Note on Cash Flow Statements

Indirect Cash Flow Statements can be pretty confusing, but they don't have to be if you think about their relationship to the other financial statements. Here I present several examples to help you to intuitively think about how you can use the income statement and the balance sheet to determine the statement of cash flows using the indirect method. After looking at these examples, you can construct even more complicated ones for yourself to strengthen your intuition.

There is a mathematical method for thinking about the indirect method. Here I will repeat the derivation that you saw in class. You should also have this information in

- the note entitled "Understanding the Statement of Cash Flow" in the course packet, and
- the class slides "The Statement of Cash Flow."

Balance Sheet Equation:

A(t) = L(t) + SE(t)	Beginning Balance Sheet Equation (at time t)
A(t+1) = L(t+1) + SE(t+1)	Ending Balance Sheet Equation (at time t+1 period)

Differences:

ΔA = ΔL + ΔSE

Decompose:

ΔCash + ΔOCA + ΔNCA = ΔCL + ΔNCL + ΔCC + ΔOE + ΔRE

Note that **ΔRE = NI - Div** so we have:

ΔCash + ΔOCA + ΔNCA = ΔCL + ΔNCL + ΔCC + ΔOE + NI - Div

Since we are interested in the change in cash, we re-arrange to solve for the change in cash:

ΔCash = - ΔOCA - ΔNCA + ΔCL + ΔNCL + ΔCC + ΔOE + NI - Div
= + NI - ΔOCA + ΔCL - ΔNCA + ΔNCL + ΔCC + ΔOE - Div

Putting in the accounts we know about:

ΔCash = + NI - ΔnetA/R - ΔInv. - ΔOCA + ΔCL - ΔnetPPE - ΔNCA + ΔNCL + ΔCC + ΔOE - Div

But the change in net PP&E can be broken down even further into B/S and I/S effects:

ΔnetPPE = ΔPPE - ΔAccDepreciation
= Gain(Loss) - DepExp + (ΔPPE - ΔAccDepreciation) -Gain(Loss) + DepExp

- Since Gains(Losses) should not affect the Operating Section, but are included in the IncomeStatement, they need to be subtracted(added) from Net Income in this section.
- Since Depreciation Expense is a non-cash expense (but affects Net Income), it needs to be added back to the Net Income in the Operating Section.

Inserting the expanded **ΔnetPPE**:

ΔCash = + NI - ΔnetA/R - ΔInv. - ΔOCA + ΔCL - (Gain(Loss) - DepExp + (ΔPPE – ΔAccDepreciation) -Gain(Loss) + DepExp) - ΔNCA + ΔNCL + ΔCC + ΔOE - Div

Rearranging:

ΔCash = + NI + DepExp - ΔnetA/R - ΔInv. - ΔOCA + ΔCL - Gain(Loss) ***OPERATING***
- (ΔPPE - ΔAccDepreciation) +Gain(Loss) - DepExp - ΔNCA + ΔOE ***INVESTING***
+ ΔNCL + ΔCC - Div ***FINANCIING***

Further:

ΔPPE =Acquisition – Disposal at Original Cost
ΔAccDepreciation = DepExp – AccDepreciation of Disposed Item

Thus:

ΔPPE - ΔAccDepreciation -Gain(Loss) + DepExp = Acquisition – (Disposal at Original Cost - AccDepreciation of Disposed Item) - Gain(Loss)
= Acquisition – Proceeds from Disposal

Example 1 - Revenues and the indirect statement of cash flows

A Simple Example - Services sold with no COGS

Transaction	Assets		= Liabilities +	Shareholders' Equity	*Notes*
	Cash	A/R		Retained Earnings	
Make a sale for cash	$30,000			$30,000	*Sales Revenue*
Make a sale on credit		$42,000		42,000	*Sales Revenue*
Customer pays part of A/R	37,000	(37,000)			
	$67,000	$5,000		$72,000	
	Cash Collected of $67,000	Equals	Increase in A/R of $5,000	Minus the	Net Income of $72,000

Statement of Cash Flows

Cash from Operating		
Net Income	$ 72,000	
Adjustments		
(Less increases[1] in Current Assets)		
Increase in A/R	(5,000)	
Cash Increase from Operating		$ 67,000
Cash from Investing		$ 0
Cash from Financing		$ 0
Change in cash		$ 67,000
Beginning cash balance		0
Ending cash balance		$ 67,000

[1] Decreases in Current Assets would be Added

Example 2 - Revenues with COGS and the indirect statement of cash flows

An Example - Goods sold with COGS (Goods sold at 10 times the value of COGS)

Note that each sale is split up into 2 transactions on the BSE: a Revenue component and COGS component

Transaction	Assets			= Liabilities +	Shareholders' Equity	*Notes*
	Cash	A/R	Inventory		Retained Earnings	
Purchase Inv w/cash	($10,000)		$10,000			
Make a sale for cash	30,000	Equals	and	Minus the	$30,000	*Sales Revenue*
COGS			(3,000)		(3,000)	*COGS*
Make a sale on credit		$42,000			42,000	*Sales Revenue*
COGS			(4,200)		(4,200)	*COGS*
Customer pays part of A/R	37,000	(37,000)				
	$57,000	$5,000	$2,800		$64,800	
	Cash Collected of $57,000	Increase in A/R of $5,000	Increase in Inv. Of $2,800		Net Income of $64,800	

Statement of Cash Flows

Cash from Operating		
Net Income	$64,800	
Adjustments *(Less increases[2] in Current Assets)*		
Increase in A/R	(5,000)	
Increase in Inventory	(2,800)	
Cash Change in Operating		$57,000
Cash from Investing		$0
Cash from Financing		$0
Change in cash		$57,000
Beginning cash balance		$0
Ending cash balance		$57,000

[2] Decreases would be added

Example 3 - Expenses
An Example - Salary Expenses

Transaction	Assets	=	Liabilities	+	Shareholders' Equity	*Notes*
	Cash		Salaries Payable		Retained Earnings	
Pay Salaries	($13,000)				($13,000)	*Salary Expense*
Accrue Salaries			$1,000		(1,000)	*Salary Expense*
	($13,000)		$1,000		($14,000)	
	Cash Spent of $13,000	Equals ←	Increase in Salary Pay. of $1,000	Plus the ←	Net Income of ($14,000)	

Statement of Cash Flows

Cash from Operating		
Net Income	($ 14,000)	
Adjustments		
(Less increases[3] in Current Assets)		
none	(0)	
(Plus increases[4] in Current Liabilities)		
Change in Salaries Payable	1,000	
Cash Increase from Operating		($ 13,000)
Cash from Investing		$ 0
Cash from Financing		$ 0
Change in cash		($ 13,000)
Beginning cash balance		0
Ending cash balance		($ 13,000)

[3] Decreases in Current Assets would be added
[4] Decreases in Current Liabilities would be subtracted

Example 4 - PP&E

An Example - Acquiring and Selling PP&E

Transaction	Assets			= Liabilities +	Shareholders' Equity	*Notes*
	Cash	PP&E	- Accum. Deprec.		Retained Earnings	
Buy PP&E	($60,000)	$60,000				
Sell PP&E (gain)	9,000	(30,000)	($25,000)		$4,000	*Gain on sale*
Deprec. Exp.			35,000		(35,000)	*Deprec. Exp.*
	($51,000)	$30,000	$10,000		($31,000)	
	Cash spent of $51,000 ← Equals	Increase in PP&E of $30,000 ← Minus	Increase in Accum Depr of $10,000 ← Add		Net Income of ($31,000)	

Statement of Cash Flows

Cash from Operating		
Net Income	($31,000)	
Adjustments		
(Less increases in Current Assets)		
none	(0)	
(Plus increases in Current Liabilities)		
none	0	
(and adjustments due to PP&E)		
Add back Depreciation Exp	35,000	
Subtract (add) Gain (Loss)	(4,000)	
Cash Increase from Operating		$ 0
Cash from Investing		
Purchase of PP&E	($60,000)	
Sale of PP&E	9,000	
		($51,000)
Cash from Financing		$ 0
Change in cash		($51,000)
Beginning cash balance		0
Ending cash balance		($51,000)

Alternate method for determining Cash from Investing:		
Less Change Net PP&E		
Change in PP&E	($30,000)	
Change in Accum Deprec	10,000	
	($ 20,000)	
Plus Gains	4,000	
Less Deprec. Exp.	(35,000)	
TOTAL Cash from Investing		($ 51,000)