Elements of process design and progress on commissioning the QER Technology Demonstration Plant in Australia

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QER has started commissioning a fully integrated technology demonstration plant in central Queensland, Australia, processing oil shale from the Stuart deposit. The plant, which involves all the technology that would be required on a commercial facility, has at its core a Paraho retort. Whilst QER has already processed about 10,000 tonnes of Australian shale through the Paraho pilot plant in Rifle Colorado, it was realized there was a need for an Australian pilot plant to fulfill some key objectives. A primary function of the plant is to demonstrate the technology to the local community, government regulators and politicians, in particular the simplicity, stability and inherent ease of operation of the main processor. As an example, the predictable response of the retort system to a power failure will be one of the things demonstrated. Another example is a legacy issue that was created by problematic peripherals on a previous operation at the site, this being the generation of odor from the shale drying operation. The design of the Technology Demonstration Plant will prevent this occurring. A second objective of the plant is to serve as a process development test bed. This will be used to confirm proof-of-concept on some selected technology. We will also optimize key process units, generate good quality data for validating and updating the commercial plant design basis, and collect further data that would be used in preparing a commercial EIS. In addition to shale feed preparation (mining and crushing in campaigns, fines briquetting and shale pre-drying), main plant areas are: the retort and oil recovery; oil upgrading in a refinery unit to make sizable quantities of ULSD for engine testing; fuel gas treatment to remove ammonia, SO_2 and H_2S; and process water treatment by steam stripping and downstream pilot purification units. The presentation will provide an overview of the Technology Demonstration Plant process design, describe the technology selected and installed in the plant, and will include comment on progress (and experiences) to date during commissioning.