

# Cost Analysis and Reporting Enhancement - Glossary of Terms

updated May 4, 2011

The following definitions are specific to Cost Analysis and Reporting Enhancement (CARE) reporting forms. Any costs reported are allowable based on the *Oil Sands Royalty Regulation, 2009 (OSRR'09)* and *Oil Sands Allowed Cost (Ministerial) Regulation (OSAC)*.

## CAPITAL & OPERATING COSTS, OPERATIONS DATA , VOLUMETRIC DATA , RESERVES DATA

### CAPITAL COST DEFINITIONS

<p>Bitumen Production Facilities and Equipment</p>	<p><i>For all primary, enhanced oil recovery (EOR), steam assisted gravity drainage (SAGD), cyclical steam stimulation (CSS) and other thermal in-situ Projects, this may include equipment at or near the producing wells including pump jacks, storage for chemicals, supplies and additives, chemical injection facilities, water injection facilities, additives injection facilities, steam injection facilities, diluent blending, metering and measurement equipment and bitumen storage tanks. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off project” buildings and structures directly attributable to the Project in accordance with the Regulations. Includes all on or off-road vehicles, buses, snow clearing equipment, ski-doo’s, aircraft, helicopters, boats, barges, fuel trucks, fire protection equipment, etc. dedicated to the Project or allocated portions of similar equipment.</i></p>
<p>Capitalization Methodology</p>	<p><i>Description of the capitalization policy adopted/used by the company. (e.g. Successful Efforts methodology, Full Cost methodology) Expressed as a narrative identifying dollar threshold determination and useful life measurement.</i></p>
<p>Co-Generation Plant(s)</p>	<p><i>Gas fired plant used to generate electric energy concurrently with thermal energy. Only includes the approved oil sands royalty (OSR) Project costs for the cogeneration plant(s), and associated infrastructure, supplying steam and electricity to the Project. It is necessary to segregate the capital associated with the generation of electricity from that used for generation of steam. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p>

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<p>Delineation and Development</p>	<p><i>This relates to well activities that determine the boundaries or the extent of a reservoir or well activities within the proved reserve area. Includes seismic, core-hole testing, delineation and development drilling, well completions and all other related, incidental costs incurred on Project lands.</i></p>
<p>Emulsion Treating &amp; Cleaning and Solid Waste Disposal</p>	<p><i>For in-situ Projects, include all costs associated with cleaning of produced bitumen, including gas separators and processing equipment, treaters, water reclamation and waste water disposal facilities, heaters, pumps, process tanks, solids waste removal or other waste product removal from the treatment of oil sands substances and disposal, solid waste landfills and salt caverns, processing related diluent blending and/or recovery, vapour recovery, metering and measurement devices, communications, buildings and shelters. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p>
<p>Environmental Monitoring</p>	<p><i>Environmental monitoring provides data/information about the actual environmental impacts of a Project. They are used to monitor compliance with environmental standards or any other discharges to the environment, and to facilitate any needed Project design or operational changes. Includes the cost of air quality, soil, water quality and wildlife monitoring systems to the extent required or stipulated by the provincial or federal agencies or as part of the Project approval.</i></p>
<p>Extraction / Tailings</p>	<p><i>Separation of hydrocarbons from their source and water from the sand and clay to enable incorporation of solids into reclamation landscapes and recycling of water back into the operations. Within the extraction and tailings facilities, this may include separators, froth treatment equipment, chemical handling and storage, water systems, steam systems, tumblers, primary separation vessels, analyzers and scales, naphtha, vapour and diluent recovery units, tailings oil recovery facilities, water reclamation, tailings distribution, pumps, control systems, etc. and buildings or shelters to house these facilities. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p>

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Gathering, Distribution & Storage	<i>Gathering system means a pipeline or pipeline system, including installations and equipment associated with the pipeline or pipeline system, which transmits bitumen, solution gas used for Project operations and other oil sands products to a delivery point on Project lands. Includes all gathering systems, “in-Project” pipelines, bitumen storage and handling, water or steam distribution pipelines, power distribution systems, lighting systems, etc.</i>
Strategic Capital	<i>Capital expenditure to increase gross margin or decrease cost, e.g. through increased production capacity, product differentiation or reduced energy consumption.</i>
Mining Equipment	<i>Includes all facilities in the “mining” and “extraction” areas of a mine. This may include dams and water systems, tailings units including pumps and pipelines, retaining walls, ramps, dump pockets, breakers, crushers, cyclo-feeders, conveyor systems, scales, etc. within the “mine”. Also includes all “in-mine” trucks, heavy haulers, shovels, drag-lines, reclaimers, graders, crawler tractors, loaders, buses, etc. associated with mining operations. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off project” buildings and structures directly attributable to the Project in accordance with the Regulations. Includes all on or off-road vehicles, buses, snow clearing equipment, ski-doo’s, aircraft, helicopters, boats, barges, fuel trucks, fire protection equipment, etc. dedicated to the Project or allocated portions of similar equipment.</i>
Reclamation & Abandonment	<i>Activities for the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of land resulting in the land being able to support a range of activities similar to its previous use before oil sands development. By law, industry must post financial security equivalent to the cost of reclamation before beginning oil sands activity. Funds provided to the Environmental Protection Security Fund as required by law and returned to industry when reclamation certificates are issued. Provide aggregated capital costs for reclamation and abandonment related assets.</i>

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<p>Research</p>	<p><i>Costs for allowable in-house or third party research directly attributable to the Project as per the regulations. Costs to fund technology to solve a problem of immediate applicability to the particular Project, e.g., improving bitumen froth treatment in the Project facility; improving SAGD performance in a particular reservoir.</i></p> <p><b>Note:</b> Any consideration received from the technology developed in the Project the cost of which were allowed costs in the Project must be included as other net proceeds.</p>
<p>Steam Generation &amp; Distribution</p>	<p><i>Includes the cost of capital assets used solely for the purpose of generating steam for use in an OSR Project. The assets will be those between a boiler feed water metering facility at the inlet to the plant and the wellheads of all the steam injection wells on a Project. Steam plants may be located at a central facility or remotely located at various points within an approved OSR Project.</i></p> <p><i>Capital assets for steam generation within a co-generation facility are excluded from this category. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p>
<p>Sustaining Capital</p>	<p><i>Capital expenditure required to preserve the integrity of the asset, includes investment to mitigate once-off or recurring Health Safety Security Environment (HSSE) and reputation risks, HSSE investment required by law without which the unit/site would not have an operating license. Capital expenditures required to sustain production levels of the Project including costs for replacement production wells.</i></p>
<p>Transportation Infrastructure</p>	<p><i>Includes all Project roads, bridges, marine and air transportation infrastructure facilities, airstrips, hangers, docks, fixed radio, meteorological or navigation equipment, hangers, docks, but excluding vehicles, aircraft, helicopters, boats, barges, etc. Also includes all or an allowable portion of any “off Project” transportation infrastructure required to access the Project.</i></p>
<p>Upgrading Facilities</p>	<p><i>The process that converts bitumen and heavy crude oil into a lighter crude oil by increasing the ratio of hydrogen to carbon, either by removing carbon (coking) or adding hydrogen (hydro-processing). Includes all bitumen processing (i.e., “upgrading”) equipment, “downstream” of the Extraction plant, intended to produce synthetic</i></p>

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	<p><i>crude oil. Such equipment may include diluent recovery facilities, cokers, hydrogen units, hydro-treaters, sulphur units, sour water treaters, water systems, interconnecting piping, feed, chemical and product storage tanks, pumps and compressors, electrical equipment and distribution systems and buildings or shelters to house all such equipment. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off Project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p>
<p>Utility Plants (Mining)</p>	<p><i>Includes all plants providing “utility type” services to the Project including but not limited to raw water, treated and potable water, solid or liquid waste treatment, process steam, electricity, hydrogen, air, natural gas, syngas, etc. This category specifically excludes co-generation facilities whose costs must be reported separately. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off Project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p> <p><i><b>Note:</b> For in-situ Projects this cost would be reported under the category “Emulsion Treating &amp; Cleaning”. In addition, for in-situ Projects that construct specific utility purpose facilities within the Project this cost should be segregated and reported in the “Other” cost category.</i></p>
<p>Water Treatment &amp; Handling (In-Situ)</p>	<p><i>For in-situ Projects, include all costs associated with the sourcing, treatment, storage and distribution of water for the purpose of steam generation, water flood injection, potable water supply, etc. Includes the costs of any capital assets used to source the water and transport it to the OSR Project. Also includes all capital costs for water source facilities including wells. Includes all administration buildings, operations offices, on-site housing, cafeterias, recreation facilities, warehouses, training facilities, maintenance and fabrication shops, wash bays, emergency services buildings, permanent camps, etc. May also include all or an allowable portion of any “off Project” buildings and structures directly attributable to the Project in accordance with the Regulations.</i></p>

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<b>OPERATING COST DEFINITIONS</b>	
Cleaning Emulsion & Water Treatment Activity – Thermal Production	<i>The separation of water and bitumen emulsion into components for further treating or upgrading. Treatment process includes separation of gas and other substances, such as sand, from the production stream and may also include blending within the treatment process.</i>
Cleaning Emulsion Activity – Cold Production	<i>The separation of water and bitumen emulsion into components for further treating or upgrading. Treatment process includes separation of gas and other substances, such as sand, from the production stream and may also include blending within the treatment process.</i>
Contracted Services	<i>Provide the total costs of all third party contracted services including the costs of labour, hardware, software, equipment (excluding long term equipment rentals/leases identified below), professional services, performance inducements, bonuses, etc. for all contracts. Includes aggregate costs for third party provided utilities including services as water, sewer, compressed air and communications.</i>
Energy – Other	<i>Provide the cost of any other purchased energy (e.g. hydrogen, steam, etc.) consumed on the Project and includes the provision of non-arm's length supplied energy commodities.</i>
Environmental Levies	<i>Payments to local governments for the specific purpose of funding environmental protection and natural resource management Projects within the local government area</i>
Equipment Rentals	<i>Provide aggregated costs associated with equipment rentals or leases.</i>
Extraction / Tailings Activity	<i>Separation of hydrocarbons from their source and water from the sand and clay to enable incorporation of solids into reclamation landscapes and recycling of water back into the operations.</i>
Labour Compensation Off-Site – Direct	<i>Direct Labour Costs defined as costs specifically tracked and assigned to a function or facility incurred off-site the Project. Provide total compensation costs for all Project employees including salaries, benefits, bonuses, stock options and any other form(s) of remuneration whether fixed or variable.</i>
Labour Compensation Off-Site - Shared	<i>Provide total costs for all supplied corporate services, such as engineering, marketing, accounting, legal, human resources, etc. whose time is directly attributable to the Project and are incurred off-site of the Project. Costs include compensation (salaries, benefits, bonuses, stock options and any other form(s) of remuneration whether fixed or variable).</i>

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Labour Compensation On-Site – Direct	<i>Direct Labour Costs defined as cost specifically tracked and assigned to a function or facility incurred on-site of the Project. Provide total compensation costs for all Project employees including salaries, benefits, bonuses, stock options and any other form(s) of remuneration whether fixed or variable.</i>
Labour Compensation On-Site - Shared	<i>Provide total costs for all supplied corporate type services, such as engineering, marketing, accounting, legal, human resources, etc. whose time is directly attributable to the Project and are incurred on-site the Project. Costs include compensation (salaries, benefits, bonuses, stock options and any other form(s) of remuneration whether fixed or variable). Shared Labour Costs defined as costs that are accumulated in a general labour pool and prorated to a function or facility based on a percentage basis.</i>
Mining Activity	<i>Mining is the recovery of oil sands from the ore body.</i>
Municipal/Provincial Taxes & Fees	<i>Includes the aggregate of all taxes and fees paid to municipal and provincial governments.</i>
Processing Fees (Non-Arm’s Length)	<i>Includes the cost of all fees paid to non-arm’s length parties for processing oil sands products.</i>
Processing Fees (Third Party)	<i>Includes the cost of all fees paid to third parties for processing oil sands products.</i>
Purchased Energy - Electricity	<i>Provide the cost of all purchased electricity consumed in the Project.</i>
Purchased Energy – Natural Gas	<i>Provide the cost of all purchased natural gas consumed in the Project. This includes solution gas “deemed to be sold from one Project to another for consumption purposes so the receiving Project has a purchase cost.”</i>
Purchased Feedstock (Non-Arm’s Length)	<i>Include the cost of all bitumen, or any other oil sands products, purchased from non-arm’s length parties for processing within the Project.</i>
Purchased Feedstock (Third Party)	<i>Include the cost of all bitumen, or any other oil sands products, purchased from others for processing within the Project.</i>
Steam Generation Activity	<i>A boiler or steam generator used to create steam by applying heat energy to water.</i>

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Supplies & Materials	<i>Provide costs for all supplies and materials purchased for the Project, including but not limited to chemicals, injectants, transportation fuels, office and administrative supplies, cleaning supplies, spare parts, maintenance items, etc.</i>
Upgrading / DRU Activity	<i>All operating costs associated with upgrading bitumen to synthetic crude oil. Diluent Recovery Unit is an operating unit for solvent or diluent recovery from oil sand product streams.</i>
Utilities (UO/ES) Activity	<i>The activity of supplying an energy source to be consumed in approved oil sands processes.</i>
Well Operations Activity (Including Delineation & Development)	<i>All costs related to the operation of a producing, observation, injecting, source and disposal wells.</i>
<b>VOLUMETRIC DATA</b>	
<b>Note: Reporting on the Volumetric form is on a Project basis and not on an equity basis if more than one joint venture participant.</b>	
Bitumen	<i>The principal hydrocarbon resource produced from an oil sands Project in designated oil sands areas. Measured in m<sup>3</sup>.  <b>Note:</b> On this form for volumetric data pertaining to bitumen, third party volumes means any volumes that do not originate at the OSR Project.</i>
Coke	<i>One of the products of a thermal cracking process used to convert long chain bitumen hydrocarbon into shorter chain gases and gas oils coke. Coke is a material that is essentially pure carbon. Measured in tonnes.</i>
Consumed	<i>A product utilized or expended in an approved oil sands process.</i>
Delivered to the Royalty Calculation Point (RCP)	<i>As defined in the OSRR'09 Part 4 Division 2 Section 30.</i>
Diluent	<i>A hydrocarbon fluid that is used to dilute bitumen and heavy oil so as to reduce its viscosity for easier transportation. Measured in m<sup>3</sup>.</i>
Electricity	<i>Electricity may be generated on a Project site, normally using gas fired generators, or from a co-generation plant where steam is also produced. It may also be purchased from or sold to a third party through an electrical power transmission grid. Measured in KWh.</i>

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CO <sub>2</sub> - Green House Gas (GHG) Emissions	<i>Greenhouse Gas Emission: Release of CO<sub>2</sub> equivalent based on the sum of direct emissions of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydro fluorocarbons (HFC), per fluorocarbons (PFC), and sulphur hexafluoride (SF<sub>6</sub>). Measured in ktonnes.</i>
Heavy Minerals	<i>Heavy minerals include typically zirconium, titanium, thorium, tungsten and rare earth elements. Measured in kg.</i>
Natural Gas	<i>Naturally occurring mixtures of hydrocarbon gases and vapours, mostly methane (CH<sub>4</sub>) and may be used as a thermal energy source or as a source of hydrogen for various hydro-treating processes.</i>  <i><b>Note:</b> This included solution gas as defined in the OSRR'09 Part 1 Section 1(1)(rr). Measured in 10<sup>3</sup>m<sup>3</sup>.</i>
Overburden	<i>Overburden refers to the material that lies above the area of economic interest (i.e., the rock and soil that lies above the oil sands deposit). Overburden is removed during surface mining and is typically stored to be later used in reclamation to restore a mining site to a semblance of its condition before mining began. Measured in banked cubic meters.</i>
Processed	<i>Processing means the action of creating new product(s) from existing product(s) by:</i> <ul style="list-style-type: none"> <li>- <i>Extracting component gases and/or liquids from a product;</i></li> <li>- <i>Combining two or more products; and</i></li> <li>- <i>Altering the state in which a product exists, i.e., changing a product from a solid state to a liquid state.</i></li> </ul>
Produced	<i>Produced means unsold, unprocessed substance composed of products recovered from a formation, which originates at the first point of separation/measurement after the wellhead or surface and ends at the next processing point.</i>
Purchased	<i>A product or service purchased for use in an approved oil sands process.</i>
Solvents	<i>Solvents are fluids, capable of dissolving with the oil they contact, injected into a reservoir to form a single liquid that can move through the reservoir to a producing well more easily than the original crude oil. Measured in m<sup>3</sup>.</i>

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Steam	<i>Steam refers simply to vaporized water. It is a two-phase mixture of liquid water and steam produced from a generator or boiler. Higher quality steam has higher vapour content. In thermal recovery operations, it is injected into reservoirs to reduce the viscosity of the bitumen so it will flow more easily to a producing well bore or to provide heat to a variety of processing plants. Measured in tonnes/day and reported in cold water equivalent (CWE) m<sup>3</sup>. Steam is measured in the number of meters cubed of cold water that will be vaporized to generate the steam.</i>
Sulphur	<i>Elemental sulphur is produced from a process to remove hydrogen sulphide from produced hydrocarbons including bitumen, heavy oil and solution gas. It may be shipped to market in liquid or solid form or, due to ongoing limited markets and low prices, is often stored by pouring molten sulphur into large solid blocks pending its sale. Measured in tonnes.</i>
Synthetic Crude Oil	<i>A mixture mainly of pentanes and heavier hydrocarbons which may also contain sulphur compounds that is derived from crude bitumen and is liquid at the conditions under which its volume is measured. The output of a process employed to “upgrade” (through the addition of hydrogen or the rejection of carbon) bitumen into a marketable product as feedstock for multiple downstream refineries. Measured in m<sup>3</sup>.</i>
Tailings	<i>Tailings are the waste material from the Extraction Plant in an oil sands mining operation. Tailings are principally water but contain significant amounts of clay, residual hydrocarbon, heavy metals and other impurities. Measured in m<sup>3</sup>.</i>
Water	<i>In the context of an OSR Project, it may refer to ground water, produced water, surface fresh water, processed or treated water, waste water, etc. Measured in m<sup>3</sup>.</i>
<b>OPERATIONS DATA</b>	
CO <sub>2</sub> Capture	<i>The total amount of CO<sub>2</sub> captured and shipped to an approved “sequestration” Project or facility which utilizes or further processes the CO<sub>2</sub> such that it is not released into the atmosphere.</i>
CO <sub>2</sub> Emissions	<i>The calculated total amount of CO<sub>2</sub> emissions from the OSR Project in Tonnes per year as required by the mandatory GHG reporting initiative started in 2004.</i>
NO <sub>x</sub> Emissions	<i>The total amount of Nitrogen Oxides emissions in annual average tonnes per day from all sources within the OSR Project.</i>

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Number of Site Staff (Full Time Equivalency – FTE)	<i>The total number of operator employed permanent staff whose principal place of work is at the OSR Project and whose compensation is charged to the Project as a component of the “operating cost”.</i>
SO <sub>2</sub> Emissions	<i>The total amount of sulphur dioxide emissions in annual average tonnes per day from all sources within the OSR Project.</i>
Water Recycle Rate	<i>The amount of process water that is recycled as a percentage of total water used on the Project.</i>  <i>Water Recycle Rate (%) = (Volume of produced water in recycle stream) / (Total inflow of water to the water processing plant) x 100</i>
<b>DEPOSIT &amp; RESERVOIR DATA</b>	
Bitumen Density	<i>Bitumen Density – a measure of the mass of a substance per unit of volume (i.e., kg/m<sup>3</sup>) the mass occupies, usually reported at standard temperature and pressure (STP). For bitumen, the density measurement is the value derived from a representative bitumen sample that has been prepared and measured according to generally accepted standard practices (i.e., ASTM4052)</i>
Bitumen Viscosity	<i>Viscosity is a measure of the resistance of a fluid to flow and normally measured in centipoises (“cP”). It is commonly perceived as "thickness".</i>
Deposit Thickness	<i>Provide the weighted average thickness of the recoverable oil sands deposit within the OSR Project.</i>
Depth to Top of Deposit	<i>The distance from the top of the oil sands deposit to the surface measured in meters.</i>
Mine Area	<i>The total expected surface area of the mine, excluding any sterilized area, measured in meters squared.</i>
Oil Grade	<i>The determination of the amount of bitumen within the oil sands deposit.</i> <i>Low grade – approximately 8% bitumen</i> <i>Medium grade - approximately 10% bitumen</i> <i>High grade - approximately 13% bitumen</i>
Oil Saturation	<i>The measurement of the fraction, or percentage of the total pore volume of the reservoir occupied by bitumen. Measured as a percentage.</i>

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Original Bitumen in Place (OBIP)	<i>The original oil in place is the total hydrocarbon content of an oil reservoir before the commencement of production. Oil in place should not be confused with oil “reserves” that are the technically and economically recoverable portion of it. Provide the calculated OBIP for the producing horizon within the area as defined by the operator.</i>
Permeability - Horizontal	<i>The measure of ease with which a fluid flows in a horizontal direction through the connected pore space of a reservoir rock ability typically measured in Darcie’s or milliDarcies. Permeability should be measured as the absolute permeability using 100 percent saturation of a liquid (brine) in the reservoir. Provide a weighted average permeability of the bitumen producing zone within the OSR Project. Average – weighted average permeability of the bitumen producing zone within the OSR Project. Range – range across the Project area</i>
Permeability – Vertical	<i>The measure of ease with which a fluid flows in a vertical direction through the connected pore space of a reservoir rock ability typically measured in Darcie’s or milliDarcies. Permeability should be measured as the absolute permeability using 100 percent saturation of a liquid (brine) in the reservoir. Average – weighted average permeability of the bitumen producing zone within the OSR Project. Range – range across the Project area</i>
Porosity	<i>The percentage of pore volume or void space that can contain fluids. Provide a weighted average porosity of the producing zone within the OSR Project.</i>
Reservoir Area	<i>The area used to determine the bulk volume of crude bitumen deposit measured in meters squared. - For land based approvals the reservoir area is the entire OSR Project area. - For well based approvals the reservoir are is the well drainage area.</i>
Reservoir Depth	<i>Provide the weighted average depth from surface to the top of the producing zone within the OSR Project.</i>
Reservoir Net Pay	<i>Defined as the thickness of the porous, permeable interval of the reservoir containing oil sands reserves which are anticipated to be economically recoverable. Calculated as the weighted average reservoir net pay over the entire OSR Project area.</i>

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Reservoir Pressure - Initial	<i>The initial reservoir pressure at the reference elevation of a pool upon discovery.</i>
Reservoir Temperature - Initial	<i>The initial reservoir temperature at the reference elevation of a pool upon discovery.</i>
Reservoir Thickness	<i>Calculated as the weighted average thickness of the oil sands zone over the entire OSR Project area.</i>
<b>RESERVES DATA</b>	
Initial Proven Reserves	<p><i>Defined in either COGEH or SPE - PRMS as bitumen reserves within the company defined Project area having a "high degree of certainty" (90% probability) of being produced using current technology at current prices, with current commercial and regulatory terms and conditions prior to first production at inception of the OSR Project application.</i></p> <p><i>For OSR Projects approved prior to June 30, 2009, operators may determine the "As at Date" to provide the DOE with a historical date. Operator defined date must be December 31, 2008 or earlier.</i></p> <p><b>Note:</b> <i>Report gross reserves calculated prior to royalty determination.</i></p>
Initial Proven + Probable Reserves	<p><i>Defined in either COGEH or SPE - PRMS as bitumen reserves within the company defined Project area that is reasonably probable (50% probability) of being produced using current or likely technology at current prices, with current commercial and regulatory terms and conditions prior to first production at inception of the OSR Project application.</i></p> <p><i>For OSR Projects approved prior to June 30, 2009, operators may determine the "As at Date" to provide the DOE with a historical date. Operator defined date must be December 31, 2008 or earlier.</i></p> <p><b>Note:</b> <i>Report gross reserves calculated prior to royalty determination.</i></p>
Methodology Used to Determine Reserves	<i>Canadian Oil and Gas Evaluation Handbook (COGEH) Society of Petroleum Engineers –Petroleum Resource Management System (SPE-PRMS)</i>

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Project Area	<i>Defined as the area consistent with the operator's current life plan for the Project. Identify all OSR Project(s), ERCB Approved Project Area(s) and Approved OS leases. Plat style map to be submitted to depict operator's definition of Project area with corresponding township, range and section.</i>
Remaining Proven Reserves	<i>Defined in either COGEH or SPE - PRMS as remaining bitumen reserves within the company defined Project area having a "high degree of certainty"(90% probability)of being produced using current technology at current prices, with current commercial and regulatory terms and conditions as of December 31 of the previous calendar date.</i>  <i><b>Note:</b> Report gross reserves calculated prior to royalty determination.</i>
Remaining Proven + Probable Reserves	<i>Defined in either COGEH or SPE - PRMS as remaining bitumen reserves within the company defined Project area that is reasonably probable (50% probability)of being produced using current or likely technology at current prices, with current commercial and regulatory terms and conditions as of December 31 of the previous calendar date.</i>  <i><b>Note:</b> Report gross reserves calculated prior to royalty determination.</i>
<b>REVENUE REPORTING</b>	
<b>COVER PAGE</b>	
Cleaned Crude Bitumen	<i>Crude bitumen from which impurities have been removed sufficiently to allow it, when blended with diluent, to be transported by pipeline or truck or any other means of transportation.</i>
Density (Cleaned Crude Bitumen)	<i>Bitumen Density – a measure of the mass of a substance per unit of volume (i.e., kg/m<sup>3</sup>) the mass occupies, usually reported at standard temperature and pressure (STP). For bitumen, the density measurement is the value derived from a representative bitumen sample that has been prepared and measured according to generally accepted standard practices (i.e., ASTM4052).</i>
Sulphur Content (Cleaned Crude Bitumen)	<i>The amount of sulphur, as a percentage of volume, contained within the cleaned crude bitumen at the royalty calculation point. Measured as a percentage of volume (i.e., (sulphur m3/bitumen stream m3) x 100% = Sulphur %).</i>

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Total Acid Number - TAN (Cleaned Crude Bitumen)	<i>Total Acid Number is the amount of potassium hydroxide in milligrams that is needed to neutralize the acid in one gram of cleaned crude bitumen. Measured in mg KOH/g.</i>
Stream Name	<i>Bitumen blend that comes from a specific area with a consistent quality or bitumen that comes from a heated pipeline Choose the Stream Name from the drop down. If the Stream Name does not appear in the drop down menu, use Other Stream and enter the name in the If Other Stream cell. If the moniker changes before it reaches the Point of Sale, please specify the new moniker in the notes section and contact the department for a Secondary Blend Revenue form.</i>
<b>BITUMEN/BITUMEN BLEND REVENUE</b>	
Arm's Length Transactions	<i>Where an operator sells goods and services to an entity with which the operator does not have a relationship, these transactions would be considered at arm's length. A relationship is considered arms length if it does not meet the Non Arm's Length definition below.</i>
Handling Charge	<i>As defined under the Regulation, the cost to transport the oil sands product from the RCP to a sales point relating to sales volumes sold in that month and reported on the GFE or MRC. Such costs may include prorated pooled costs relating to cost of service for use of the pipeline and pipeline tariffs and trucking costs incurred.</i>  <i><b>Note:</b> Enter one monthly total for all Arms' Length Volumes transacted in the month and one monthly total for all Non Arms' Length Volumes transacted in the month for the stream, irrespective of Point of Sale.</i>
Month of Sale	<i>The month in which the transfer of title occurs.</i>
Non Arm's Length Transactions	<i>Where an operator sells goods and services to an entity with which the operator has a relationship these transactions would be considered at non-arm's length. Persons shall be regarded as not dealing at arm's-length with each other if, for the Period as defined under the Regulation, they are related parties within the meaning of the CICA Handbook published from time to time by the Canadian Institute of Chartered Accountants.</i>
Point of Sale	<i>The location where the title transfer of the product occurs. If the transfer occurs in Canada, identify the hub or terminal. If title transfer occurs in the US, identify the State and Petroleum Administration Defense District (PADD).</i>

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Product Type	<p><i>Bitumen or blended bitumen.</i></p> <p><i>Dilbit - Dilbit is an abbreviation of 'diluted bitumen.' The bitumen has been blended with condensate or naphtha or other types of diluents excluding synthetic crude oil.</i></p> <p><i>SynBit - The bitumen has been blended with synthetic crude oil.</i></p> <p><i>SynDilBit – The bitumen that has been blended with synthetic crude oil and condensate.</i></p>
Product Volumes	<p><i>Bitumen blend stream volumes sold as measured in cubic metre. Identify in the footnote section whether the sales volumes contain sales volumes subject to conventional royalty calculations (PSR). Enter volumes sold at Arm's Length and Non-Arm's Length transactions.</i></p>
Product Price	<p><i>The consideration received in Canadian dollars per cubic meter for the blended bitumen stream volumes sold. If multiple sales occur at the same point of sale then report the weighted average price. For each Point of Sale, enter Product Prices for volumes sold at Arm's Length and Non-Arm's Length transactions.</i></p>
<b>BITUMEN BLEND NETBACK CALCULATION</b>	
Blend Volume	<p><i>Identify the volume of bitumen blend crossing the RCP. Report the volume in cubic metre.</i></p>
Diluent Sent back to Project	<p><i>Identify if the diluent was sent back to the OSR Project or to the diluent pool outside the OSR ring fence. Report "Yes" or "No" in the field.</i></p>
Diluent Type	<p><i>The type of diluent blended with the bitumen to meet pipeline specifications. E.g. Butane, condensate, synthetic crude oil etc. Use drop down menu to select Diluent Type. If the Diluent Type does not appear in the drop down list choose Other, and enter the Diluent Type in the Notes section.</i></p>
Diluent Volume	<p><i>Diluent Volume is the volume of diluent (per diluent type) in the bitumen blend crossing the RCP. Report the volume in cubic metre. If diluent is added after the RCP yet before the Point of Sale, assume that the diluent is added at the RCP.</i></p>
Diluent Price	<p><i>The price of diluent (per diluent type) used in the bitumen blend. If pooled diluent is used then the weighted average price should be reported.</i></p>

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Month of Sale	<i>The month in which transfer of title occurs.</i>
Shrinkage Volume	<i>Identify the shrinkage volume resulting from the blending of hydrocarbons with disparate densities. Report the volume in cubic metre.</i>
<b>DILUENT SUPPLIED TO PROJECT – IN-SITU PROJECTS</b>	
Arm's Length Transactions	<p><i>Where an operator acquires goods and services from an entity with which the operator does not have a relationship these transactions would be considered at arm's length.</i></p> <p><b>Note:</b> <i>Enter the diluent volume supplied at Arm's Length as a percentage of total diluent volume supplied.</i></p>
Non Arm's Length Transactions	<p><i>Where an operator acquires goods and services from an entity with which the operator has a relationship these transactions would be considered at non-arm's length.</i></p> <p><b>Note:</b> <i>Persons shall be regarded as not dealing at arm's-length with each other if, at a material time under the Regulation, they are related parties within the meaning of the CICA Handbook published from time to time by the Canadian Institute of Chartered Accountants.</i></p>
Diluent Pool Location	<i>The location where the diluent is injected into the diluent pool. The physical location of the diluent pool where the weighted average price (WAP) is calculated for application to the OSR Project. If referencing a pipeline, add the location of the pipeline.</i>
Diluent Density	<i>Density is defined as the mass of a substance per unit volume. Provide the diluents density in kg/m<sup>3</sup>. If diluent is pooled, identify the blended density of the diluent.</i>
Diluent Type	<i>The type of diluent blended with the bitumen to meet pipeline specifications. E.g. Butane, condensate, synthetic crude oil.</i>
Mode of Transportation	<i>The method of transporting the diluent to the OSR Project. Report pipeline or trucking or any other means of transportation on separate lines.</i>
Month of Supply	<i>The month in which the transfer of title occurs.</i>
Diluent Price	<i>The diluent purchased price in Canadian dollars per cubic metre. If diluent is pooled, report the weighted average price.</i>

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Transportation Costs	<i>Costs associated with transporting diluent from the diluent pool location, where the weighted average price (WAP) calculation is triggered, to the OSR Project. If the diluent price includes the transportation cost, input “Included”.</i>
Volume	<i>Volume of diluent from the diluent pool that goes to the OSR Project. Report volumes in cubic metre. This does not have to match with the volumes reported in the GFE/MRC-1 forms.</i>
<b>TRANSPORTATION COSTS – IN-SITU PROJECTS</b>	
Destination	<i>For each mode of transportation, identify the point where the product was unloaded, reaches a Canadian hub or reaches its title transfer point. For Canadian hub, identify (e.g. Hardisty or Edmonton). For US destinations, identify State and Petroleum Administration Defense District (PADD).</i>
Includes Diluent Return	<i>Indicate with Yes or No whether diluent return line costs are included in the transportation costs.</i>
Mode of Transportation	<i>The method of transporting the sales product from RCP to the title transfer point of sale. Report pipeline, rail or trucking on separate lines.</i>
Month	<i>The month in which the transportation costs are incurred.</i>
Origin	<i>For initial transportation identify the OSR Project area (e.g. Cold Lake, Wabasca, Peace River, etc.) If the title transfer occurs in the US, identify the Canadian hub (e.g. Hardisty or Edmonton).</i>
Product	<p><i>Bitumen or blended bitumen.</i></p> <p><i>Dilbit - Dilbit is a syllabic abbreviation of ‘diluted bitumen’. The bitumen has been blended with condensate or naphtha or other types of diluents excluding synthetic crude oil.</i></p> <p><i>SynBit - The bitumen has been blended with synthetic crude oil.</i></p> <p><i>SynDilBit – The bitumen that has been blended with synthetic crude oil and condensate.</i></p>
Stream	<p><i>Bitumen blend that comes from a specific area with a consistent quality or bitumen that comes from a heated pipeline (LLE).</i></p> <p><i>Example: Cold Lake Blend (CLB)</i></p> <p><i>Peace River Blend (PRB)</i></p>
Volumes Transported	<i>Actual transported volumes from the origin to the destination. Measured in cubic metres and based on product movement.</i>

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Transportation Cost	<i>Aggregated transportation costs based on actual invoices or cost of service and product movement related to a title transfer location. If the title transfer occurs in the US, the costs must be disaggregated into a Canadian component and an US component. (i.e., Aggregate costs from the OSR Project location to a Canadian hub and from the Canadian hub to the US State/PADD).</i>
<b>OTHER OIL SANDS PRODUCTS REVENUE – MINING &amp; IN-SITU PROJECTS</b>	
Arm's Length Transactions	<i>Where an operator sells goods and services to an entity with which the operator does not have a relationship, these transactions would be considered at arm's length.</i>
Non Arm's Length Transactions	<i>Where an operator sells goods and services to an entity with which the operator has a relationship these transactions would be considered at non-arm's length.</i>  <i><b>Note:</b> Persons shall be regarded as not dealing at arm's-length with each other if, at a material time under the Regulation, they are related parties within the meaning of the CICA Handbook published from time to time by the Canadian Institute of Chartered Accountants.</i>
Destination	<i>The location where the title transfer of the product occurs.</i>
Mode of Transportation	<i>The method of transporting the sales product from the Project to the title transfer point of sale. Report pipeline, rail or trucking on separate lines.</i>
Month of Sale	<i>The month in which transfer of title occurs.</i>
Other Handling Costs	<i>Costs other than transportation that are incurred to move the product to the destination.</i>
Price	<i>Price per other oil sands product type in Canadian dollars per product unit.</i>
Other Oil Sands Product	<i>As defined in the Regulation. Examples include coke, sulphur (excluding sulphur from solution gas) etc.</i>
Transportation Cost	<i>Cost incurred to transfer the product from the OSR Project to the destination (title transfer point) in Canadian dollars.</i>
Volume	<i>Volume of the Other Oil Sands Product. State specific product unit.</i>