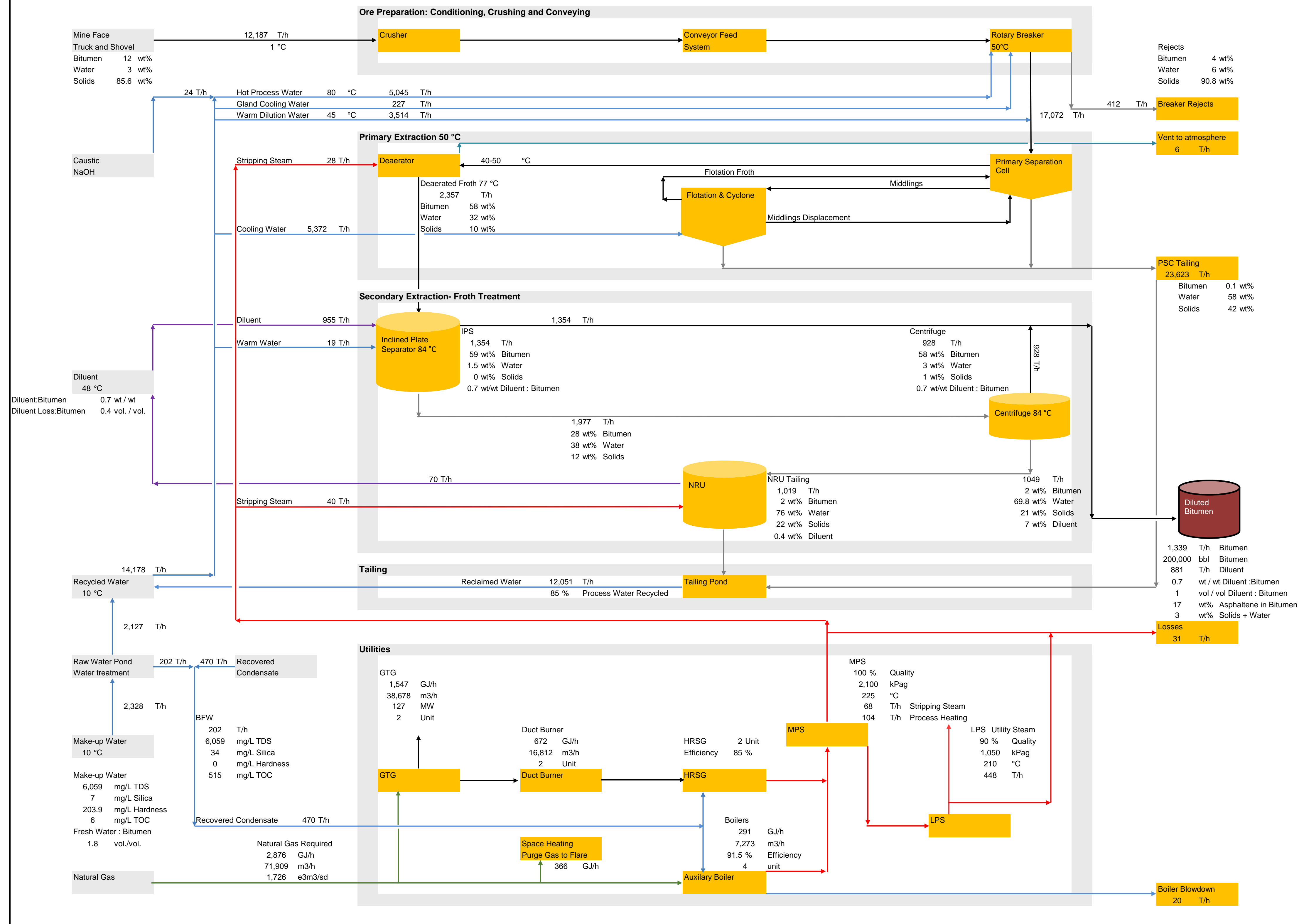


COSIA Mining & Extraction: High Grade - Naphthenic Froth Treatment - Material Flow

Ore Grade 12 wt%
 Fine Contents 11.7 wt%
 Waste to Ore 4.3 wt%



Legend	
Bitumen	
Water	
Steam	
Fuel Gas	
Diluent	
Tailing	

Abbreviations	
BFW	Boiler Feed Water
GTG	Gas Turbine Generator
HHV	High Heating Value
HRSG	Heat Recovery Steam Generator
LPS	Low Pressure Steam
MPS	Medium Pressure Steam
NRU	Naphtha Recovery Unit
PSC	Primary Separation Cell

Bitumen Recovery Summary	
Ore Preparation	98.9%
Primary Extraction	98.0%
Froth Treatment (without rejected asphaltenes)	98.2%
Total Bitumen Recovery	95.2%
Asphaltenes Rejection	0.0%
Total Bitumen Recovery (with rejected asphaltenes)	95.2%

Water Summary (T/h)		
Process Water	Cooling Water	5,599
	Heated Water	8,579
Reclaimed Water		12,051
Raw Water		2,127
BFW		202
Boiler Blowdown		20
Make-Up Water		2,328
Condensate Return		470

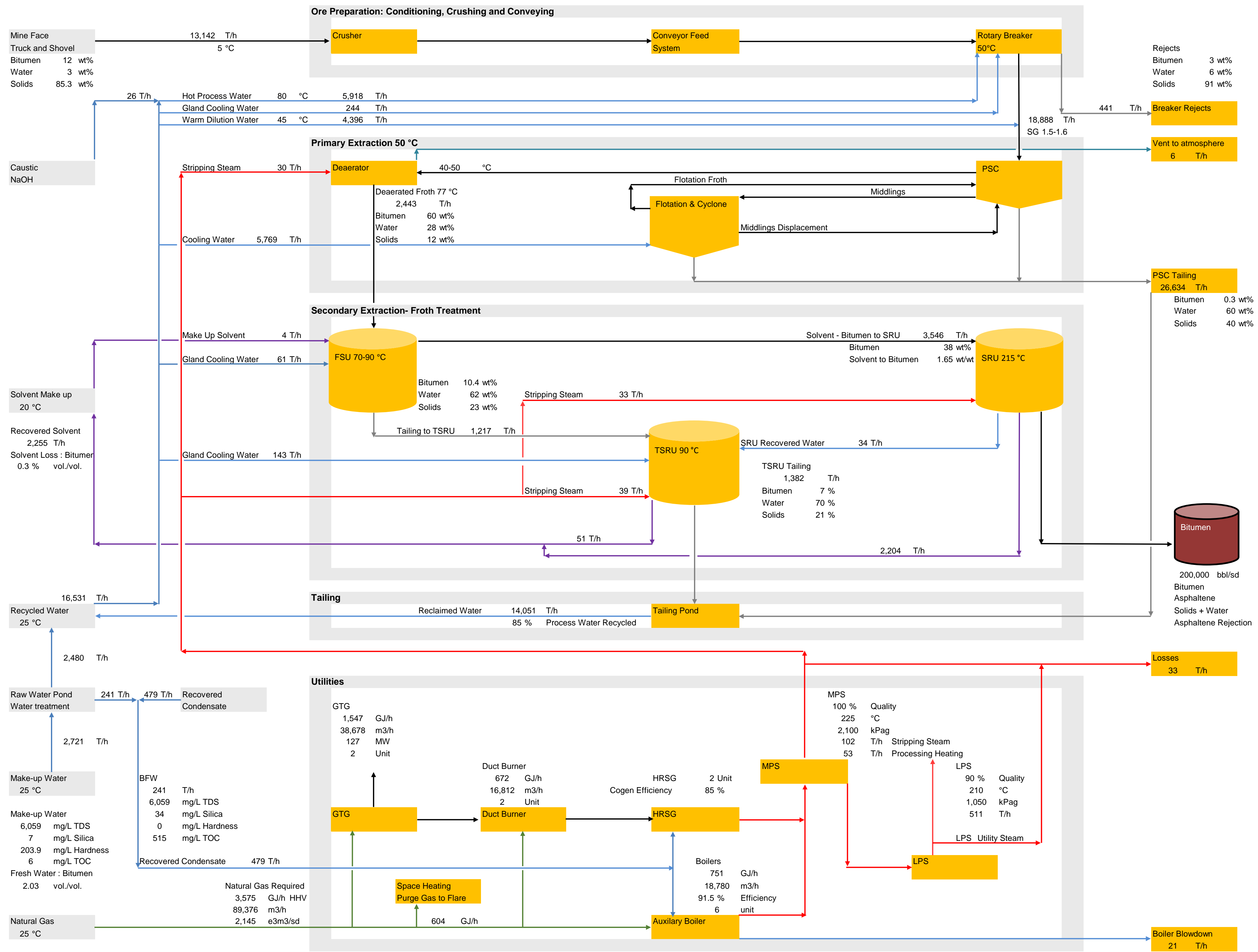
Project:	Static Oil Sands Mine and Extraction Reference Facility	
Case:	Naphthenic - High Grade	Revision: 1.3
Owner:	COSIA	
Date:	27-Sep-15	
Material Flow	High Temperature Extraction, High Grade, Average Condition	

This is a generic and hypothetical mine and extraction facility developed by COSIA. While representative, it is not based on any one facility. Recovery and solvent loss is based on Alberta Energy Regulator requirements.



COSIA Mining & Extraction High Grade - Paraffinic Froth Treatment - Material Flow

Ore Grade 12 wt%
 Fine Contents 11.9 wt%
 Waste to Ore 4.3 wt%



Legend	
Bitumen	
Water	
Steam	
Fuel gas	
Solvent	
Tailing	

Abbreviations	
BFW	Boiler Feed Water
FSU	Froth Settling Unit
GTG	Gas Turbine Generator
HHV	Higher Heating Value
HRSG	Heat Recovery Steam Generator
LPS	Low Pressure Steam
MPS	Medium Pressure Steam
Bitumen	99.9 %
PSC	Primary Separation Cell
SG	Specific Gravity
SRU	Solvent Recovery Unit
TDS	Total Dissolved Solids
TOC	Total organic carbon
TSRU	Tailing Solvent Recovery Unit

Bitumen Recovery Summary	
Ore Preparation	99.0%
Primary Extraction	94.6%
Froth Treatment (without rejected asphaltenes)	98.4%
Total Bitumen Recovery	92.2%
Asphaltenes Rejection	7.6%
Total Bitumen Recovery (with rejected asphaltenes)	85.1%

Water Summary (T/h)		
Process Water	Cooling Water	6,217
	Heated Water	10,314
Reclaimed Water		14,051
Raw Water		2,480
BFW		241
Boiler Blowdown		21
Make-Up Water		2,721
Condensate Return		479

Project:	A Static Oil Sands Mine and Extraction Reference Facility	
Case:	Paraffinic - High Grade	Revision: V 2.7.7
Owner:	COSIA	
Date:	04-Oct-15	
Material Flow		
High Temperature Extraction, High Grade, Summer Condition		

This is a generic and hypothetical mine and extraction facility developed by COSIA. While representative, it is not based on any one facility. Recovery and solvent loss is based on Alberta Energy Regulator requirements.

