|  |  |  |
| --- | --- | --- |
| Page 23 as per SB Script | Several methods are used to extract bitumen, depending on the geology. These include surface mining; injecting steam to lower the viscosity of the bitumen to allow it to flow more freely to the surface; installing dowhole pumping systems; and injecting diluents into the wells to make the oil less viscous. |  |
| Page 23 as per SB Script  Page 24 as per shell | Canada's oil sands contain bitumen reserves of 173 billion barrels  **Venezuela's Orinoco Belt contains 272 billion barrels of extra-heavy oil** |  |
| Page 23 as per SBN | Canadian Natural Resources Ltd. (CNRL), Canada |  |
| I text page 25 as per SB | Click the onshore and offshore fields to learn more about their lifespan. |  |
| Menu Page | Shallow or deep? |  |
|  |  |  |
| Page 1 | Sendimentary basins of the world |  |
| Page 2 | Underground lake  Drenched sponge |  |
| Navigation Button | Play  Pause |  |
| Page: 14 | TPG  Unideck  Semi-Submersible  Spar  EDP  FPSO/FLNG  Offshore windmill |  |
| Page 22 | CO2 Injected |  |
|  |  |  |
| Page 24 as per shell  First pop up | Mining – 20% of the oil-sands resource  Mining shovels dig into sand and load it into huge trucks  Hot water is added to the oil sands and then fed through hydrotransport to the extraction plant  Bitumen is extracted from the oil sands during hydrotransport and in the separation vessels  The tailings are pumped to the settling basin, where water is recycled  Trucks take oil sandsto crushers, where it isprepared for extraction  Source – Capp  In situ – 80% of the oil-sands resource  Surface wellhead  Steam chamber  Steam  Injection  Steam-assisted gravity drainage  Cyclic steam process  Oil  Source – Capp  Stage 1  Steam  Injection  Stage 2  Soak  Phase  Stage 3  Production  Steam  Injected  into the  reservoir  Steam and  Groundwater  heat the  viscous oil  Heated oil  and water  pumped to  the surface |  |
| Page 25 as per Shell | Permeable rock  Coal seams  Shale rock |  |
| Page 25 Pop-up | Well is turned horizontal  Shale  Hydraulic fracturing zone  Aquifer |  |
| Page 27 end of the page | Once you have successfully completed the Module, you will be able to access the printable resources on the Course Map page. |  |