**ANNEX no.3 HWO Unit WORKOVER Scope of Work & Service**

 **UGS Dolní Dunajovice 2013**

1. **Scope of work**

UGS Dolní Dunajovice is located in South Morava (approx. 50 km to south from Brno, 80 km to north from Vienna and 10 km from Mikulov). Owner of UGS Dolní Dunajovice is RWE Gas Storage s.r.o.

**RWE GS has interest to install 6 TRSSSV to 6 wells of UGS Dolní Dunajovice**

 HWO unit (Contractor) will pull out old completion and new completion with TRSSSV will be installed. Current (old) tubing string will be isolated from bottom by two plugs (XN and X) and will be filled by water. Packer will be set on wire-line and plugged (XN). Well will be filled by packer fluid. Tubing string with TRSSSV will be installed and pressure tested. After space out TRSSSV will be closed and HWO unit with BOP will be replaced by X-mass tree.

**Main workover steps:**

*Preliminary jobs*

1. Well will be prepared for workover,
	* + XN-profile will be set to landing nipple and pressure tested (**RWE GS**)
		+ **Tubing string fill by water (RWE GS)**
		+ X-profile will be set to landing nipple and pressure tested (**RWE GS**),
		+ Check valve will be installed and pressure tested (**RWE GS**),
2. Well-site will be prepared for HWO unit mobilization. Fence, surface pipeline and any other equipment will be disassembled (**RWE GS**),
3. Contractor personal will be trained to local conditions (**RWE GS and Contractor**)
4. RWE GS and Contractor will check well-site and will sign transfer protocol (**RWE and Contractor**),

*Workover*

1. Mobilization (cranes service **RWE GS**)
	1. X-mass tree disassembly (**RWE GS**)
	2. BOP installation (**Contractor**)
	3. HWO unit installation (**Contractor**)
2. Spud meeting (**RWE GS & Contractor**),
3. Check valve disassembly (**RWE GS & Contractor**),
4. Packer retrieving and pulling out of hole (**Contractor**),
5. Logging (**RWE GS**),
6. Packer installation (**RWE GS** – serviceman),
7. Well fill by packer fluid (**RWE GS**),
8. Tubing string and TRSSSV installation & space out (**Contractor**),
9. Packer and tubing string pressure testing (**Contractor & RWE GS**),
10. Closing TRSSSV (**Contractor**),
11. HWO unit and BOP disassembly (**Contractor**),
12. X-mass tree installation (**RWE GS**),
13. HWO unit demobilization
14. **Scope of service**
* Engineering support in the area of preparation planning,
* Execution and end of well reporting,
* Provision of HWO equipment
* Provision of suitable experienced and trained personnel,
* Provision of associated equipment or services if required.

**Service organized by RWE GS**

* Crane service,
* Forklift service,
* Fluids,
* Diesel,
* Concrete panels as a death weights,
* Wire-line service,
* Logging service,
* Packer uninstallation service,

Service & material organized by Contractor

* Snubbing unit – complete functional package (unit, basket, BOP etc.),
* Dual flapper valve,
* Drill pipe 3 ½” IF + pup joints
* Make-up service

Annexes: for all wells:

Completion schemes

Production casing string schemes

Tubing String schemes

Xtree schemes