" drill pipe;
- Hydraulic cutter for pipe beveling and making of 26-32 bevels (cold cut).



INTEGRATED SERVICES

REPORTING

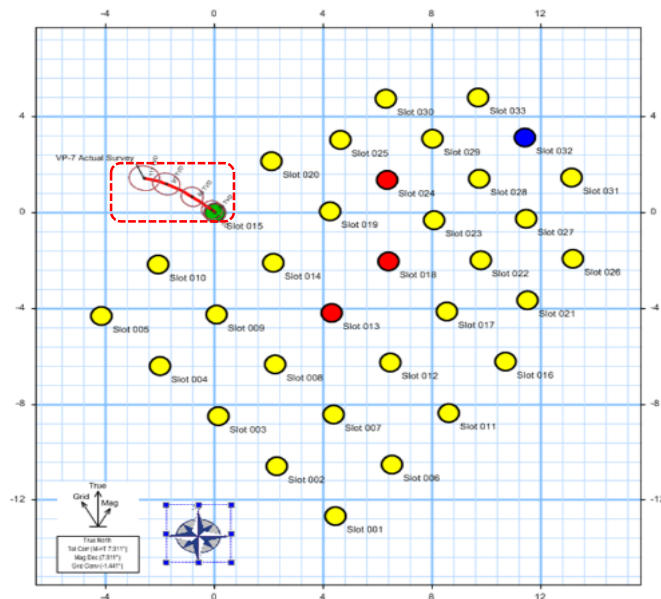
- ▶ Driving log:
 - Depth of penetration;
 - Number of blows each 25 cm of penetration;
 - Energy applied each 25 cm of penetration;
 - Driving Schedule.
- ▶ Pipe Tally;
- ▶ Conductor orientation statement;
- ▶ Daily report;
- ▶ Work performed analysis and lessons learned.



SLOTS RECOVERY

FIELD OF APPLICATION

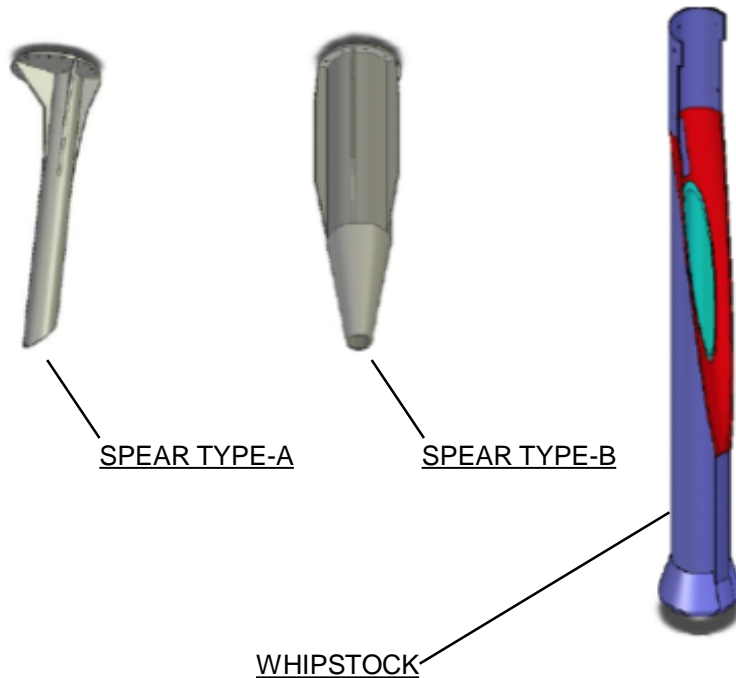
- ▶ Use of a platform slot of an abandoned well;
- ▶ Use of a platform slot in case of boreholes collision;
- ▶ Use of a slot in case a conductor casing shoe leak tightness failed to be reached.



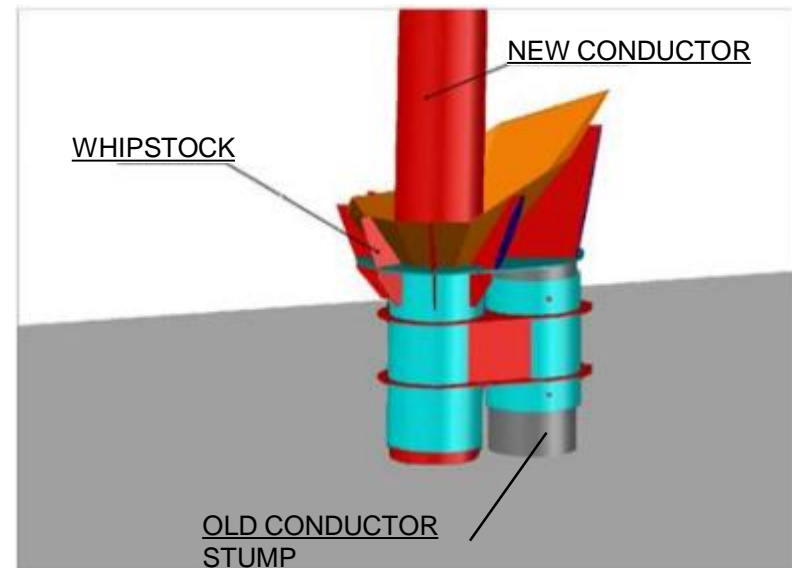
SLOTS RECOVERY

METHODS

DOWNHOLE WHIPSTOCK



SURFACE WHIPSTOCK



SLOTS RECOVERY

DOWNHOLE WHIPSTOCK

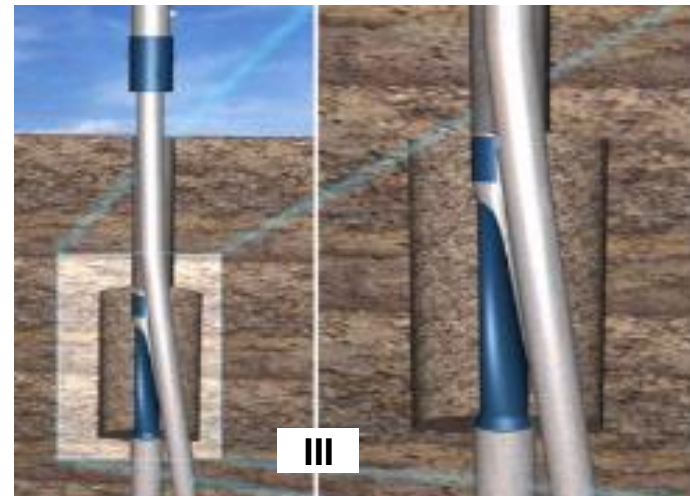
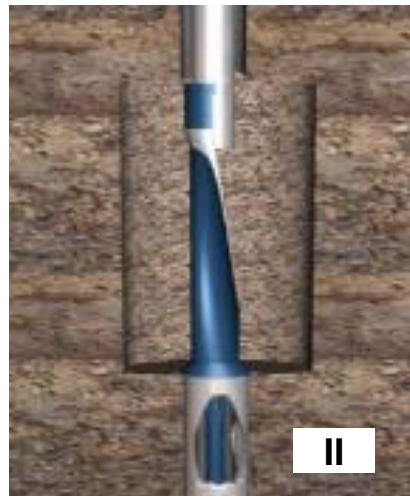
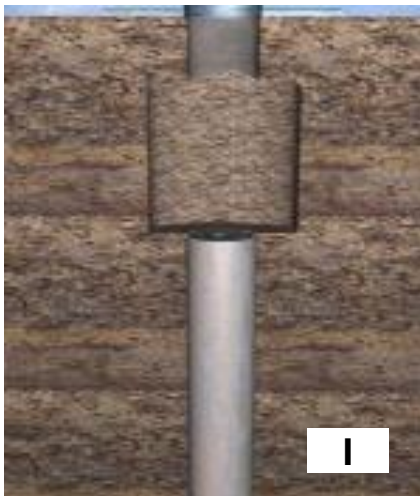
Advantages:

- No platform structure intervention required;
- No subsea operations required.

I - Cutting of conductor below mud level

II - Installing of a whipstock into the cut conductor pipe

III – Running and driving of a new conductor casing

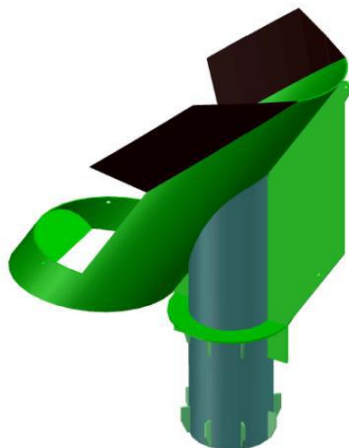


SLOTS RECOVERY

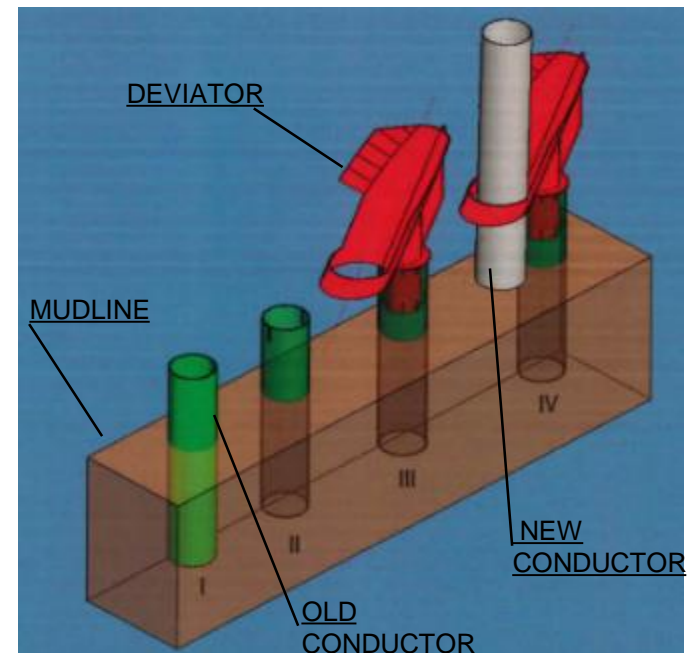
SURFACE WHIPSTOCK

Advantages:

- No impact on environment;
- No risks of whipstock orientation error.




- I - Cutting of a conductor above mudline
- II - Cutting of locking grooves
- III – Installing of the whipstock inside the cut conductor
- IV – Running and driving of new conductor



SLOTS RECOVERY

SCOPE OF SERVICES

- ▶ Analysis and working out of a technical solution;
 - ▶ Inspection of a facility;
 - ▶ Detailed engineering;
 - ▶ Fabrication of required elements and modification of platform structures;
 - ▶ Old conductor cutting and pulling out operations;
 - ▶ Whipstock running and new conductor casing driving operations;
 - ▶ Ancillary equipment and services provision:
 - Cold cutter equipment;
 - Internal pipe cutter and casing spears;
 - Equipment for conductor casing drilling and recovery;
 - Divers/ROV services.
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SUPPLY OF CONDUCTOR PIPE & ACCESSORIES

- ▶ Supply of both internationally and domestically manufactured pipes;
- ▶ Supply and welding in of connectors;
- ▶ Supply and welding in of driving shoes;
- ▶ Supply of tools and accessories for conductor casing cutting.



COMPLETED PROJECTS

Project	Client	Year
Slot recovery on MLSP-1 (OIRFP) at Yuri Korchagin field	Lukoil-NVN	2017
Driving of 11 conductor casing stings on MLSP-2 (OIRFP) at V. Filanovskiy field	Lukoil-NVN	2017
Driving of 9 conductor casing strings on WHP of Yuri Korchagin field	Lukoil-NVN	2017
Driving of a conductor casing at prospecting and appraisal well No. 4 Sarmatskaya	Lukoil-NVN	2017
Driving of piles of supporting jacket of LQP and LSP-2 (IRP) at V.Filanovskiy field in the Caspian Sea.	Lukoil-NVN	2016
Driving of piles on LAM-E jacket in the Caspian Sea	Dragon Oil	2016
Driving of conductor casing strings on LAM-A platform	Dragon Oil	2015
Driving of conductor casing strings on LAM-28 platform	Dragon Oil	2015