



# BLOCK & TACKLE

Leveraging Process *for* Results

APQC'S 2012 Process Conference & Training  
October 22-26, 2012  
The Houstonian Hotel, Club & Spa - Houston, Texas

APQC®

# Liability Management Project APQC 2012 Conference



Bryan Tiessen, Senior Advisor

Continuous Improvement Team

Houston, TX | October 25, 2012



[www.cenovus.com](http://www.cenovus.com)

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# Forward-looking information

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This presentation contains certain forward-looking statements and other information (collectively "forward-looking information") about our current expectations, estimates and projections, made in light of our experience and perception of historical trends. Forward-looking information in this presentation is identified by words such as "anticipate", "believe", "expect", "plan", "forecast" or "F", "target", "project", "could", "focus", "vision", "goal", "milestone", "proposed", "scheduled", "outlook", "potential", "may" or similar expressions and includes suggestions of future outcomes, including statements about our growth strategy and related schedules, projected future value or net asset value, forecast operating and financial results, planned capital expenditures, expected future production, including the timing, stability or growth thereof, expected future refining capacity, anticipated finding and development costs, expected reserves and contingent and prospective resources estimates, potential dividends and dividend growth strategy, anticipated timelines for future regulatory, partner or internal approvals, future impact of regulatory measures, forecasted commodity prices, future use and development of technology including technology and procedures to reduce our environmental impact and projected increasing shareholder value. Readers are cautioned not to place undue reliance on forward-looking information as our actual results may differ materially from those expressed or implied.

2012 guidance is based on an average diluted number of shares outstanding of approximately 759 million. It assumes WTI of US\$104.00/bbl; Western Canada Select of US\$80.00/bbl; NYMEX of US\$2.55/MMBtu; AECO of \$2.10/GJ; Chicago 3-2-1 Crack Spread of US\$20.50; and exchange rate of \$1.00 US\$/C\$. For the period 2013 to 2021 assumptions include WTI of US\$85.00-US\$105.00/bbl; Western Canada Select of US\$71.00-US\$85.00/bbl; NYMEX of US\$4.00-US\$6.00/MMBtu; AECO of \$3.30-\$5.25/GJ; Chicago 3-2-1 crack spread of US\$9.00; exchange rate of \$0.98-\$1.07 US\$/C\$; and average number of shares outstanding of approximately 752 million.

Developing forward-looking information involves reliance on a number of assumptions and consideration of certain risks and uncertainties, some of which are specific to Cenovus and others that apply to the industry generally. **The factors or assumptions on which the forward-looking information is based include:** assumptions inherent in our current guidance, available at [www.cenovus.com](http://www.cenovus.com); our projected capital investment levels, the flexibility of our capital spending plans and the associated source of funding; the estimation of quantities of oil, bitumen, natural gas and liquids from properties and other sources not currently classified as proved; our ability to obtain necessary regulatory and partner approvals; the successful and timely implementation of capital projects or stages thereof; our ability to generate sufficient cash flow from operations to meet our current and future obligations; and other risks and uncertainties described from time to time in the filings we make with securities regulatory authorities. **The risk factors and uncertainties that could cause our actual results to differ materially, include:** volatility of and assumptions regarding oil and gas prices; the effectiveness of our risk management program, including the impact of derivative financial instruments and the success of our hedging strategies; accuracy of cost estimates; fluctuations in commodity prices, currency and interest rates; fluctuations in product supply and demand; market competition, including from alternative energy sources; risks inherent in our marketing operations, including credit risks; maintaining desirable ratios of debt to adjusted EBITDA as well as debt to capitalization; our ability to access various sources of debt and equity capital; accuracy of our reserves, resources and future production estimates; our ability to replace and expand oil and gas reserves; the ability of us and our partners to maintain our relationship and to successfully manage and operate our integrated heavy oil business; reliability of our assets; potential disruption or unexpected technical difficulties in developing new products and manufacturing processes; refining and marketing margins; potential failure of new products to achieve acceptance in the market; unexpected cost increases or technical difficulties in constructing or modifying manufacturing or refining facilities; unexpected difficulties in producing, transporting or refining of crude oil into petroleum and chemical products; risks associated with technology and its application to our business; the timing and the costs of well and pipeline construction; our ability to secure adequate product transportation; changes in Alberta's regulatory framework, including changes to the regulatory approval process and land-use designations, royalty, tax, environmental, greenhouse gas, carbon and other laws or regulations, or changes to the interpretation of such laws and regulations, as adopted or proposed, the impact thereof and the costs associated with compliance; the expected impact and timing of various accounting pronouncements, rule changes and standards on our business, our financial results and our consolidated financial statements; changes in the general economic, market and business conditions; the political and economic conditions in the countries in which we operate; the occurrence of unexpected events such as war, terrorist threats and the instability resulting therefrom; and risks associated with existing and potential future lawsuits and regulatory actions against us.

The forward-looking information contained in this presentation, including the underlying assumptions, risks and uncertainties, are made as of the date hereof. For a full discussion of our material risk factors, see "Risk Factors" in our 2011 Annual Information Form and "Risk Management" in our most recent Management's Discussion and Analysis, available at [www.sedar.com](http://www.sedar.com) and [www.cenovus.com](http://www.cenovus.com).

# Liability Management Project - Agenda

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- Company profile
- Background
- Project objectives
- Approach
- Results
- Lessons learned
- Next steps

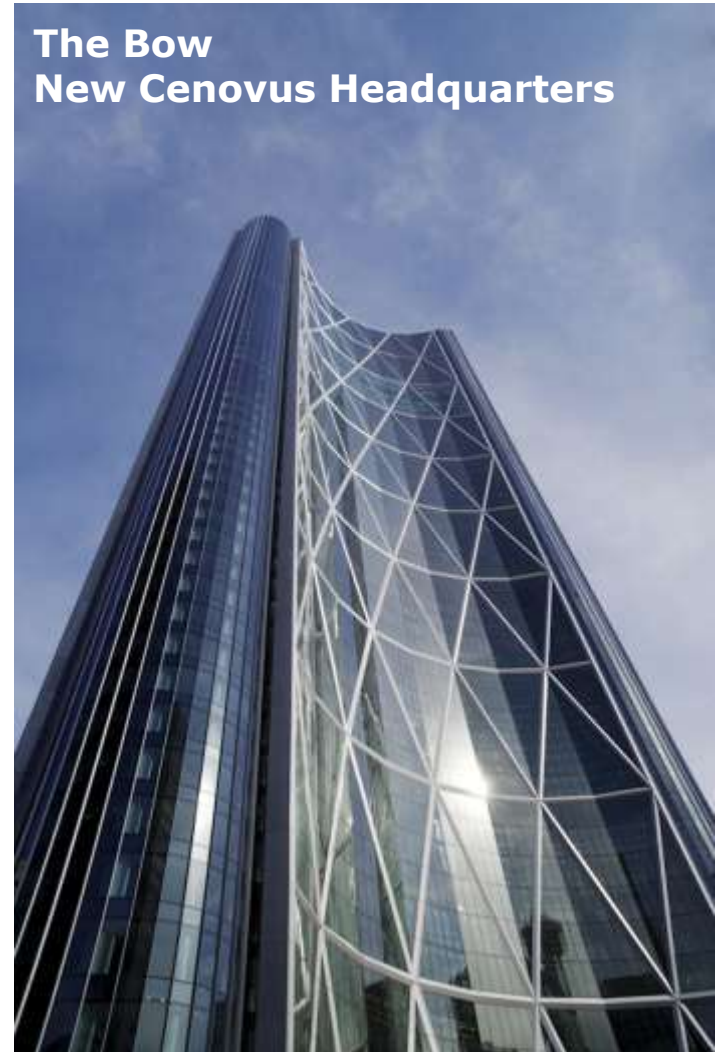
# Cenovus Energy

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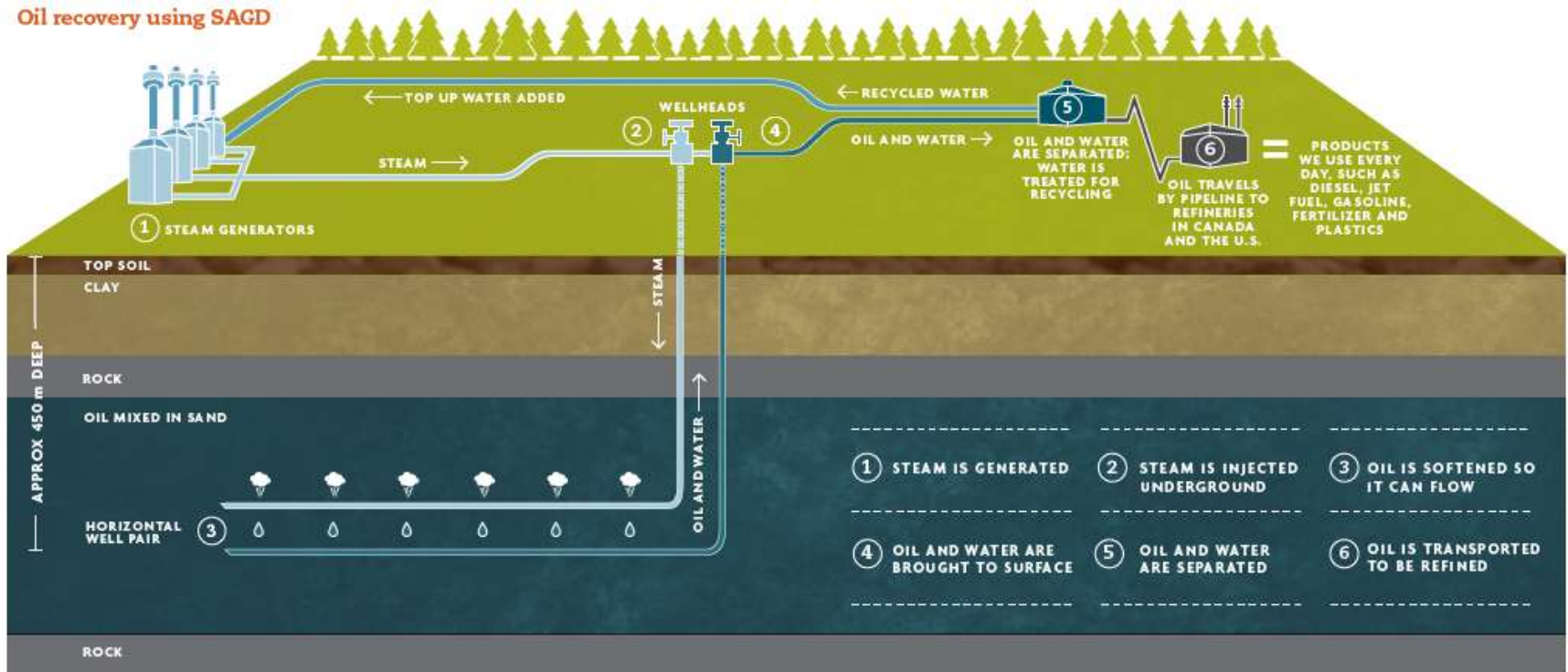
**Calgary, Alberta, Canada**



**The Bow  
New Cenovus Headquarters**



# Cenovus – SAGD



# Cenovus – oilsands operations



# Cenovus – conventional operations



**Natural Gas Wellpad**



**Brooks Natural Gas Field**

**CFB Suffield  
underground wellpad**



**Langevin Well Pumpjack**



# Liability Management - background

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- Identified erroneous payments occurring on abandoned assets
  - Surface rentals
  - Property tax
- Symptomatic of a deeper issue?
  - Root cause analysis says “yes”
- Charter creation



# Project objectives

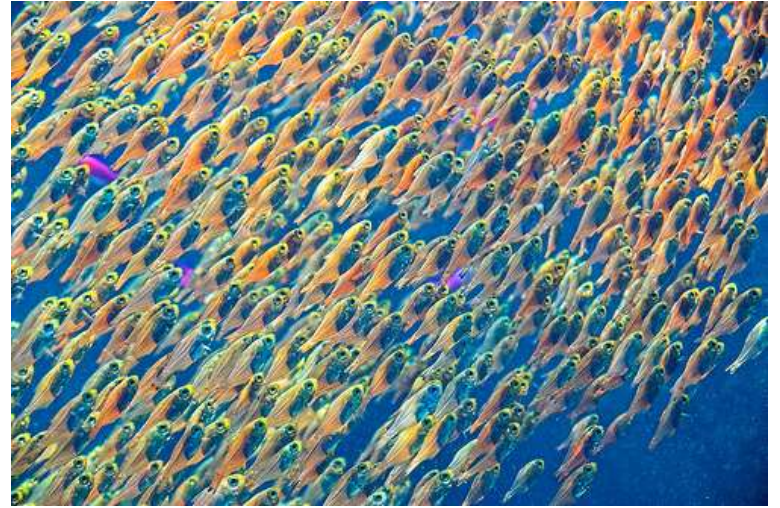
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- Create a common process
- Reduce operating costs
  - Lease rentals
  - Property tax
  - Abandonments and Reclamations
- Mitigate risk
  - Regulatory
    - LMR (Liability Management Ratio)
    - D56 (Surface access)
  - Legal
    - JV contracts
- Reduce the environmental footprint

# The “real” project objective

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How do we get everyone moving in the same direction?



# Previous state

## Central services



Environmental  
Surface Land  
Mineral Land  
Joint Venture  
Property Tax

## Individual business units



Identify the asset  
for abandonment



Obtain approval  
to abandon



Abandon the asset

# Development of the future state

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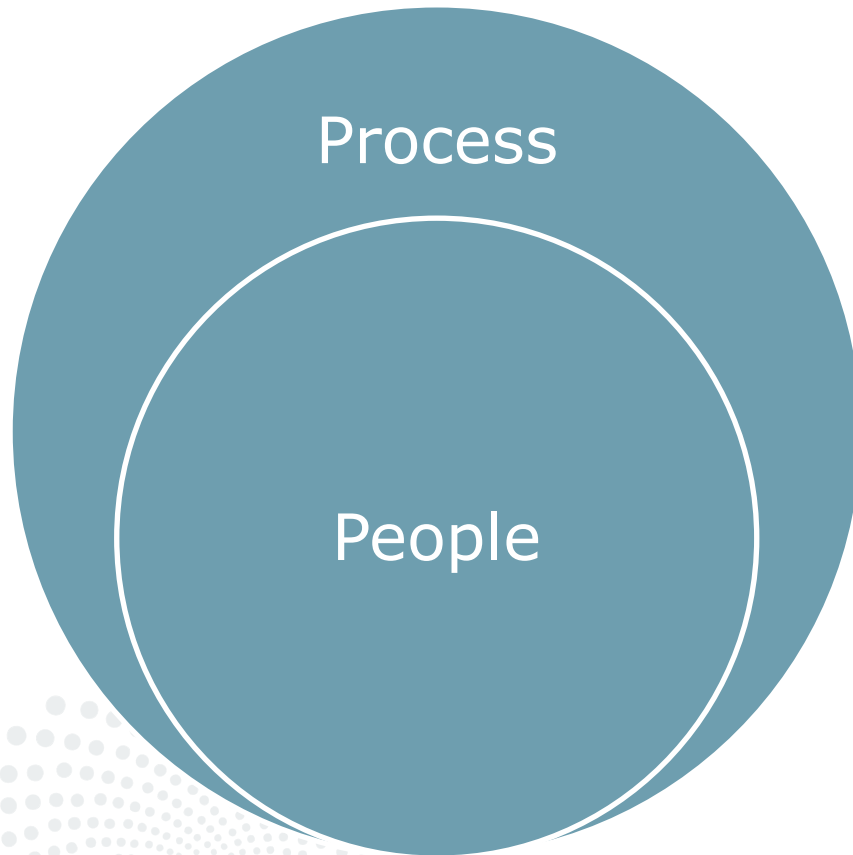


People

- Create a role dedicate to managing abandonments
- Receive management approval for the role of Abandonment Coordinator
- Create R&R's

# Development of the future state

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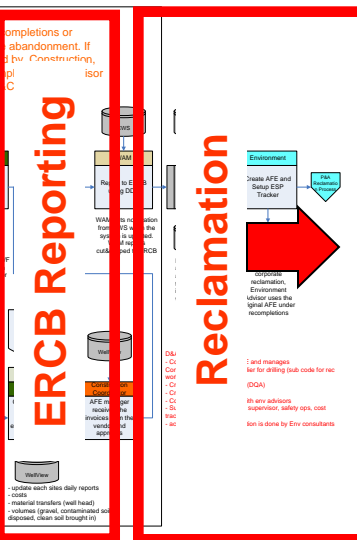
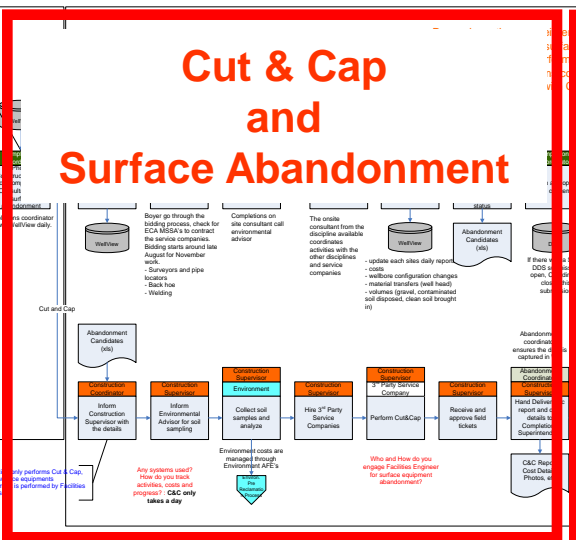
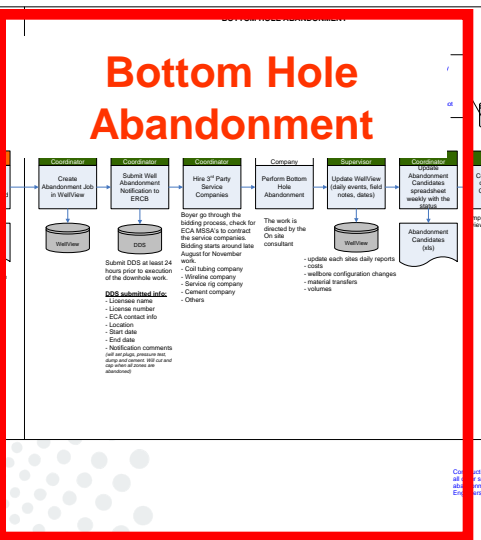
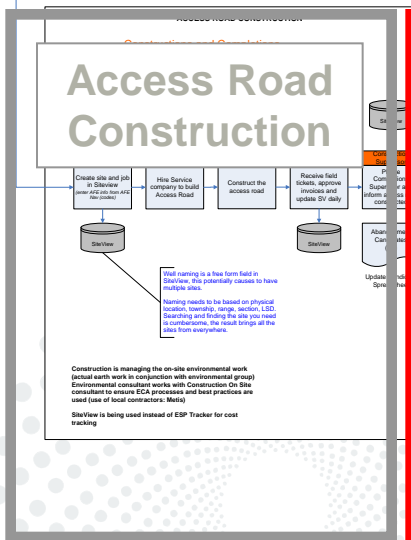
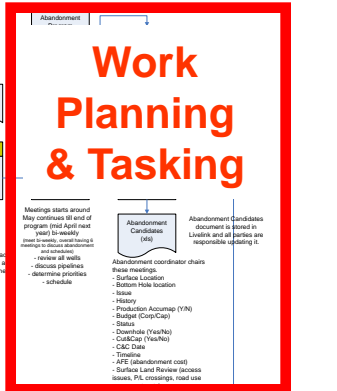
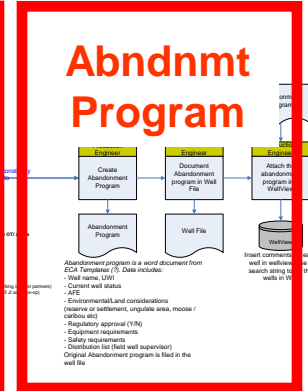
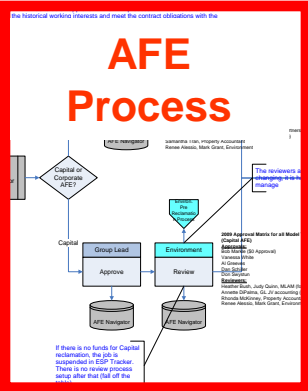
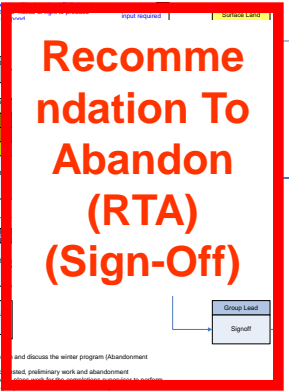
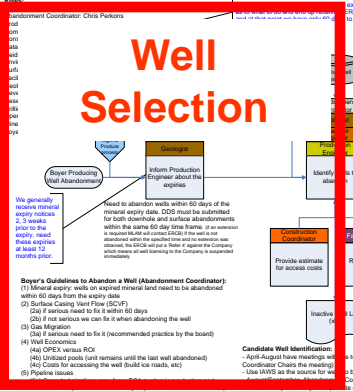


- Work with abandonment coordinators and shared services to develop the processes for reviewing, approving and executing abandonment activities

# Business processes

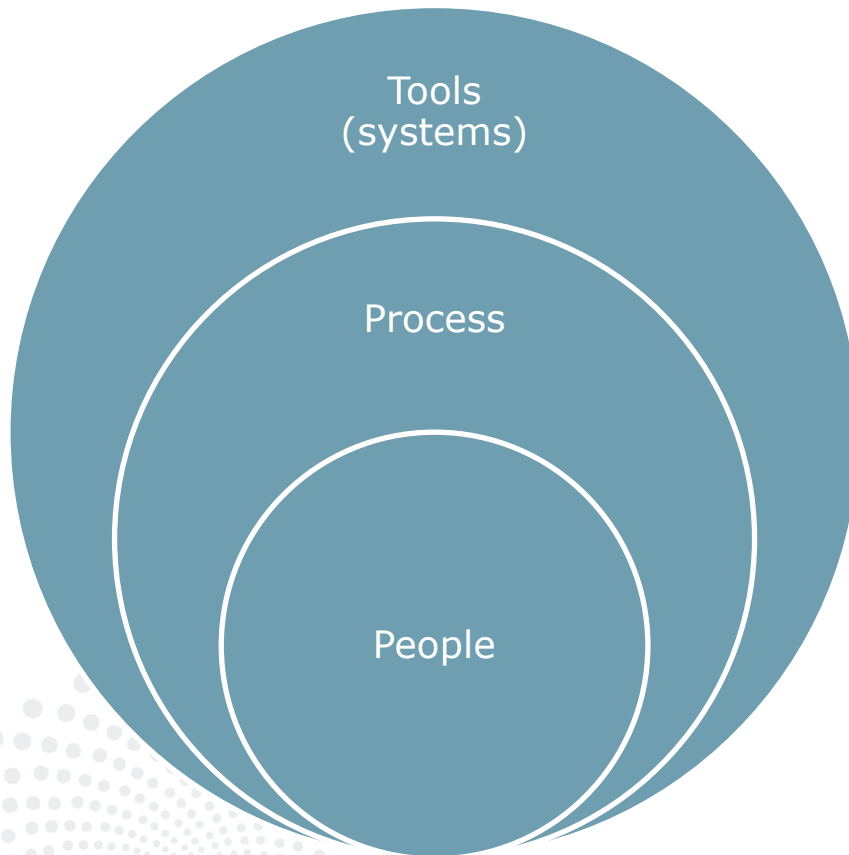
PROJECT: SURFACE RENTALS AND PROPERTY TAX MANAGEMENT  
 PROCESS: BOYER PRODUCING WELL ABANDONMENT PROCESS (AS-IS) - DRAFT

Page: 1 of 1  
 Prepared by: Egan Leman  
 Date: 2008-06-30  
 Reviewed by: [Name]  
 Date: 2008-06-30



# Development of the future state

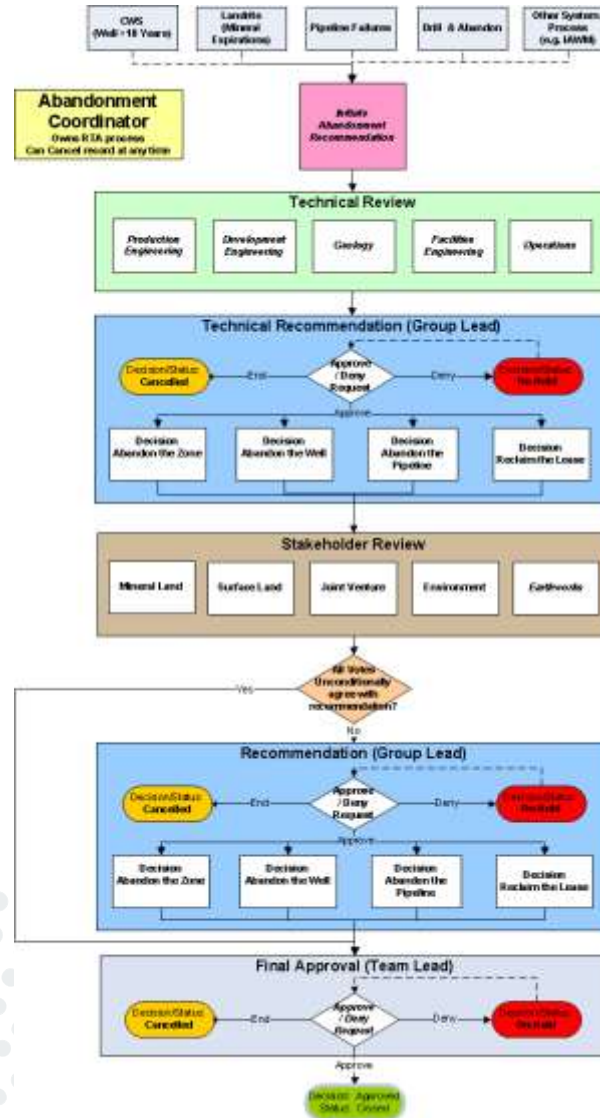
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- Develop RTA (Recommendation to Abandon) system to electronically approve, track and manage abandonments



# Recommendation to Abandon




Should we abandon?

Can we abandon?



# Abandonment programs



### Abandonment Program


Asset/Well Name:	[From WellView]	Operator:	[From WellView]
License Number:	[From WellView]	Priority / De	[From WellView]
Business Unit:	[From WellView]	SBU:	[From WellView]
Prepared By:	[From WellView]	Date:	[From WellView]
Program Circulation Date:	DD-MM-YYYY	Program Ve	[From WellView]
Distribution:	<input type="checkbox"/> Field Well Operator <input type="checkbox"/> Operations		

Approvals		
Production Engineer:	Name of Production Engineer	Date
Field Production Coordinator:	Name of Prod Coord	Date

The abandonment program templates are created as part of Cenovus-wide Continuous Improvement and are applied across all abandonment operations. It is recognized that operators established any changes must be submitted by production engineers or abandonment coordinator approval.

Template Version History		
Responsible:	Description:	Version:
Erwan Lacombe	Initial design	1.0



### Abandonment Program – BOYER SBU

#### 1. Administration

1.1	Proposed Action: (from RTA)	
1.2	History of Well Flow: <input type="checkbox"/> input manually	
1.3	Last ISCVF date:	[From V] <input type="checkbox"/>
1.4	Is there any attached pipeline? (from RTA)	<input type="checkbox"/> YES
1.4a	Pipeline Log Number(s):	
1.4b	Pipeline Status:	
1.4c	Pipeline License Number:	
1.4d	Pipeline From:	
1.4d	Pipeline To:	
1.5	Budget Reference Number: (from AFE NAV)	
1.6	AFE Number: (from AFE NAV)	
1.7	AFE Amount: (from AFE NAV)	
1.8	Access Timing Restrictions: (from RTA)	<input type="checkbox"/> YES
1.8a	Access Restriction Dates from:	To:
1.8b	Access Restriction Details:	
1.9	Regulatory approvals required: (partially from RTA)	<input type="checkbox"/> YES
1.9a	Approval type (routine/non-routine abandonment):	
1.9b	Regulatory Authorization Date:	
1.10	Additional Abandonment Considerations: (from RTA)	
1.10a	Procedure complies with policies on ERG S Well Sealing BOP	Class
1.10b	Use of Equipment required: (from RTA)	
1.10c	Abandonment Equipment Required: (from RTA)	
1.10d	Other Abandonment Considerations:	
1.10e	Earliest date of entry to the field: (from SLAM / 3rd party notifications)	

#### 2. Well Data (to be populated from WellView adding):

Bottom Hole UAT:	[From WellView]	License Number:	[From WellView]
Operator:	[From WellView]	Asset/Well Name:	[From WellView]
Directions to Well:	[From WellView]		
Surface Legal Location:	[From WellView]	Latitude:	[From WellView]    Longitude: [From WellView]
These may be NAD 27 coordinates.			

Current/Well Status:	[From WellView]	Spud Date:	[From WellView]	Rig Release Date:	[From WellView]
Well Profile:	[From WellView]	Maximum Inclination:	< to be entered manually >	Maximum DLS:	< to be entered manually >
Base of Groundwater Protection (mkb):	[From WellView]	Sour Class:	[From WellView]	Send Log Done?	< enter manually – log date and cement log >

KB (m):	[From WellView]	GL (m):	[From WellView]	KB-CF (m):	[From WellView]
TD-MD (m.kb):	[From WellView]	TD-TV D (m.kb):	[From WellView]		
PBTD-MD Original:	[From WellView]	PBTD-MD Current:	[From WellView]		

WELL HEAD:

Item	Make	DIA (mm)	WVP (kPa)
[From WellView]	[From WellView]	[From WellView]	[From WellView]

Current Problem with Well?	[From WellView]
WellView Comment:	[From WellView]

D:\A\Info\IT\Local\01\Local\B\444\Well\Info\1.0\B\101\Abandonment Program Templates

D:\A\Info\IT\Local\01\Local\B\444\Well\Info\1.0\B\101\Abandonment Program Templates    Page: 3 of 12

# Program execution - checklists

Abandonment Program – BOYER

### 6. Checklist

#### 6.1. Pre Operational Planning

I – Pre Operational <i>(to be completed by Advisor)</i>	
1.	Is this a re-abandonment job?
2.	Is this a sealed borewell abandonment?
3.	Is the well a non-routine abandonment?
3a.	If this is a non-routine abandonment, have you approved via DDBS?
3b.	If this is a non-routine abandonment, have you WellView? Refer to Directive 20 page 6
4.	Is the well located inside the Gas Migration T in a final free month in addition to SCVF test? Refer to Directive 20 page 6
5.	Has a Gas Migration (GM) test been completed? No, cut and cap work has to be delayed until GM on page 46
6.	Ensure a preliminary SCVF test is performed to verify the test results. (ensure WellView is updated and date, inform Field Supervisor to perform one if needed)
7.	Did you Review the existing cement behind the operators? Refer to Directive 20 page 18
7a.	Has the BGNP depth (BGNP read - Wellhead In WellView)? BGNP must be confirmed prior to well returns to surface during the primary cementing of 6.6 page 32 Update this program section as well
7b.	Has the cement top been determined? Update
7c.	Has the porous zones been identified? Update
7d.	Based on 7a, 7b, 7c above; is remedial cementing required?
8.	Have you reviewed the abandonment program Gas Migration reports (3) BGNP
9.	Has the well penetrated any of sands zones?
10.	Was the well completed?
10a.	Has the well been completed in an interval on page 44
11.	Inhibitor must be used inside the casing of abandonment program provides well bore isolation
12.	Were all pools individually abandoned, including
13.	Are all of the pools isolated abandoned in this abandonment program addresses this issue and

Abandonment Program – BOYER SBU

### 6.2. Downhole Operational

II – Downhole <i>(to be completed by Field Supervisor)</i>	
16.	Have you notified abandonment work removed? - material transfers are completed
17.	Did you ensure proper ground disturbance procedures (if required)?
18.	Was the ERCB notified prior to the test? Must be notified via DDBS prior to routine Directive 20 (Closed Hole) modifications or operations. Open Hole modifications must be following a geotechnical evaluation
19.	Have the following notifications per abandonment?
19a.	- Construction Supervisor
19b.	- Production Coordinator
19c.	- Environmental Advisor
19d.	- Landowner/Occupant (operator)
20.	Have you ensured that the well is logged in the BGNP?
21.	Have you performed SCVF and Gas WellView?
21a.	Has the last SCVF test date (if recent)
21b.	Please record the Gas Migration test
21c.	Did you attach copy of the Gas Migration test
21d.	Was the SCVF and Gas Migration test the surface casing vent? Refer to Directive 20 page 18
21e.	If there is a flow (i.e., either test is reported to the ERCB through DDBS Coordinator.
22.	Has the well status been updated in WellView?

Abandonment Program – BOYER SBU

### 6.3. Cutting and Capping Operation

III – Cutting and Capping Operation <i>(to be completed by Field/Construction Supervisor)</i>	
23.	Have you contacted Cenovus Construction Supervisors and Environmental Consultant prior to proceeding cut and cap operation?
24.	Wells with open bore abandonment plugs require a Static Fluid Level (SFL) test. Have you performed SFL test? (Must wait a minimum of 5 days after open bore abandonment operations are completed to conduct SFL test) Refer to Directive page 38
24a.	Please record Date and Time of Static Fluid Level test in the field provided on the right
25.	If there has been a SCVF/Gas Migration, has the problem (serious or not serious) been repaired prior to the surface abandonment?
26.	Perform a new SCVF test and confirm no problems exist with the well.
27.	Have you performed casing pressure test? (if it is over 7 year since the last casing pressure test has been performed)
27a.	If a new casing pressure test is done ensure that WellViews updated with new casing pressure test date. (Record casing pressure test date in the field if it is done by Construction Supervisor)
28.	Did you ensure proper ground disturbances have been completed according to procedures?
29.	Is the casing string(s) cut a minimum of 1m below the well's final completion elevation? See Directive 20 page 41 for exception
30.	Is the well capped at surface with lead plate welded in such a manner to prevent any potential for pressure to build up within the casing? (All casing must be individually capped with a vented steel plate.) Refer to Directive 20 page 41 for exception
31.	Has the cut and cap report with plate thickness and electrode size and location completed in WellView/SLU/WellView daily report? The plate thickness used to cap casing at minimum 3/8" (9.53 mm) (The cap must be open to atmosphere to avoid creating a corrosion cell.)
32.	Has the photo of the cut and capped casing string taken and attached in WellView/SLU/WellView?
33.	Is the cut and cap date recorded in WellView?
33a.	If cut and cap operation is performed by Construction Supervisor please record the cut and cap date in the field provided on the right
34.	Is the previously excavated hole, containing the capped well, backfilled to the surrounding contour?
35.	Has the well status been updated in WellView reader?
35a.	If this operation is performed by Construction Supervisor please record well status in the field provided on the right
36.	Has a copy of this completed checklist been forwarded to the WellView/SLU/WellView DQA?

Abandonment Program – BOYER SBU

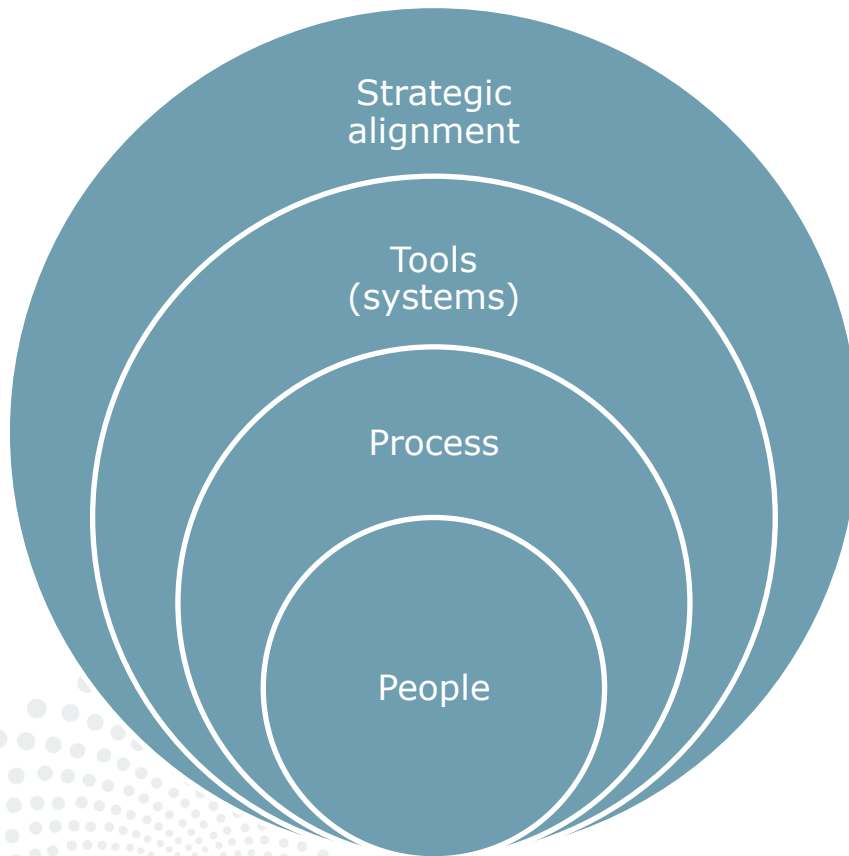
### 6.4. Post Surface Abandonment

IV – Post Surface Abandonment Follow-up <i>(to be completed by DQA)</i>		Action
37.	Has a new Daily Completion & Work over report been created/completed for this well abandonment?	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NA
38.	Have the cut and cap date, current casing size, well status, photos and other required data been recorded in WellView?	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NA
39.	Has a copy of this checklist, and its attachment, been scanned and attached to WellView for future reference.	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NA
40.	Has the DDBS system been updated with the test and cut and cap information?	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NA
41.	Have you notified Well Asset Management (whenever cut and cap data is complete? (email: <a href="mailto:car.kroll@cenovus.com">car.kroll@cenovus.com</a> )	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NA

Sign-off:  
DQA: \_\_\_\_\_  
Date: \_\_\_\_\_

# Development of the future state

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- Align BU targets with corporate strategy

# Net Asset Value (NAV)

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- Cenovus's 10 year plan: double NAV by 2015

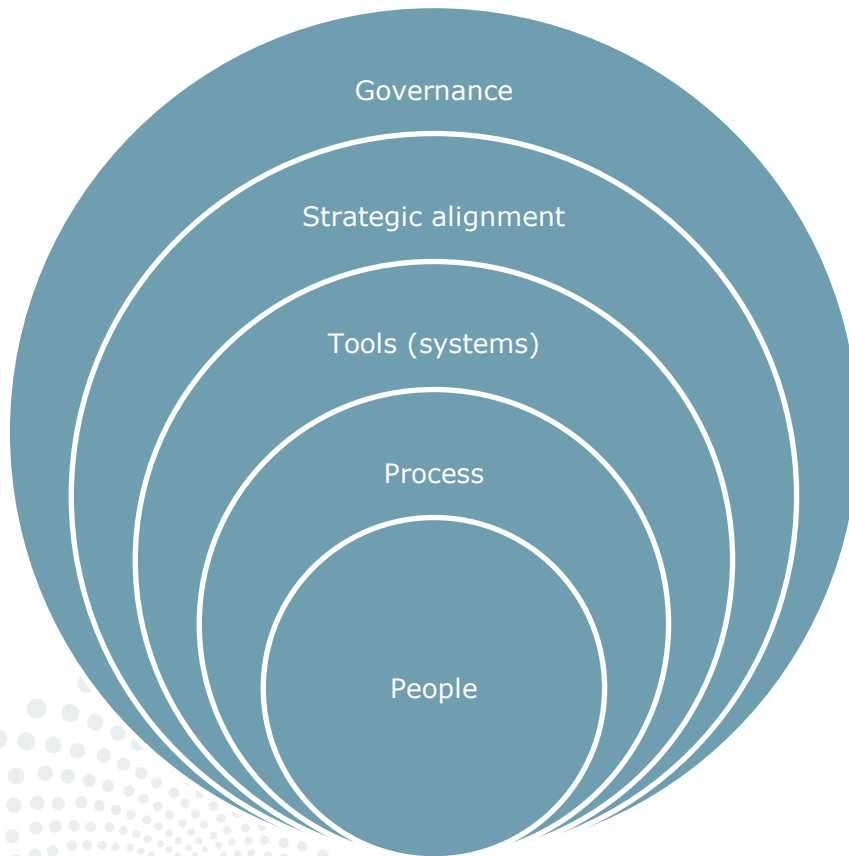
**NAV = total value of our assets minus total value of our liabilities**

- Wells traditionally viewed as "assets"



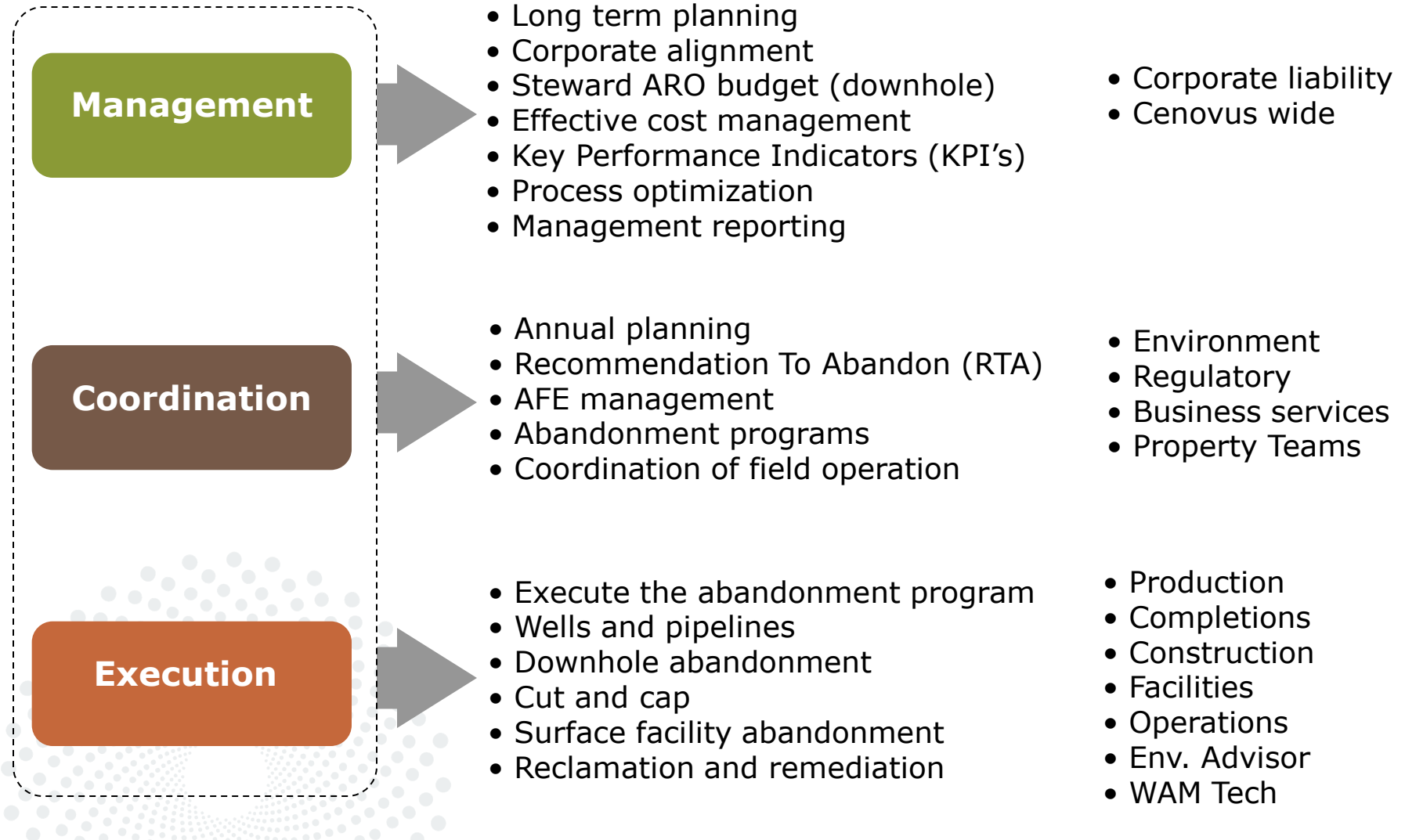
# Development of the future state

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- Create a governance committee to ensure that all BU strategies are aligned to corporate values and objectives.

# Governance – AROC committee

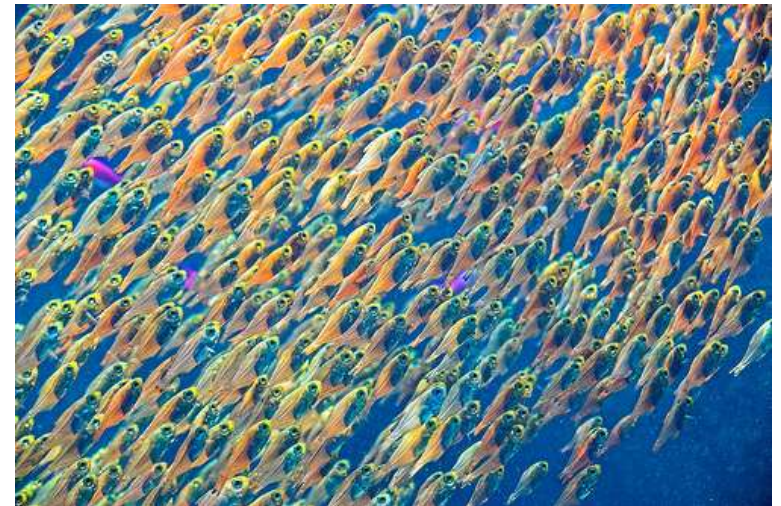


# Development of the future state

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- Work within the governance framework to create a change in perception





# Development of the future state

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## Environmental Commitments

1. Taking care of the environment is part of what we do
2. We incorporate environmental considerations when planning our work
3. Through innovation and efficiency, we limit our impacts on air, land and water resources
4. Our activities are temporary, we conserve resources and reclaim impacts
5. We take actions to continually improve our environmental performance

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# Liability Management

## Summary of realized benefits

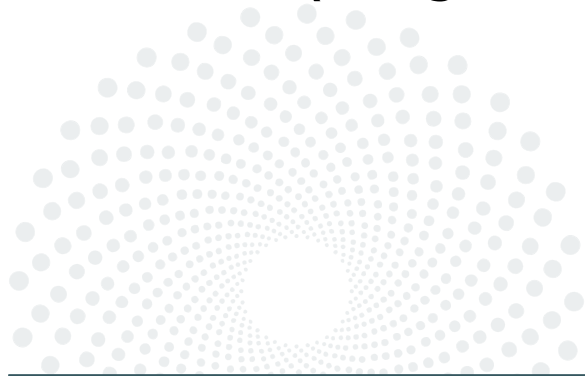
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- \$100,000 in annual savings generated from Surface file terminations
- \$600,000 in annual savings from reductions in property taxes being paid on removed or decommissioned surface equipment
- \$250,000 in annual savings from abandoned pipeline lease amendments
- Reduced surface rentals on reclaimed wellbores by \$400,000
- **Total of \$1.35MM in annual savings to date.**
- Additional \$600,000 in annual surface rentals savings anticipated as part of “non-drills” clean up project
- Enhanced regulatory compliance
- Improving environmental footprint and reducing Liability Management Ratio

# Control plan

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- Abandonment coordinators own the AFE
  - Control the money, control the process
- Quarterly reporting for process compliance
  - Wells in system = # wells in AFE
  - Wells abandoned have program sheet attached
- Performance agreements
- Governance committee
- IOT (integrated operations team)



# Liability Management

## Summary of lessons learned

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- Dedicated roles should be proposed with a cost / benefit analysis behind it.
- Communicate early and often
- Change management needs to be addressed early in the project
- Proposed projects are often symptoms of a larger issue.
- Three fundamentals:
  - People (culture & roles)
  - Process
  - Tools (or systems)

# Liability Management

## Phase 2 – The big prize

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### Reduce ARO (asset retirement obligation)

- Use realized efficiencies to drive down execution costs
- Leverage DOE to predict problem wells
- Employ innovations to mitigate problem well costs



# ARO (Asset Retirement Obligation fund)

## Cenovus ARO as of Dec 31 2010:

- Present value of Environmental Liability: **~1.2Billion C\$**
- Environmental Liability in the year of abandonment: **~6.1 Billion C\$**

### 16. ASSET RETIREMENT OBLIGATION

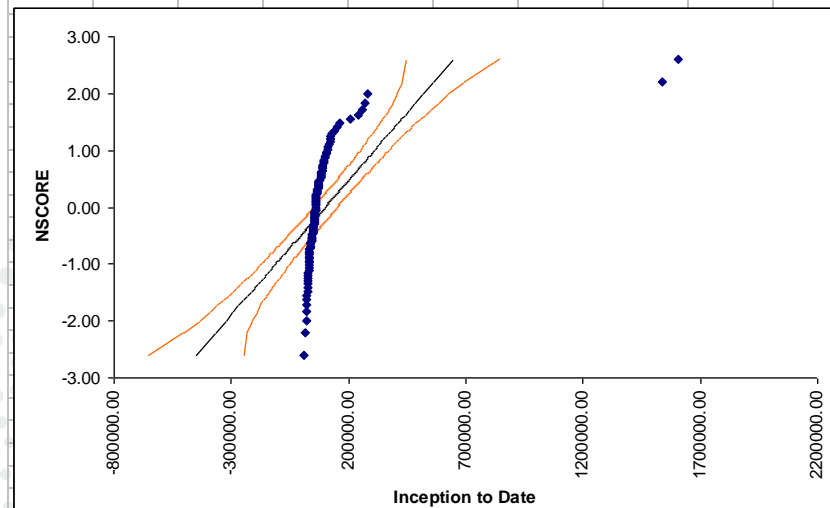
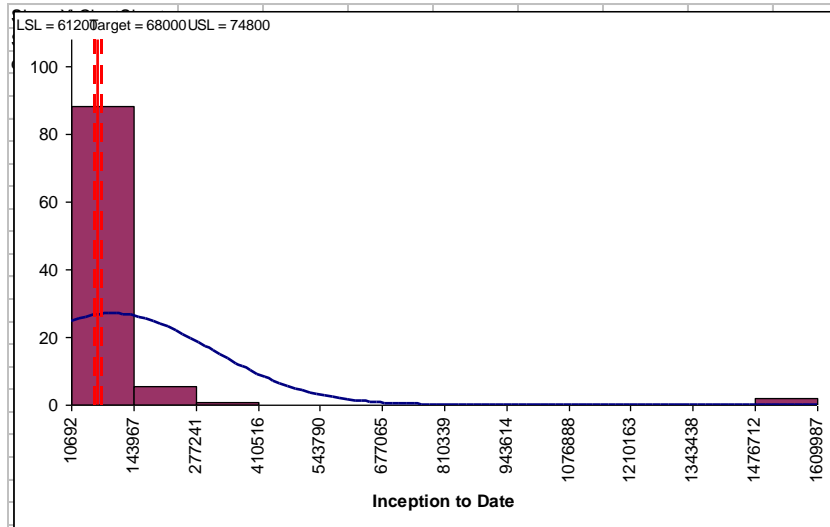
The aggregate carrying amount of the obligation associated with the retirement of upstream oil and gas assets and refining facilities is as follows:

As at December 31,	2010	2009
Asset Retirement Obligation, Beginning of Year	1,147	793
Liabilities Incurred	44	6
Liabilities Settled	(33)	(38)
Liabilities Divested	(88)	(10)
Change in Estimated Future Cash Flows	69	357
Accretion Expense	75	45
Foreign Currency Translation	(1)	(6)
Asset Retirement Obligation, End of Year	1,213	1,147

The total undiscounted amount of estimated cash flows required to settle the obligation is \$6,093 million (2009—\$5,683 million), which has been discounted using a weighted average credit-adjusted risk free rate of

6.09 percent (2009—6.23 percent). Most of these obligations are not expected to be paid for several years, or decades, in the future and will be funded from general resources at that time.

# Well abandonment costs (with outliers)



## Process Capability Report: Inception to Date

Count = 107  
 Mean = 98864  
 StDev (Overall, Long Term) = 210885  
 StDev (Within, Short Term) = 13362  
 USL = 74800  
 Target = 68000  
 LSL = 61200

## Capability Indices using Overall StDev

Pp = 0.01  
 Ppu = -0.04  
 Ppl = 0.06  
 Ppk = -0.04  
 Cpm = 0.01

## Potential Capability Indices using Within StDev

Cp = 0.17  
 Cpu = -0.60  
 Cpl = 0.94  
 Cpk = -0.60

## Expected Overall Performance

ppm > USL = 545424  
 ppm < LSL = 429126  
 ppm Total = 974550  
 % > USL = 54.54%  
 % < LSL = 42.91%  
 % Total = 97.46%

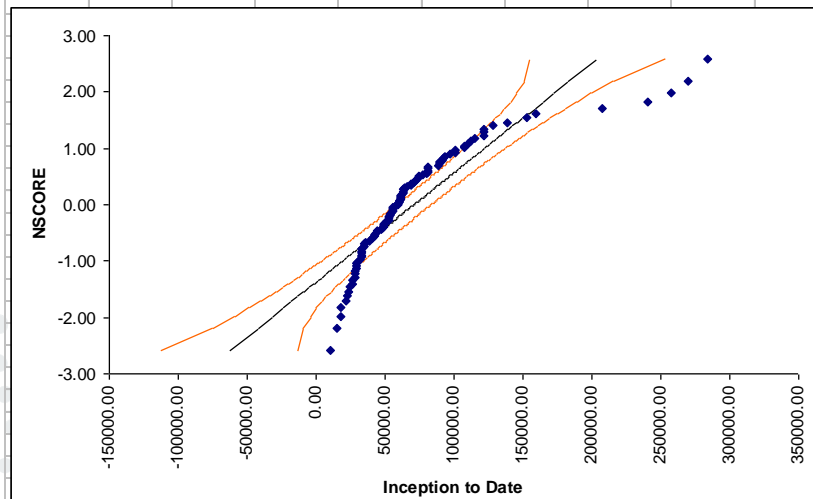
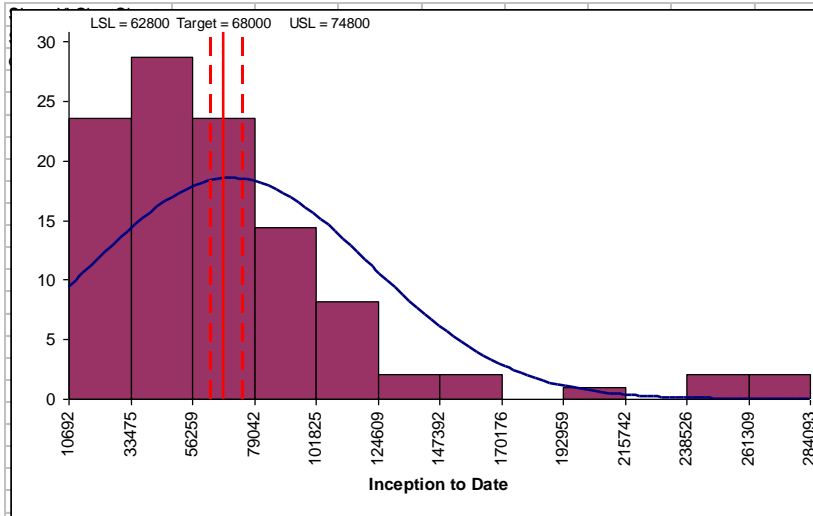
## Actual (Empirical) Performance

% > USL = 31.78%  
 % < LSL = 54.21%  
 % Total = 85.98%

## Anderson-Darling Normality Test

A-Squared = 24.982  
 P-value = 0.0000

# Well abandonment costs (removed outliers)



## Process Capability Report: Inception to Date

Count = 105  
 Mean = 70762  
 StDev (Overall, Long Term) = 51481  
 StDev (Within, Short Term) = 2926.2  
 USL = 74800  
 Target = 68000  
 LSL = 62800

## Capability Indices using Overall StDev

Pp = 0.04  
 Ppu = 0.03  
 Ppl = 0.05  
 Ppk = 0.03  
 Cpm = 0.04

## Potential Capability Indices using Within StDev

Cp = 0.86  
 Cpu = 0.58  
 Cpl = 1.14  
 Cpk = 0.58

## Expected Overall Performance

ppm > USL = 468743  
 ppm < LSL = 438542  
 ppm Total = 907286  
 % > USL = 46.87%  
 % < LSL = 43.85%  
 % Total = 90.73%

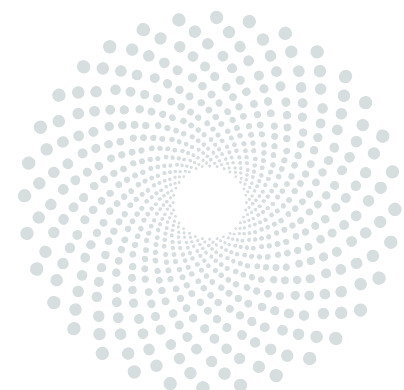
## Actual (Empirical) Performance

% > USL = 30.48%  
 % < LSL = 58.10%  
 % Total = 88.57%

## Anderson-Darling Normality Test

A-Squared = 6.131  
 P-value = 0.0000





Thank you  
Questions

