FluidControl Cleans Up Cuttings and Recovers OBM from Cuttings in Gabon Obangue and Tsiengui Oil Fields

Challenges

- Operating under extreme weather conditions and remote locations in the rainforest.
- A fully operational central site to service drilling rigs in remote location with river barge access only.

Well Information

- Synthetic base oil cuttings on various rig locations in the rainforest to be treated

Solution & Results

- Mobilization of a fully skid mounted hot oil thermal unit to be transported by truck between drilling locations.
- 24/7 operation to keep up with time line.
- Equipment operating efficiency above 90% on average.
- Reuse of recovered low toxicity base oil in mud system and for the process burner reducing the need of hauling diesel to the site.
- Final water treatment for rehydrating the solids after treatment.
- Treated solids with less than 1% ooc to be disposed of in engineered landfill site at location.

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In the third quarter of 2010, National Oilwell Varco was invited to bid on a package of thermal treatment of future low toxicity oil-based mud (LTOBM) cuttings from remote locations for Addax Petroleum in Gabon. The equipment was to be sent to various drilling locations and operated in the "footpath" of the drilling rig during the contract period. The drilled OBM cuttings were collected in the in- ground pits and covered against heavy rainfalls in the area. The treatment sites were designed and operated by the contractor.

The equipment and services offered were based on NOV's expertise as the largest Original Equipment Manufacturer (OEM) of thermal treatment systems with more than 20 years of manufacturing and operational experience.

The package offered included:

- Collection of cuttings from cuttings pit and operation of skid mounted Thermal Treatment Unit including collection and storage of recovered oil and water
- Recovery of valuable base oil for reuse in the LTOBM mud
- Portable Power Generators to power all the equipment
- Associated tankage and pipework, gantry crane and ancillary equipment to complete the above processes
- Mobilization and demobilization of the complete treatment site

The Results

The NOV Soil Recovery A/S model 500 Hot Oil Thermal Desorption Unit (HTDU) was installed in the first quarter of 2012. The mobile HTDU plant has a capacity of up to 2.5 MT/h input, with the average being 1.5 to 2.0 MT/h depending primarily on the water content of the cuttings. The HTDU can treat all OBM and SBM cuttings.

The thermal treatment is a continuous process. Operation of the unit requires instantaneous loading from the pit and even in-feed by traverse crane clam shell bucket. The plant itself is fully automatic and comprehensive production data is filed and reported. The recovered base oil is returned to the mud company and the recovered water is sprayed over the cleaned solids which are left on the site and buried in the original cuttings pits.

On average, the value of the recovered oil per day during operation was about $3,500. The energy provided to the whole operation (including generators) was less than 40/liter diesel per MT cuttings treated.

The complete package offered is built into standard container sized loads to facilitate mobilization, site installation and operation.