

## **G.0 Glossary**

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| <b>Term</b>                       | <b>Definition</b>   |
|-----------------------------------|---|
| \$                                | Canadian dollars  |
| 10 <sup>3</sup> m <sup>3</sup> /d | thousand cubic metres per day   |
| 2D                                | two dimensional   |
| 3D                                | three dimensional   |
| <                                 | less than   |
| >                                 | greater than  |
| AAAQO                             | Alberta Ambient Air Quality Objectives  |
| ABMI                              | Alberta Biodiversity Monitoring Institute   |
| ABSA                              | Alberta Boilers Safety Association  |
| ACC                               | Alberta Caribou Committee   |
| ACFN                              | Athabasca Chipewyan First Nation  |
| AENV                              | Alberta Environment   |
| AI-Pac                            | Alberta-Pacific Forest Industries Inc.  |
| AOSTRA UTF                        | Alberta Oil Sands Technology and Research Authority Underground Test Facility   |
| APEGGA                            | Association of Professional Engineers, Geologists and Geophysicists of Alberta  |
| API                               | American Petroleum Institute  |
| ARG                               | Aboriginal Review Group   |
| ASRD                              | Alberta Sustainable Resource Development  |
| AT                                | Alberta Transportation  |
| ATC                               | Athabasca Tribal Council  |
| ATK                               | Aboriginal Traditional Knowledge  |
| AWI                               | Alberta Wetland Inventory   |
| bbl                               | barrel  |
| BFW                               | boiler feedwater  |
| bitumen                           | highly viscous mixture, mainly hydrocarbons heavier than pentanes, that is not generally recoverable at a commercial rate through a well in its natural state |
| blowdown                          | emptying or depressurizing material in a vessel   |

| <b>Term</b>        | <b>Definition</b>   |
|--------------------|---|
| blowout preventer  | high-pressure wellhead valves designed to shut off uncontrolled flow of hydrocarbons  |
| BMP                | Best Management Practice  |
| boiler feedwater   | water that meets required purity specifications and is fed to a steam generator to produce steam  |
| BOP                | blowout preventor   |
| borrow pit         | area excavated to provide material, such as gravel, sand or clay  |
| bpd                | barrels per day   |
| BS&W               | basic sediment and water  |
| C&R Plan           | Conservation and Reclamation Plan   |
| CANOS              | Canada Oil Sands Co., Ltd.  |
| CAPP               | Canadian Association of Petroleum Producers   |
| CCME               | Council of Ministers of the Environment   |
| CEMA               | Cumulative Environmental Management Association   |
| CEMS               | Continuous Emission Monitoring System   |
| CH <sub>4</sub>    | methane   |
| climate change     | changes in climate attributed to the human-induced increase in concentration of greenhouse gases in the atmosphere                            |
| CO                 | carbon monoxide   |
| CO <sub>2</sub>    | carbon dioxide  |
| CO <sub>2E</sub>   | carbon dioxide equivalent for greenhouse gases; includes CO <sub>2</sub> , CH <sub>4</sub> and N <sub>2</sub> O emissions                     |
| condensate         | light hydrocarbon liquid obtained by condensing hydrocarbon vapours from natural gas  |
| CPDFN              | Chipewyan Prairie Dene First Nation   |
| CPF                | central processing facility   |
| CSA                | Canadian Standards Association  |
| CGS                | casing  |
| CSOR               | cumulative steam-to-oil ratio   |
| CSS                | cyclical steam stimulation  |
| CT                 | coiled tubing   |
| cumulative effects | changes to the environment caused by an action, including projects and activities, together with other past, present and future human actions |

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| Term   | Definition   |
|--|--|
| CWE  | cold water equivalent  |
| CWS  | Canada-wide Standard   |
| DCS  | distributed control system   |
| dead oil                                     | oil at sufficiently low pressure that it contains no dissolved gas   |
| Dean Start                                   | laboratory analysis performed to determine the bitumen, water and solids content of oil sands                                  |
| decommissioning, abandonment and reclamation | permanently stopping operations, removing facilities and restoring land to a productive state                                  |
| Demonstration Project                        | JACOS Hangingstone Demonstration Project   |
| DFO  | Department of Fisheries and Oceans   |
| dilbit                                       | diluted bitumen  |
| diluent                                      | light liquid hydrocarbon added to bitumen to lower viscosity and density   |
| DOVAP  | Dover VAPEX  |
| DOW  | dangerous oil field waste  |
| DQ   | deep quaternary  |
| EC   | electrical conductivity  |
| effluent                                     | liquid waste (often treated wastewater) of industrial processing   |
| EIA  | environmental impact assessment  |
| emergency response                           | action taken after event to minimize consequences of an emergency  |
| EPEA   | <i>Environmental Protection and Enhancement Act</i>  |
| ERCB   | Energy Resources Conservation Board  |
| ERP  | Emergency Response Plan  |
| ESP  | electrical submersible pump  |
| Expansion Project                            | JACOS Hangingstone Expansion Project   |
| EZE  | easement   |
| facies                                       | part of sedimentary rock that varies significantly from other parts of the bed   |
| FEED   | front end engineering and design   |
| flocculation                                 | action of contaminants or special additives in a drilling fluid that causes the solids to come together in a mass or coagulate |
| flow line                                    | surface pipe through which oil travels from the well to processing equipment or storage  |

| <b>Term</b>                  | <b>Definition</b>   |
|------------------------------|---|
| flue gas                     | gaseous combustion products from a furnace or boiler  |
| FMFN                         | Fort McMurray First Nation  |
| footprint                    | amount and shape of an area disturbed   |
| front-end engineering design | level of engineering efforts required during early stages of project development  |
| FTD                          | final total depth   |
| FToR                         | Final Terms of Reference  |
| FWKO                         | free water knockout   |
| gathering system             | pipelines and other equipment needed to transport oil, gas or both from wells to a central point                          |
| GHG                          | greenhouse gas  |
| GJ                           | gigajoule   |
| GL                           | ground level  |
| GOR                          | gas-to-oil ratio  |
| H&S                          | health and safety   |
| H <sub>2</sub> S             | hydrogen sulphide   |
| ha                           | hectare   |
| H-factor                     | heterogeneity factor  |
| HLFN                         | Heart Lake First Nation   |
| HLS                          | hot lime softener   |
| HP                           | high pressure   |
| ID                           | Interim Directive   |
| IGF                          | induced gas flotation   |
| IHS                          | inclined heterolithic stratification  |
| ILM                          | integrated land management  |
| IMP                          | Integrity Management Plan   |
| IMS                          | Integrity Management System   |
| infrastructure               | basic facilities, such as transportation, communications, power supplies and buildings that enables a project to function |
| IRC                          | Industry Relations Corp.  |
| IRP                          | integrated resource plan  |
| isopach map                  | geological map of subsurface strata showing the varying thicknesses of formation underlying an area                       |

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| <b>Term</b>                   | <b>Definition</b>  |
|-------------------------------|--|
| IWCP                          | Industrial Wildlife Control Plan   |
| JACOS                         | Japan Canada Oil Sands Limited   |
| JAPEX                         | Japan Petroleum Exploration Co., Ltd.  |
| K                             | potassium  |
| kg/d                          | kilograms per day  |
| kg/h                          | kilograms per hour   |
| knockout                      | liquid condensed from a stream by a scrubber following compression and cooling                                       |
| kPa                           | kilopascal   |
| kPag                          | kilopascals (gauge)  |
| kt/y                          | kilotonnes per year  |
| LACT                          | lease automated custody transfer   |
| LCC                           | land capability class  |
| LFE                           | large final emitters   |
| lime sludge basin             | excavation or dyked area to hold sludge from warm lime water softening process                                       |
| linear features               | anthropogenic disturbances to the landscape that are linear in nature and include roads, seismic lines and pipelines |
| LOC                           | license of occupation  |
| LP                            | low pressure   |
| LSD                           | legal subdivision  |
| LWD                           | logging while drilling   |
| m <sup>3</sup>                | cubic metres   |
| m <sup>3</sup> /d             | cubic metres per day   |
| m <sup>3</sup> /d/m           | cubic metres per day per metre   |
| m <sup>3</sup> m <sup>3</sup> | cubic metres gas to cubic metres bitumen   |
| m <sup>3</sup> /y             | cubic metres per year  |
| makeup water                  | water feed needed to replace water lost by evaporation or leakage in a closed-circuit, recycle operation             |
| MARP                          | Measurement, Accounting and Report Plan  |
| mbg                           | meters below ground  |
| MBR                           | member   |
| MCC                           | motor control centre   |
| MCFN                          | Mikisew Cree First Nation  |

| Term                                 | Definition   |
|--------------------------------------|--|
| mg/L                                 | milligrams per litre   |
| mitigation                           | measures taken to eliminate, reduce or control a project's adverse effects   |
| mKB                                  | metres kelly bushing   |
| MKR                                  | marker   |
| ML                                   | Métis Local  |
| MLL                                  | miscellaneous lease  |
| MMbbl                                | one million barrels  |
| mMD                                  | meters measured depth  |
| mPa                                  | millipascal  |
| MPa                                  | megapascal   |
| mPa-s                                | millipascal seconds  |
| ms                                   | milliseconds   |
| MSES                                 | Management and Solutions in Environmental Science  |
| MSL                                  | mineral surface lease  |
| mTVD                                 | meters total vertical depth  |
| MVR                                  | mechanical vapour recompression  |
| MW                                   | megawatt   |
| MWD                                  | measurement while drilling   |
| N                                    | nitrogen   |
| N <sub>2</sub> O                     | nitrous oxide  |
| NAABA                                | Northeastern Alberta Aboriginal Business Association   |
| National Pollutant Release Inventory | database of information on annual releases, disposal or recycling of pollutants to air, water and land from all sectors, including industrial, government and commercial |
| NCG                                  | non-condensable gas  |
| N-DOW                                | non-dangerous oil field waste  |
| Nexen                                | Nexen Inc.   |
| NO                                   | nitric oxide   |
| NO <sub>2</sub>                      | nitrogen dioxide   |
| nominal SOR                          | maximum SOR in total project life  |
| NO <sub>x</sub>                      | oxides of nitrogen   |
| ohm-m                                | ohm-metres   |
| OSCA                                 | <i>Oil Sands Conservation Act</i>  |

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| <b>Term</b>    | <b>Definition</b>   |
|----------------|---|
| OSDG           | Oil Sands Developers Group  |
| OTSG           | once-through steam generator  |
| PAH            | polycyclic aromatic hydrocarbon   |
| PCEJ           | Petro-Canada, Nexen, Imperial Oil and JACOS   |
| PDD            | public disclosure document  |
| permeability   | measure of ease with which a fluid flows through rock in response to pressure differences; permeability implies some degree of porosity in the rock                   |
| person year    | equivalent of one person working full time (40 hours week) for one year (52 weeks)  |
| pH             | measure of the relative acidity or alkalinity of a substance  |
| PIL            | pipeline installation lease   |
| PLA            | pipeline agreement  |
| PM             | particulate matter  |
| porosity       | property of a solid that contains many minute channels or open space; the fraction is a percent of the total volume occupied by these channels or spaces              |
| potable water  | water suitable for drinking   |
| ppm            | parts per million   |
| PPMP           | Professional Practice Management Plan   |
| produced water | water produced from the wellbore with bitumen and gas   |
| PSI            | pounds per square inch  |
| pToR           | proposed Terms of Reference   |
| PW             | produced water  |
| RAMP           | Regional Aquatics Monitoring Program  |
| reclamation    | returning disturbed land to its former or other productive uses   |
| RF             | recovery factor   |
| Rge            | Range   |
| right-of-way   | right of passage or crossing over someone else's land; easement in lands belonging to others obtained by agreement or lawful appropriation for public and private use |
| RMWB           | Regional Municipality of Wood Buffalo   |
| ROW            | right-of-way  |
| runoff         | portion of precipitation from rain and snow that flows over land to streams, ponds or other surface waterbodies via surface systems                                   |

| Term             | Definition   |
|------------------|--|
| S                | sulphur  |
| S&W              | sediment and water   |
| SAGD             | steam-assisted gravity drainage  |
| saline water     | groundwater with more than 4000 mg/L of total dissolved solids   |
| SAOP             | Southern Athabasca Oilsands Producers  |
| SEIA             | socio-economic impact assessment   |
| SEWG             | Soil Classification Working Group  |
| SGER             | Specified Gas Emitters Regulation  |
| SHARP            | Solvent Heat Assisted Recovery Processes   |
| SiO <sub>2</sub> | silicon dioxide  |
| sludge           | semi-solid waste from a chemical process   |
| SME              | surface materials exploration  |
| SML              | surface materials lease  |
| SO <sub>2</sub>  | sulphur dioxide  |
| SOR              | steam-to-oil-ratio   |
| SRG              | Sulphur Recovery Guidelines (ERCB Interim Directive 2001-3)  |
| stakeholder      | people or organizations with an interest or share in an undertaking, such as a commercial venture  |
| start up         | act of bringing a facility after construction from the ready (or commissioned) mode to normal, online operating mode, or restarting it after a temporary shutdown or decommissioning |
| stratigraphy     | the succession and age of distinct layers of rock and unconsolidated material  |
| sub-cool control | maximizes rate of liquid production from the reservoir while preventing steam production   |
| t                | tonne  |
| TBG              | tubing   |
| TC               | Transport Canada   |
| t/d              | tonnes per day   |
| TD               | total depth  |
| TDG              | transportation of dangerous goods  |
| TDS              | total dissolved solids   |
| TEK              | Traditional Ecological Knowledge   |
| t/h              | tonnes per hour  |

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| <b>Term</b>               | <b>Definition</b>  |
|---------------------------|--|
| THAI                      | toe-to-heel air injection  |
| TIA                       | traffic impact assessment  |
| TJ/d                      | Terajoules per day   |
| TK/TLU                    | Traditional Knowledge and Traditional Land Use   |
| TPA                       | Trapping Area  |
| TVD                       | total vertical depth   |
| Twp                       | Township   |
| U.S.                      | United States  |
| utilities                 | electricity, natural gas, water, instrument air and other services                             |
| utility corridor          | right-of-way containing pipelines, powerlines and road access                                  |
| VAPEX                     | vapour extraction  |
| VOC                       | volatile organic compound  |
| volatile organic compound | compound that boils below a temperature of about 100°C, including all non-methane hydrocarbons |
| VRU                       | vapour recovery unit   |
| VSP                       | vertical seismic profile   |
| W4M                       | West of the 4 <sup>th</sup> Meridian   |
| WAC                       | weak acid cation   |
| WBEA                      | Wood Buffalo Environmental Association   |
| WBMC                      | Wood Buffalo Métis Corp.   |
| WTI                       | West Texas Intermediate  |
| ZLD                       | zero liquid discharge  |