

## TABLE OF CONTENTS

<b>A. PROJECT INTRODUCTION.....</b>	<b>A-1</b>
<b>A.1 THE PROJECT .....</b>	<b>A-1</b>
<b>A.2 THE PROPONENT .....</b>	<b>A-2</b>
<b>A.3 PROJECT NEED AND ALTERNATIVES .....</b>	<b>A-3</b>
A.3.1 Project Need.....	A-3
A.3.2 Alternatives.....	A-4
<b>A.4 APPLICATION FOR APPROVAL.....</b>	<b>A-8</b>
A.4.1 Name of Applicant.....	A-8
A.4.2 Existing Operations and Approvals .....	A-9
A.4.3 Expansion Activities and Approvals/Amendments .....	A-9
A.4.4 Additional Approvals Associated with the Application .....	A-11
A.4.5 Application Guide and Description .....	A-11
<b>A.5 REGIONAL SETTING .....</b>	<b>A-12</b>
<b>A.6 DEVELOPMENT PLAN .....</b>	<b>A-13</b>
<b>A.7 SUMMARY STAKEHOLDER CONSULTATION .....</b>	<b>A-14</b>
A.7.1 Stakeholder Consultation.....	A-14
A.7.2 Consultation Activities .....	A-15
A.7.3 General Information.....	A-16
A.7.4 TEK and TLU .....	A-16
<b>A.8 SUMMARY OF ENVIRONMENTAL, HISTORICAL RESOURCES AND SOCIO-ECONOMIC IMPACT ASSESSMENT .....</b>	<b>A-16</b>
A.8.1 Air Quality .....	A-18
A.8.2 Aquatic Resources .....	A-20
A.8.3 Groundwater .....	A-22
A.8.4 Historical Resources .....	A-23
A.8.5 Human and Wildlife Health .....	A-24
A.8.6 Hydrology .....	A-26
A.8.7 Noise .....	A-27
A.8.8 Socio-Economic .....	A-27
A.8.9 Soil Resources.....	A-29
A.8.10 Vegetation, Wetlands and Rare Plants.....	A-30
A.8.11 Wildlife .....	A-32
A.8.12 Greenhouse Gas .....	A-33
A.8.13 Land and Resource Use .....	A-34
<b>B. PROJECT DESCRIPTION.....</b>	<b>B-1</b>
<b>B.1 GENERAL DESCRIPTION.....</b>	<b>B-1</b>
B.1.1 Phase 1 Overview .....	B-1

B.1.2	Phase 2 Overview .....	B-2
B.1.3	Phase 3 Overview .....	B-2
<b>B.2</b>	<b>GEOLOGY AND RESERVES .....</b>	<b>B-2</b>
B.2.1	Geological Data and Control .....	B-2
B.2.2	Regional Geology .....	B-4
B.2.3	Project Area Geology.....	B-6
B.2.4	Bitumen Distribution and Reserves .....	B-7
B.2.5	Hydrogeology .....	B-10
<b>B.3</b>	<b>RESERVOIR RECOVERY PROCESS.....</b>	<b>B-10</b>
B.3.1	Recovery Process Selection .....	B-10
B.3.2	SAGD Recovery Process Description .....	B-11
B.3.3	Bitumen Production Rate and Recovery Estimates .....	B-11
B.3.4	Reservoir Performance Monitoring .....	B-23
B.3.5	Caprock Evaluation.....	B-23
<b>B.4</b>	<b>PRODUCTION PADS AND HORIZONTAL WELLS .....</b>	<b>B-24</b>
B.4.1	Well Pad Layout .....	B-24
B.4.2	Drilling and Completion .....	B-24
B.4.3	Drilling Waste Management.....	B-26
B.4.4	Casing Failure Monitoring Program .....	B-26
B.4.5	Well Performance Monitoring .....	B-27
<b>B.5</b>	<b>CENTRAL PROCESSING FACILITY (CPF).....</b>	<b>B-27</b>
B.5.1	Central Processing Facility (CPF) Layout .....	B-27
B.5.2	Oil Production System .....	B-28
B.5.3	Produced Water De-Oiling System.....	B-30
B.5.4	Oil Recycle and Treatment System.....	B-31
B.5.5	Source Water Pre-Treatment .....	B-32
B.5.6	Produced Water Treatment System and Boiler Feed Water .....	B-32
B.5.7	Steam Generation System.....	B-34
B.5.8	Fuel Gas and Produced Gas Recovery System .....	B-35
B.5.9	Gas Flaring System .....	B-36
B.5.10	Cooling and Heating Systems.....	B-36
B.5.11	Above Ground Interconnecting Pipeline System.....	B-37
B.5.12	Electrical Power.....	B-38
B.5.13	Emergency Power .....	B-38
B.5.14	Sanitary and Potable Water System.....	B-39
B.5.15	Utility Steam .....	B-39
B.5.16	Domestic Sewage.....	B-39
B.5.17	Drain System.....	B-39
B.5.18	Compressed Air System.....	B-39

B.5.19	Fire and Gas Detection .....	B-39
B.5.20	Chemical Use.....	B-39
<b>B.6</b>	<b>MATERIAL AND ENERGY BALANCE .....</b>	<b>B-40</b>
B.6.1	Material Balance .....	B-40
B.6.2	Energy Balance .....	B-42
<b>B.7</b>	<b>WATER MANAGEMENT .....</b>	<b>B-44</b>
B.7.1	Volume of Process Make Up Water .....	B-45
B.7.2	Source of Process Make Up Water .....	B-45
B.7.3	Sanitary and Potable Water Supply Requirements and Source .....	B-45
B.7.4	Drainage Management .....	B-45
B.7.5	Waste Water Disposal.....	B-46
<b>B.8</b>	<b>OFFSITE CONNECTIONS .....</b>	<b>B-46</b>
B.8.1	Transportation .....	B-46
B.8.2	Electrical Supply.....	B-47
B.8.3	Fuel Gas Supply.....	B-47
B.8.4	Fresh Water Supply and Storage.....	B-47
B.8.5	Diluent and Oil Sales Pipelines .....	B-47
<b>B.9</b>	<b>HEALTH, SAFETY, AND ENVIRONMENTAL MANAGEMENT.....</b>	<b>B-48</b>
B.9.1	Policies .....	B-48
B.9.2	Integrated Environmental Health and Safety Management Plan.....	B-49
<b>C.</b>	<b>ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY .....</b>	<b>C-1</b>
<b>C.1</b>	<b>INTRODUCTION.....</b>	<b>C-1</b>
<b>C.2</b>	<b>ENVIRONMENTAL IMPACT ASSESSMENT CONSIDERATIONS.....</b>	<b>C-1</b>
C.2.1	Environmental Impact Assessment Requirements.....	C-1
C.2.2	Environmental Impact Assessment Definitions.....	C-2
C.2.3	Public Disclosure Document and EIA Terms of Reference .....	C-2
C.2.4	Scope of Assessment .....	C-4
C.2.5	Steps in the Environmental Impact Assessment Process.....	C-11
C.2.6	Follow-up and Monitoring.....	C-17
<b>C.3</b>	<b>APPLICATION OF THE METHODOLOGY .....</b>	<b>C-17</b>
<b>D.</b>	<b>ENVIRONMENTAL IMPACT ASSESSMENT .....</b>	<b>D-1</b>
<b>D.1</b>	<b>AIR QUALITY .....</b>	<b>D-2</b>
D.1.1	Introduction and Terms of Reference .....	D-2
D.1.2	Air Quality and Meteorological Observations.....	D-5
D.1.3	Emission Estimates .....	D-5
D.1.4	Assessment Results.....	D-7
D.1.5	Mitigation and Monitoring.....	D-15
D.1.6	Summary .....	D-15
<b>D.2</b>	<b>AQUATIC RESOURCES .....</b>	<b>D-19</b>

D.2.1	Introduction and Terms of Reference .....	D-19
D.2.2	Baseline Conditions .....	D-20
D.2.3	Predicted Conditions.....	D-25
D.2.4	Mitigation and Monitoring.....	D-29
D.2.5	Summary of VECs .....	D-31
<b>D.3</b>	<b>GROUNDWATER.....</b>	<b>D-33</b>
D.3.1	Introduction and Terms of Reference .....	D-33
D.3.2	Baseline Conditions .....	D-34
D.3.3	Predicted Conditions.....	D-39
D.3.4	Mitigation and Monitoring.....	D-42
D.3.5	Summary of VECs .....	D-42
<b>D.4</b>	<b>HISTORICAL RESOURCES.....</b>	<b>D-44</b>
D.4.1	Introduction.....	D-44
D.4.2	Baseline Conditions .....	D-45
D.4.3	Predicted Conditions.....	D-45
D.4.4	Mitigation and Monitoring.....	D-46
D.4.5	Summary .....	D-46
<b>D.5</b>	<b>HUMAN AND WILDLIFE HEALTH .....</b>	<b>D-46</b>
D.5.1	Introduction and Terms of Reference .....	D-46
D.5.2	Assessment Approach.....	D-48
D.5.3	Predicted Conditions.....	D-54
D.5.4	Mitigation and Monitoring.....	D-56
D.5.5	Summary .....	D-56
<b>D.6</b>	<b>HYDROLOGY.....</b>	<b>D-57</b>
D.6.1	Introduction and Terms of Reference .....	D-57
D.6.2	Baseline Conditions .....	D-58
D.6.3	Predicted Conditions.....	D-61
D.6.4	Mitigation and Monitoring.....	D-64
D.6.5	Summary of VECs .....	D-65
<b>D.7</b>	<b>NOISE .....</b>	<b>D-67</b>
D.7.1	Introduction and Terms of Reference .....	D-67
D.7.2	Baseline Conditions .....	D-68
D.7.3	Predicted Conditions.....	D-69
D.7.4	Mitigation and Monitoring.....	D-70
D.7.5	Summary .....	D-70
<b>D.8</b>	<b>SOCIO-ECONOMIC ASSESSMENT .....</b>	<b>D-70</b>
D.8.1	Introduction and Terms of Reference .....	D-70
D.8.2	Baseline Conditions .....	D-72
D.8.3	Predicted Conditions.....	D-75

D.8.4	Mitigation and Monitoring.....	D-80
D.8.5	Summary .....	D-81
<b>D.9</b>	<b>SOIL RESOURCES.....</b>	<b>D-81</b>
D.9.1	Introduction and Terms of Reference .....	D-81
D.9.2	Baseline Conditions .....	D-83
D.9.3	Predicted Conditions.....	D-87
D.9.4	Mitigation and Monitoring.....	D-92
D.9.5	Summary of VECs .....	D-92
<b>D.10</b>	<b>VEGETATION, WETLANDS AND RARE PLANTS .....</b>	<b>D-94</b>
D.10.1	Introduction and Terms of Reference .....	D-94
D.10.2	Baseline Conditions .....	D-96
D.10.3	Predicted Conditions.....	D-105
D.10.4	Mitigation and Monitoring.....	D-111
D.10.5	Summary of VECs .....	D-113
<b>D.11</b>	<b>WILDLIFE .....</b>	<b>D-116</b>
D.11.1	Introduction and Terms of Reference .....	D-116
D.11.2	Baseline Conditions .....	D-118
D.11.3	Predicted Conditions.....	D-126
D.11.4	Mitigation and Monitoring.....	D-135
D.11.5	Summary of VECs .....	D-136
<b>D.12</b>	<b>GREENHOUSE GAS AND CLIMATE CHANGE .....</b>	<b>D-140</b>
D.12.1	Introduction and Terms of Reference .....	D-140
D.12.2	Greenhouse Gas .....	D-140
D.12.3	Climate Change.....	D-143
<b>D.13</b>	<b>LAND AND RESOURCE USE .....</b>	<b>D-146</b>
D.13.1	Introduction.....	D-146
D.13.2	Baseline Conditions .....	D-146
D.13.3	Potential Impacts and Mitigation.....	D-161
D.13.4	Summary and Conclusions .....	D-163
<b>D.14</b>	<b>CONSTRAINTS MAPPING .....</b>	<b>D-163</b>
D.14.1	Approach.....	D-163
D.14.2	Constraints Criteria – Environmental Considerations .....	D-164
D.14.3	Constraints Criteria – Resource Considerations .....	D-167
<b>E.</b>	<b>CONCEPTUAL CONSERVATION &amp; RECLAMATION PLAN.....</b>	<b>E-1</b>
<b>E.1</b>	<b>INTRODUCTION.....</b>	<b>E-1</b>
<b>E.2</b>	<b>RECLAMATION GOALS AND OBJECTIVES .....</b>	<b>E-2</b>
E.2.1	General Reclamation Procedures .....	E-2
E.2.2	Reclamation to Equivalent Capability .....	E-3
<b>E.3</b>	<b>SOILS HANDLING .....</b>	<b>E-7</b>

E.3.1	Soil Resources.....	E-7
E.3.2	Soil Salvage .....	E-7
E.3.3	Soil Storage.....	E-34
<b>E.4</b>	<b>RECLAMATION .....</b>	<b>E-36</b>
E.4.1	Final Site Grading and Re-contouring .....	E-36
E.4.2	Soil Replacement .....	E-37
E.4.3	Reclamation of Compacted Areas .....	E-39
E.4.4	Post Reclamation Land Capability .....	E-39
E.4.5	Revegetation .....	E-41
E.4.6	Reclamation Timing .....	E-44
<b>E.5</b>	<b>RECLAMATION MONITORING PROGRAM .....</b>	<b>E-44</b>
E.5.1	Monitoring Objectives .....	E-44
E.5.2	Monitoring Schedule.....	E-45
<b>E.6</b>	<b>ABANDONMENT AND CLOSURE .....</b>	<b>E-46</b>
<b>F.</b>	<b>STAKEHOLDER CONSULTATION .....</b>	<b>F-1</b>
<b>F.1</b>	<b>STAKEHOLDER CONSULTATION .....</b>	<b>F-1</b>
F.1.1	Corporate Commitment and Strategy .....	F-1
F.1.2	Consultation with Aboriginal Communities .....	F-2
F.1.3	Consultation Timing .....	F-3
F.1.4	Stakeholder Identification.....	F-3
F.1.5	Advertising and Public Notice.....	F-4
<b>F.2.</b>	<b>CONSULTATION ACTIVITIES .....</b>	<b>F-5</b>
F.2.1	First Nation Communities.....	F-5
F.2.2	Métis Communities.....	F-7
F.2.3	Trappers .....	F-9
F.2.4	Other Stakeholders.....	F-10
<b>F.3</b>	<b>NON-PROJECT SPECIFIC CONCERNs .....</b>	<b>F-10</b>
<b>F.4</b>	<b>TRADITIONAL ECOLOGICAL KNOWLEDGE &amp; TRADITIONAL LAND USE .....</b>	<b>F-11</b>
F.4.1	Methods .....	F-12
F.4.2	Results Summary .....	F-12
<b>G.</b>	<b>APPROVAL AMENDMENT APPLICATION .....</b>	<b>G-1</b>
<b>G.1</b>	<b>APPLICATION.....</b>	<b>G-1</b>
<b>G.2</b>	<b>PROJECT DESCRIPTION.....</b>	<b>G-1</b>
<b>G.3</b>	<b>ENERGY RESOURCES CONSERVATION BOARD APPROVAL.....</b>	<b>G-1</b>
<b>G.4</b>	<b>ENVIRONMENTAL ASSESSMENT.....</b>	<b>G-2</b>
<b>G.5</b>	<b>EXISTING APPROVALS.....</b>	<b>G-2</b>
<b>G.6</b>	<b>PROJECT SCHEDULE.....</b>	<b>G-2</b>
<b>G.7</b>	<b>EMISSIONS AND CONTROL.....</b>	<b>G-3</b>
<b>G.8</b>	<b>ENVIRONMENTAL MONITORING SUMMARY.....</b>	<b>G-3</b>

<b>G.9</b>	<b>EMISSION CONTROL PERFORMANCE .....</b>	<b>G-3</b>
<b>G.10</b>	<b>EMISSIONS JUSTIFICATION AND CONTROL.....</b>	<b>G-4</b>
<b>G.11</b>	<b>WASTE MANAGEMENT.....</b>	<b>G-4</b>
<b>G.12</b>	<b>ENVIRONMENTAL IMPACTS .....</b>	<b>G-4</b>
<b>G.13</b>	<b>EMERGENCY RESPONSE .....</b>	<b>G-4</b>
<b>G.14</b>	<b>ACCIDENTAL RELEASE CONTINGENCY PLANS .....</b>	<b>G-5</b>
<b>G.15</b>	<b>CONSERVATION AND RECLAMATION .....</b>	<b>G-5</b>
<b>G.16</b>	<b>PUBLIC CONSULTATION.....</b>	<b>G-5</b>
<b>G.17</b>	<b>SUPPLEMENTARY SUBMISSIONS.....</b>	<b>G-5</b>
<b>G.18</b>	<b>ADDITIONAL INFORMATION.....</b>	<b>G-6</b>
<b>H.</b>	<b>WATER ACT APPLICATION .....</b>	<b>H-1</b>
<b>H.1</b>	<b>INTRODUCTION.....</b>	<b>H-1</b>
<b>H.2</b>	<b>GROUNDWATER DIVERSION FROM GRAND RAPIDS FORMATION .....</b>	<b>H-1</b>
<b>H.3</b>	<b>CONCLUSIONS.....</b>	<b>H-2</b>
<b>H.4</b>	<b>WATER ACT APPLICATION .....</b>	<b>H-3</b>

## LIST OF TABLES

Table A.4.3.1	Location of Great Divide, Algar and Expansion Project Areas .....	A-10
Table A.6.0.1	Production Schedule for Great Divide SAGD Expansion Project .....	A-13
Table B.2.3.1	Comparison of Log to Core .....	B-6
Table B.2.4.1	Criteria Used to Estimate Bitumen Resources .....	B-7
Table B.2.4.2	Key Reservoir Parameters .....	B-8
Table B.2.4.3	Bitumen-In-Place Estimate for Pods in the Project Area .....	B-8
Table B.2.4.4	Gas Wells in the Project Area .....	B-9
Table B.3.3.1	Production, Injection and SOR Forecasts by Resource Area .....	B-12
Table B.3.3.2	Summary of Simulation Runs .....	B-17
Table B.3.3.3	Calculated Recovery for Pads in the Project Area .....	B-19
Table B.3.3.4	Estimated Well Pair Drilling Schedule by Phase .....	B-22
Table B.3.5.1	Mini Frac Test Well 1AB/14-27-82-12W4 .....	B-23
Table B.5.1.1	External Emission Sources Associated with Central Processing Facility ....	B-27
Table B.5.1.2	Storage Tanks Associated with Central Processing Facility .....	B-28
Table B.5.20.1	Chemical Use.....	B-39
Table B.6.1.1	Water Balance For Great Divide SAGD Expansion Project .....	B-40
Table B.6.1.2	Project Life Cycle Water Balance Summary.....	B-41
Table B.6.2.1	Facility Energy Balance .....	B-42
Table B.6.2.2	Energy Input to Produced Energy Ratio.....	B-44
Table B.9.2.1	Waste Management Plan .....	B-52

Table C.2.4.1	Definitions of Spatial and Temporal Boundaries .....	C-6
Table C.2.4.2	List of Existing, Approved and Planned (Reasonably Foreseeable) Projects	C-7
Table C.2.5.1	Steps Used to Conduct the Environmental Impact Assessment.....	C-11
Table C.2.5.2	Evaluation Criteria for Assessing the Significance of the Environmental Impact of the Project .....	C-14
Table C.2.5.3	Example Summary of Impact Significance on Valued Environmental Components (VECs).....	C-16
Table D.1.2.1	Location of Special Receptors.....	D-4
Table D.1.3.1	Summary of RSA Emission Rates for the Three Emission Scenarios .....	D-6
Table D.1.3.2	Changes in Key RSA Emissions .....	D-7
Table D.1.4.1	Predicted Sulphur Dioxide Concentrations .....	D-7
Table D.1.4.2	Predicted Nitrogen Dioxide Concentrations.....	D-8
Table D.1.4.3	Predicted Carbon Monoxide Concentrations.....	D-10
Table D.1.4.4	Predicted PM2.5 Concentrations .....	D-11
Table D.1.6.1	Summary of Impact on Air Quality VECs .....	D-16
Table D.2.5.1	Summary of Impact Significance on Aquatic Resource VECs .....	D-32
Table D.3.5.1	Summary of Impact Significance on Groundwater VECs .....	D-43
Table D.6.2.1	Summary of Spatial Extent of Existing Development .....	D-59
Table D.6.2.2	Changes in Runoff Coefficients from Baseline Development .....	D-60
Table D.6.3.1	Summary of Spatial Extent of Disturbances (application case) .....	D-62
Table D.6.3.2	Changes in Runoff Coefficients from Baseline and Project Development ..	D-63
Table D.6.5.1	Summary of Impact Significance on Hydrological VECs .....	D-66
Table D.8.2.1	Project GDP and Income Effects.....	D-76
Table D.9.2.1	Soil layer thicknesses by SLM .....	D-84
Table D.9.2.2	Soil Capability in the LSA and Project Footprint .....	D-86
Table D.9.3.1	Baseline and Reclaimed Forest Land Capability Ratings for the Project Footprint (Phases 1 - 3) .....	D-88
Table D.9.5.1	Summary of Impact Significance on Soil Resource VECs .....	D-93
Table D.10.2.1	Distribution of Ecosite Phases.....	D-96
Table D.10.2.2	Wetland Distribution .....	D-98
Table D.10.2.3	Biodiversity Potential by Ecosite Phase .....	D-99
Table D.10.2.4	Vascular and Non-Vascular Plant Biodiversity Potential in the LSA.....	D-100
Table D.10.2.5	Vascular and Non-vascular Plant Biodiversity Potential in the RSA.....	D-100
Table D.10.2.6	Fragmentation Metrics for Ecosite Phases in the LSA.....	D-101
Table D.10.2.7	Fragmentation Metrics for Ecosite Phases in the RSA .....	D-102
Table D.10.2.8	Timber Productivity Rating .....	D-103
Table D.10.2.9	Berry species and Characteristic Ecosite Phases .....	D-104
Table D.10.5.1	Summary of Impact Significance on Vegetation, Wetland and Rare Plant VECs.....	D-114

Table D.11.2.1	Wildlife Habitat Availability .....	D-118
Table D.11.2.2	Habitat Availability for each VEC .....	D-119
Table D.11.2.3	Biodiversity Ranking in the LSA .....	D-120
Table D.11.2.4	Effective Habitat Patches .....	D-121
Table D.11.2.5	Caribou core security habitat patch metrics in the LSA.....	D-123
Table D.11.2.6	Density of linear features in the LSA and RSA .....	D-123
Table D.11.2.7	Guideline or Threshold Values for Cumulative Effects Indicators for Woodland Caribou.....	D-124
Table D.11.2.8	Moose core security habitat patch metrics .....	D-125
Table D.11.5.1	Summary of Impact Significance on Wildlife VECs .....	D-137
Table D.12.2.1	Summary of Annual Greenhouse Gas Emissions.....	D-140
Table D.12.2.2	Summary of Total Greenhouse Gas Emissions .....	D-141
Table D.12.2.3	Contribution of Connacher Expansion to Provincial and National GHG Emission Inventory.....	D-142
Table D.12.3.1	Projected Climate Parameters near Fort McMurray based on the median change scenario (Barrow and Yu 2005) .....	D-144
Table D.13.2.1	Oil Sands Leases.....	D-145
Table D.13.2.2	Petroleum And Natural Gas Licenses.....	D-146
Table D.13.2.3	Petroleum and Natural Gas Leases .....	D-146
Table D.13.2.4	Timber Allocations .....	D-147
Table D.13.2.5	Mineral Surface Leases and Miscellaneous Leases.....	D-147
Table D.13.2.6	Pipeline Installation Leases and Pipeline Agreements .....	D-150
Table D.13.2.7	Surface Material Leases and Licenses.....	D-153
Table D.13.2.8	Roads .....	D-154
Table D.13.2.9	Area Operating Agreement.....	D-154
Table D.13.2.10	Easements .....	D-154
Table D.13.2.11	Licence of Occupation.....	D-156
Table D.13.2.12	Industrial Sample Plot .....	D-159
Table D.13.2.13	Government and Municipal Dispositions .....	D-159
Table D.13.2.14	Miscellaneous Disposition.....	D-159
Table D.13.2.15	Trapping Areas .....	D-160
Table D.14.2.1	Environmental and Resource Utilization Constraints .....	D-165
Table D.14.2.2	Constraints Evaluation (Phase 1).....	D-168
Table E.1.1	Components of the Project Footprint for Phases 1, 2, and 3 .....	E-2
Table E.2.1	Pre-disturbance Land Capability for the Project Footprint .....	E-3
Table E.2.2	Pre-disturbance Ecosites for the Project Footprint .....	E-6
Table E.3.1	Soil Materials Available for Salvage for Phase 1 .....	E-15
Table E.3.2	Soil Materials Available for Salvage for Phase 2 .....	E-23
Table E.3.3	Soil Materials Available for Salvage for Phase 3 .....	E-32

Table E.3.4	Reclamation Material Balance for the all Phases of the Project – Includes Preferred Organic Handling .....	E-35
Table E.4.1	Predicted Reclaimed Forest Soil Land Capability for the Project.....	E-40
Table E.4.2	Comparison of the Baseline and Reclaimed Land Capabilities .....	E-41
Table E.4.3	Baseline and Estimated Reclaimed Ecosites .....	E-43
Table F.1.4.1	List of Stakeholders.....	F-4
Table F.2.1.1	Consultation With the Fort McMurray First Nation.....	F-5
Table F.2.1.2	Consultation With the Chipewyan Prairie Dene First Nation .....	F-6
Table F.2.1.3	Consultation With the Heart Lake First Nation.....	F-6
Table F.2.2.1	Consultation With the Willow Lake Métis Local 780.....	F-7
Table F.2.2.2	Consultation With the Fort McMurray Métis Local 1935.....	F-8
Table F.2.2.3	Consultation With the Chard Métis Local 214.....	F-9
Table F.2.2.4	Consultation With the MNA Region One .....	F-9
Table F.4.2.1	Site Visits and Verification Meetings.....	F-12
Table F.4.2.2	Summary of Community Concerns Related to Development .....	F-13

## **LIST OF FIGURES**

Figure A.1-1	Project Location Map
Figure A.1-2	Project Phases
Figure A.1-3	Project Phases with Air Photo
Figure A.1-4	Project Phases with LiDar and Topography
Figure A.4-1	Oil Sands Leases and Project Areas
Figure B.1.1-1	Phase 1 Development
Figure B.1.1-2	Phase 2 Development
Figure B.1.1-3	Phase 3 Development
Figure B.2.1-1	Exploration Activity Map- Corehole and 3D Seismic
Figure B.2.1-2	Stacked McMurray B2 and C Channel Trends
Figure B.2.2-1	Stratigraphic Column
Figure B.2.2-2	Woodbend Group Structure Map
Figure B.2.2-3	McMurray Structure Map
Figure B.2.2-4	McMurray Isopach Map
Figure B.2.2-5	Wabiskaw Structure Map
Figure B.2.2-6	Lower Grand Rapids Structure Map
Figure B.2.2-7	Lower Grand Rapids Sands Isopach Map
Figure B.2.2-8	Upper Grands Rapids Structure Map
Figure B.2.2-9	Quaternary Structure Map
Figure B.2.3-1	4-19 Type Log
Figure B.2.3-2	Oilsands Pods & Cross-Sections
Figure B.2.3-3	Section A-A' North-South I

Figure B.2.3-4	Section B-B' North-South II
Figure B.2.3-5	Section C-C' East-West I
Figure B.2.3-6	Section D-D' East-West II
Figure B.2.3-7	8-30 Log Interpretation
Figure B.2.3-8	Isopach of the Oil Sands
Figure B.2.3-9	3D Seismic Isochron Interpretation of Oil Sands
Figure B.2.4-1	Isopach of Associated McMurray Gas
Figure B.2.4-2	Isopach of Non-Associated Gas
Figure B.2.4-3	Overall Thickness and Distribution of the Caprock
Figure B.2.4-4	McMurray base Water
Figure B.3.3-1	Pod 1-Initial Performance of 17 Well Pairs
Figure B.3.3-2	Life of Project Development Plan
Figure B.3.3-3	Base of Oilsands
Figure B.3.5-1	Core Photos of a Caprock From LSD 5-19-082-11W5
Figure B.4.1-1	Typical Well Pad Schematic
Figure B.4.2-1	Typical Injection Well Schematic
Figure B.4.2-2	Typical Production Well Schematic
Figure B.5.0-1	Process Flow Sheets for Water and Steam (Sheets 1-17)
Figure B.5.0-2	Process Flow Sheets for Oil Treating (Sheets 1-13)
Figure B.5.1-1	Plot Plan for Central Processing Facility
Figure B.6.1-1	Water Balance
Figure C.2.4-1	Local Study Areas
Figure C.2.4-2	Regional Study Areas
Figure C.2.4-3	Locations of Projects
Figure D.13.2-1	Subsurface Dispositions
Figure D.13.2-2	Trappers, FMA, ISP, and PNT
Figure D.13.2-3a	Surface Dispositions in Township 83
Figure D.13.2-3b	Surface Dispositions in Township 82
Figure D.13.2-3c	Surface Dispositions in Township 81
Figure D.14.0-1	Constraints Map
Figure E.1-1	Project Development Plan
Figure E.2-1	Pre-disturbance Forest Soil Capabilities
Figure E.2-2	Pre-disturbance Ecosites
Figure E.3-1	Upland and Organic Soils
Figure E.3-2	Potential Organic Material Salvage Locations within the Project Footprint (Option A)
Figure E.3-3	Potential Soil Stockpile Locations based on the Preferred Organic Material Options
Figure E.4-1	Reclaimed Forest Soil Capabilities
Figure E.4-2	Reclaimed Ecosites in the Footprint
Figure E.4-3	Phase 1 Development and Reclamation (0 to 8 Years)
Figure E.4-4	Phase 2 Development and Reclamation (9 to 16 Years)
Figure E.4-5	Phase 3 Development and Reclamation (17 to 24 Years)
Figure E.4-6	Final Reclamation (25+ Years)

## **LIST OF APPENDICES**

APPENDIX 1	TERMS OF REFERENCE
APPENDIX 2	PROJECT TEAM
APPENDIX 3	GLOSSARY AND ACRONYMS
APPENDIX 4	REFERENCES
APPENDIX 5	PUBLIC CONSULTATION
APPENDIX 6	EXISTING APPROVALS
APPENDIX 7	TRADITIONAL LAND USE
APPENDIX 8	GEOLOGY SECTIONS

## **CONSULTANTS REPORTS**

CONSULTANT REPORT #1	AIR QUALITY
CONSULTANT REPORT #2	AQUATICS
CONSULTANT REPORT #3	GROUNDWATER
CONSULTANT REPORT #4	HISTORICAL RESOURCES
CONSULTANT REPORT #5	HUMAN HEALTH
CONSULTANT REPORT #6	HYDROLOGY
CONSULTANT REPORT #7	NOISE
CONSULTANT REPORT #8	SOCIO-ECONOMIC
CONSULTANT REPORT #9	SOIL
CONSULTANT REPORT #10	VEGETATION AND WETLANDS
CONSULTANT REPORT #11	WILDLIFE