



Lower Boise River Watershed Advisory Group

Water Quality Trading Framework Update

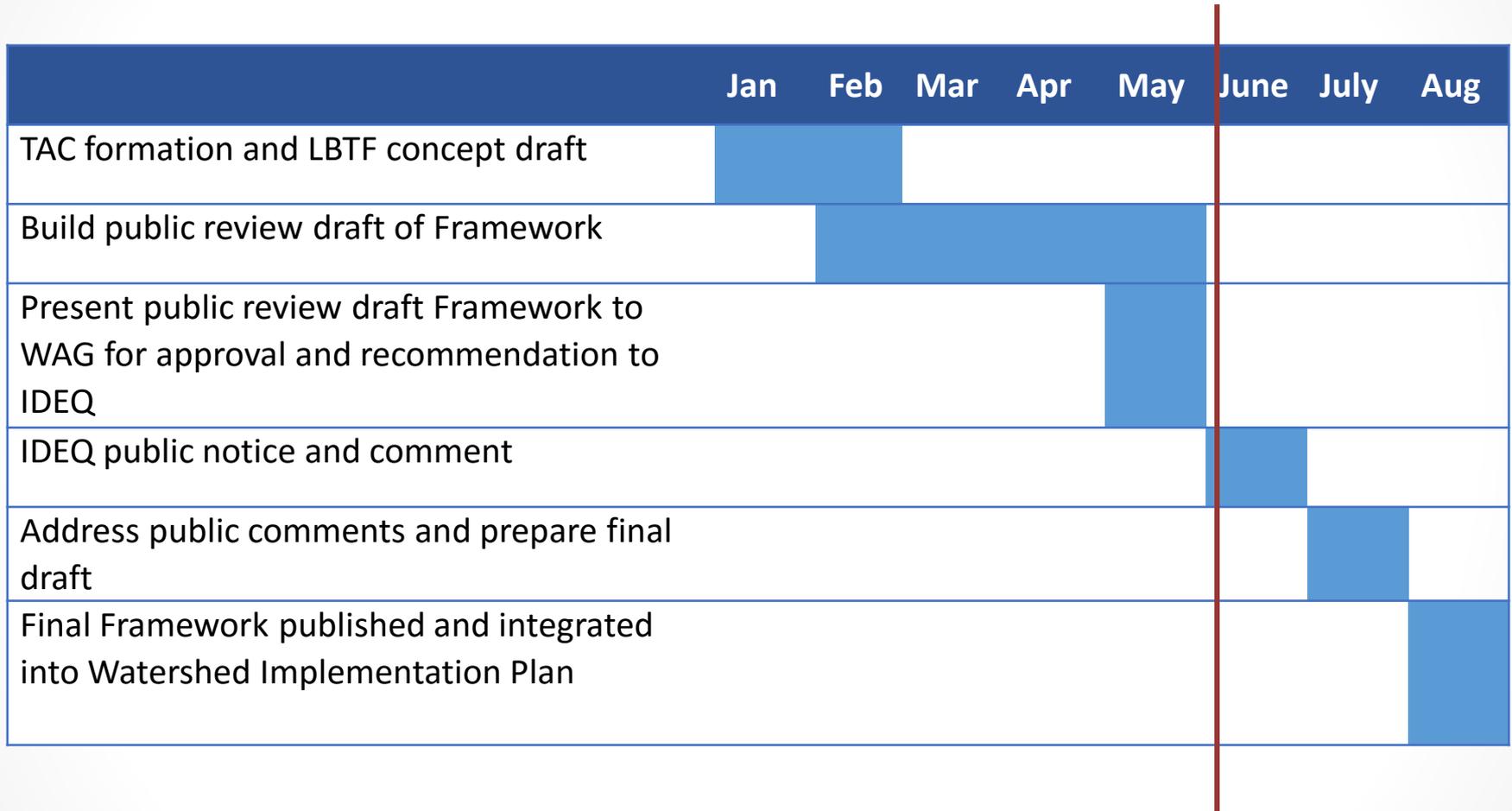


WILLAMETTE PARTNERSHIP

Trading Framework: Where We Are

- Technical Advisory Committee (TAC) has met three times to date
- Presented and reviewed all major elements of a trading program
 - Water Quality Trading Memos (available on WAG webpage)
- Compiled information and feedback into concept draft framework.
 - 2 rounds of review
- Identified major trading component details needing further discussion.

Framework Process Timeline





Concepts to Update

Baseline- How to define

Credit life – Annual vs seasonal

Trading ratios -Addressing uncertainty without complexity

Avoiding localized impacts – no local concentrations of pollution as a result of trading.

Market operation and administration –
How does it all work and who is responsible for the different functions?

Framework Update Process Timeline

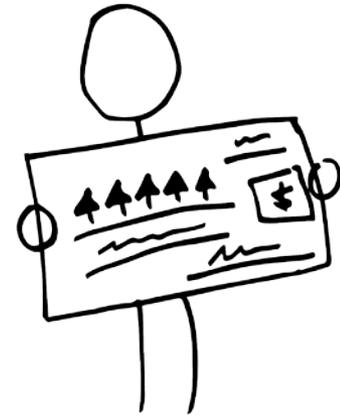
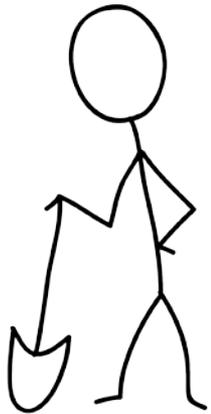
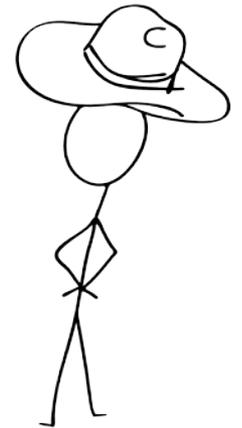
	June	July	Aug	Sept	Oct	Nov	Dec
Build public review draft of Framework							
Present public review draft Framework to WAG for approval and recommendation to IDEQ							
IDEQ public notice and comment							
Address public comments and prepare final draft							
Final Framework published and integrated into Watershed Implementation Plan							



Moving Forward

- Continue discussions with EPA on baseline and credit life.
- Provide comments/feedback on current Framework draft.
- Finalize draft Framework and provide recommendation to WAG
- WAG to provide recommendation to IDEQ to issue draft for public comment.





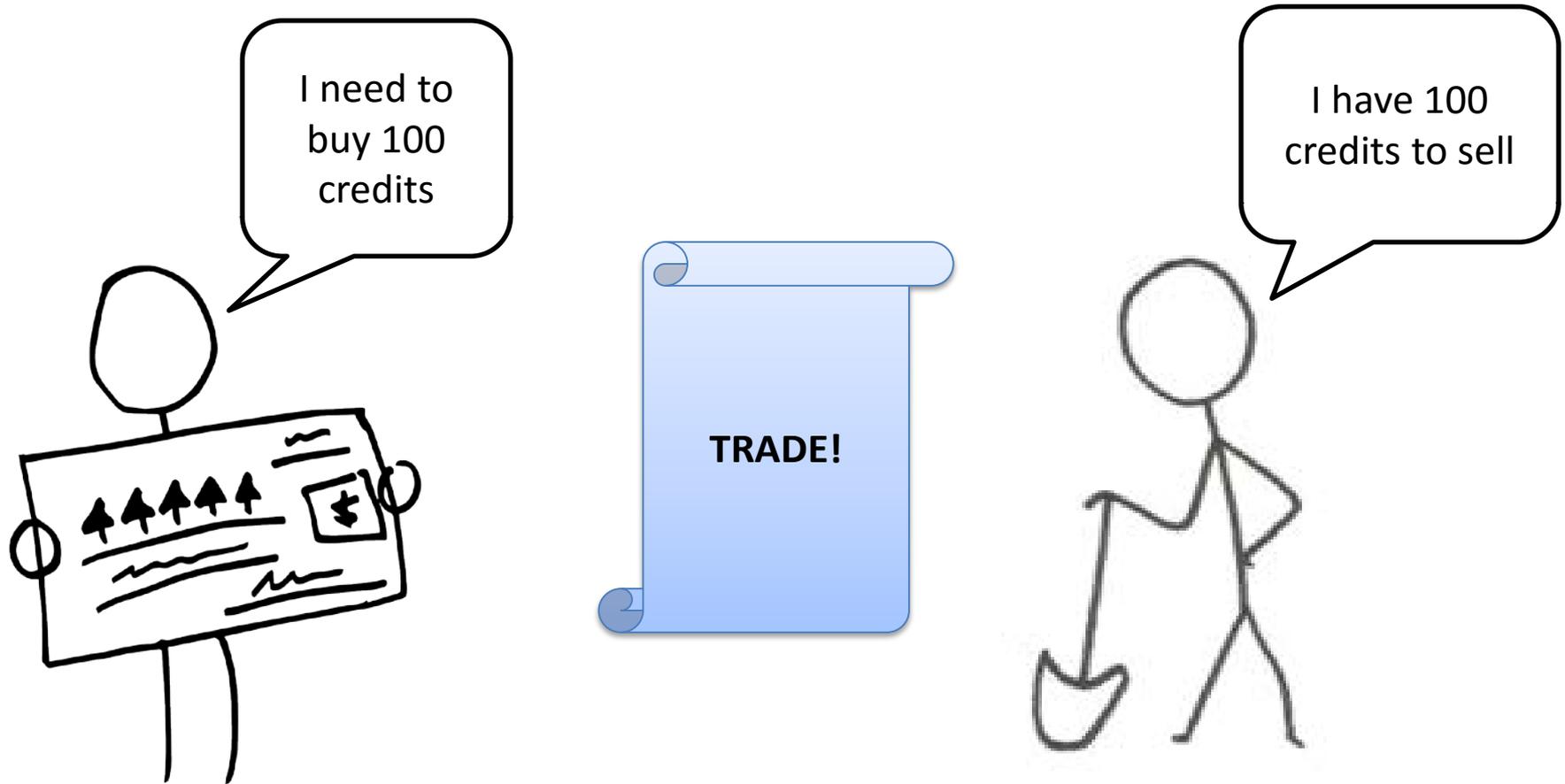
Boise River Water Quality Trading Framework

Mock Transaction



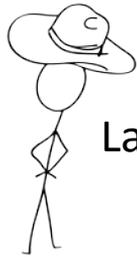
WILLAMETTE PARTNERSHIP

What is the market?



The Actors

Participants



Landowners



Project Developers



Buyers

Facilitators



Program Administrator



Registry Provider



Verifier



Regulatory Agency



Public

Credit Generating and Tracking Process

Select &
Validate Site

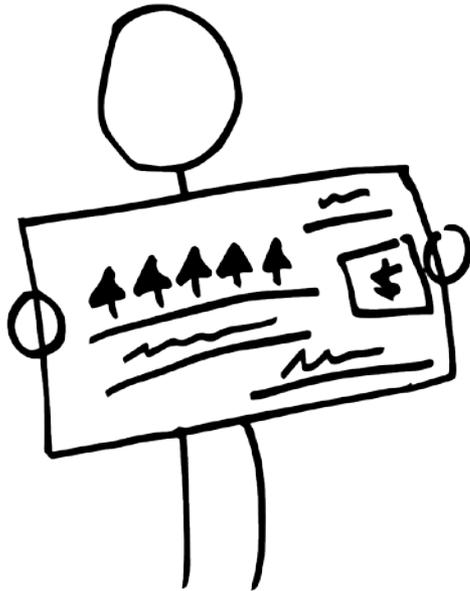
Implement &
Calculate
Credits

Verify &
Certify Credits

Register &
Issue Credits

Ongoing
Verification,
Tracking
& Transfer

Trading Eligibility



Potential Credit Buyers in the Lower Boise Trading Framework

National Pollutant Discharge Elimination System (NPDES)

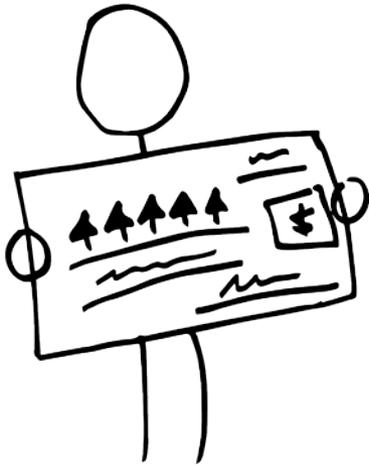
Municipal Separate Storm Sewer System (MS4)

Multi-Sector General Permit (MSGP)

Rapid Infiltration Basin (RIB)

Hydroelectric Facilities (401 Cert.)

Voluntary

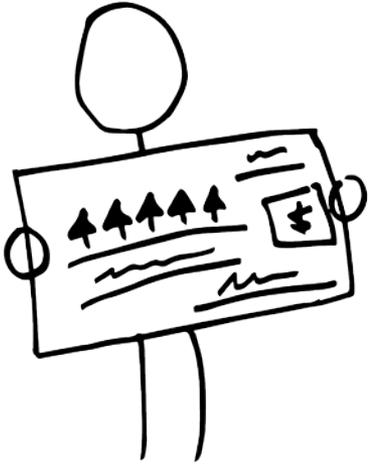


Buyer Eligibility



I would like to include trading as an option to meet the requirements of my regulatory permit.

Great! Have you met your TBELs?



Buyer Eligibility

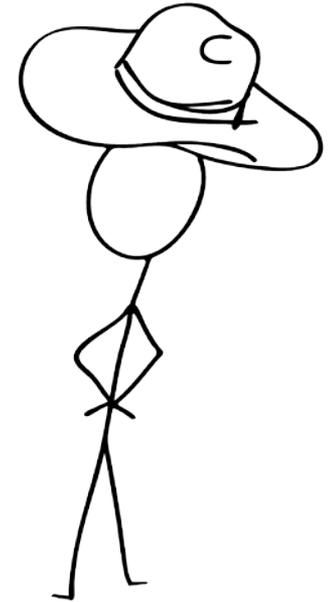
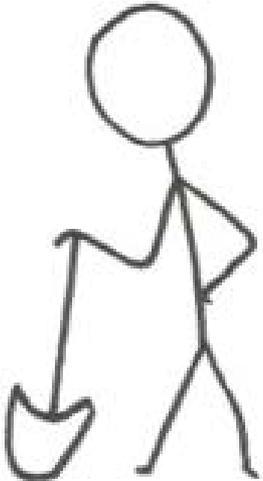
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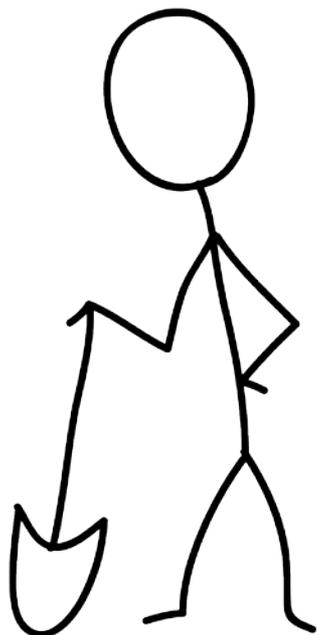
Project Eligibility





Project Eligibility





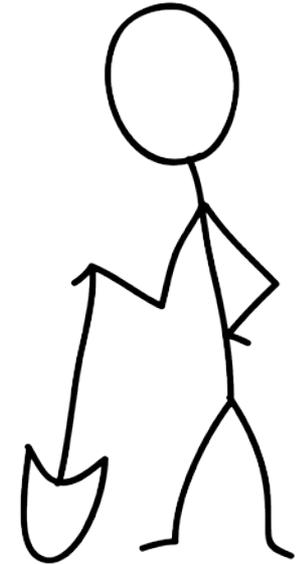
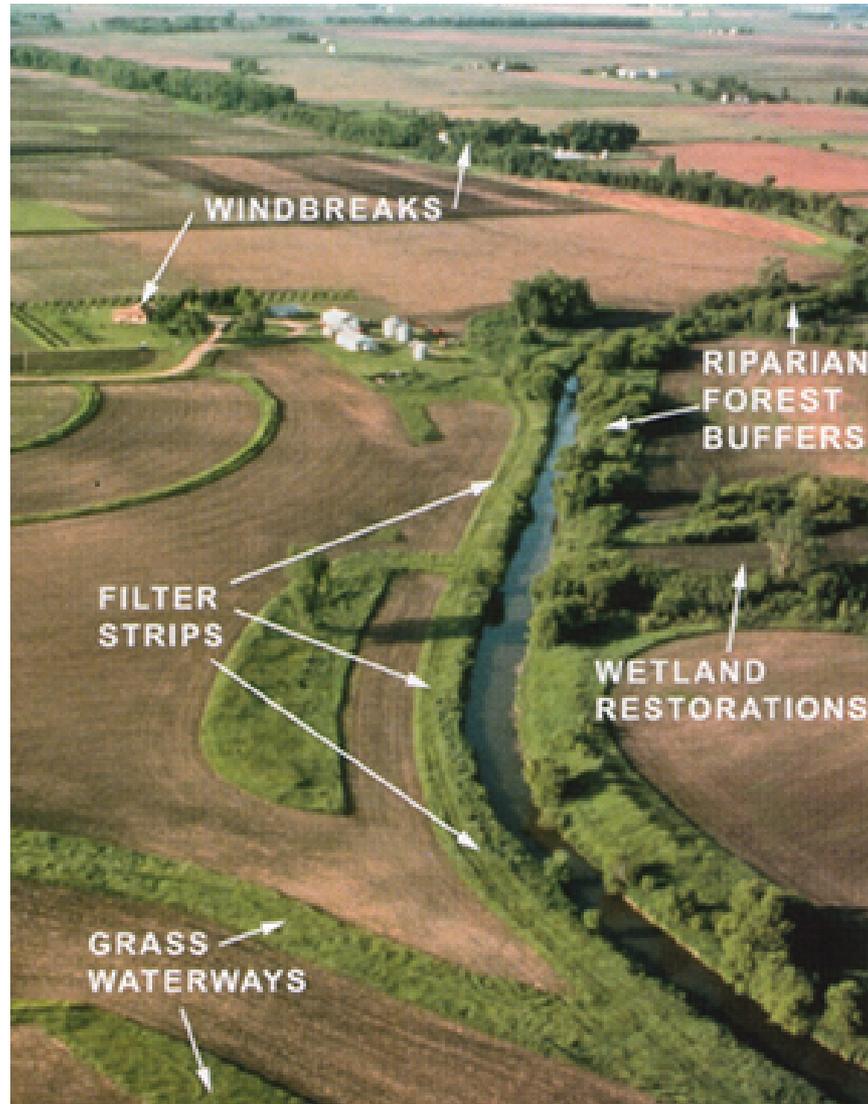
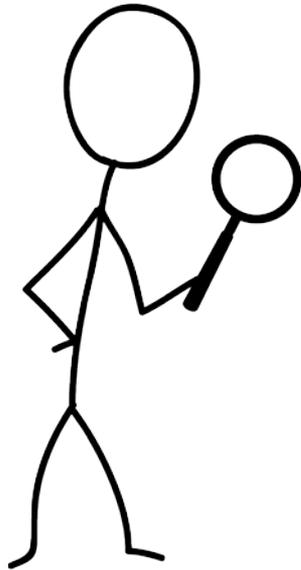
BMP Type	BMP Efficiency Rate	Design Criteria	Lifespan
Sediment basin (field scale)	75%	NRCS 350	20 years
Sediment basins (watershed scale)	65%	NRCS 350	20 years
Filter strips	50%	NRCS 393	1 season
Underground outlet (years 1-2)	85%	NRCS 620	2 years
Underground outlet (after year 2)	65%	NRCS 620	18 years
Straw in furrows	85%	NRCS 484	1 season
Sprinkler irrigation	100%	NRCS 442	15 years
Microirrigation	100%	NRCS 441	10 years
Tailwater recovery	100%	NRCS 447	15 years
Surge irrigation	50%	NRCS 449	1 season
Constructed Wetland (Farm Scale)	65%	NRCS 656	15 years
Cover Cropping	TBD	NRCS 340	1 year
Residue Mgmt (No Till)	90%	NRCS 329	1 year

*Base-year 2013

Project Eligibility



Site Screening & Eligibility





Option A:

Retire 20% of credits for all non-point credit project types

Option B:

(Phased) implementation of BMPs

Baseline





EPA Feedback:

Non-point source baseline needs to be at farm/project scale and derived from TMDL load allocation.

Baseline



Example Credit Calculation



WP Farms

100 acres alfalfa hay

2.4% field slope

Siphon tube irrigation

No conservation practices installed currently

Proposing filter strips



Surface Irrigation Soil Loss (SISL) Calculation

$$SISL = BSL \times KA \times PC \times CP \times IP$$

Base Soil Loss (BSL): Function of field slope, length, crop type, and end of field slope shape (convex end).

Soil erodibility adjustment factor (KA): Based on NRCS soil erosion “K” factor from USDA soil survey

Prior crop adjustment factor (PC): Account for crop residue from previous year’s crop.

Conservation practice adjustment factor (CP): current conservation practices

Irrigation management adjustment factor (IP): Management associated with irrigation type

Select &
Validate Site

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Ongoing
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SISL Calculation

	AC	BSL	KA	PC	CP	IP	Results
WP Farms		2.3	0.53	0.7	1	1	0.8500 (t/acre)
Total Sediment loss	100						85 (tons)

Net reduction in soil loss

Pre-BMP soil loss x BMP Efficiency Rate

$$85 \times .50 = 42.5$$

Total phosphorus reduction

Net sediment reduction x 2lbs/ton

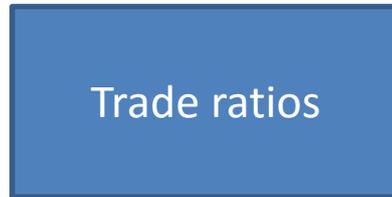
$$42.5 \times 2 = \mathbf{85}$$



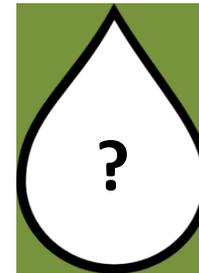
85 lbs/yr



Total Phosphorus reduction



=



Credit to sell



85 lbs/yr



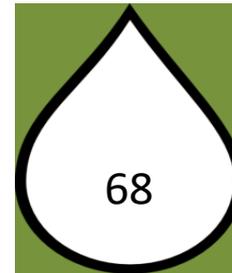
Total
Phosphorus
Reduction

68 lbs/yr



Baseline

=



Credit to
sell

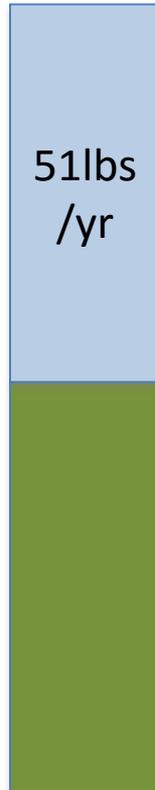
Option A: Percentage reduction



85 lbs/yr



Pollution
reduction



Baseline

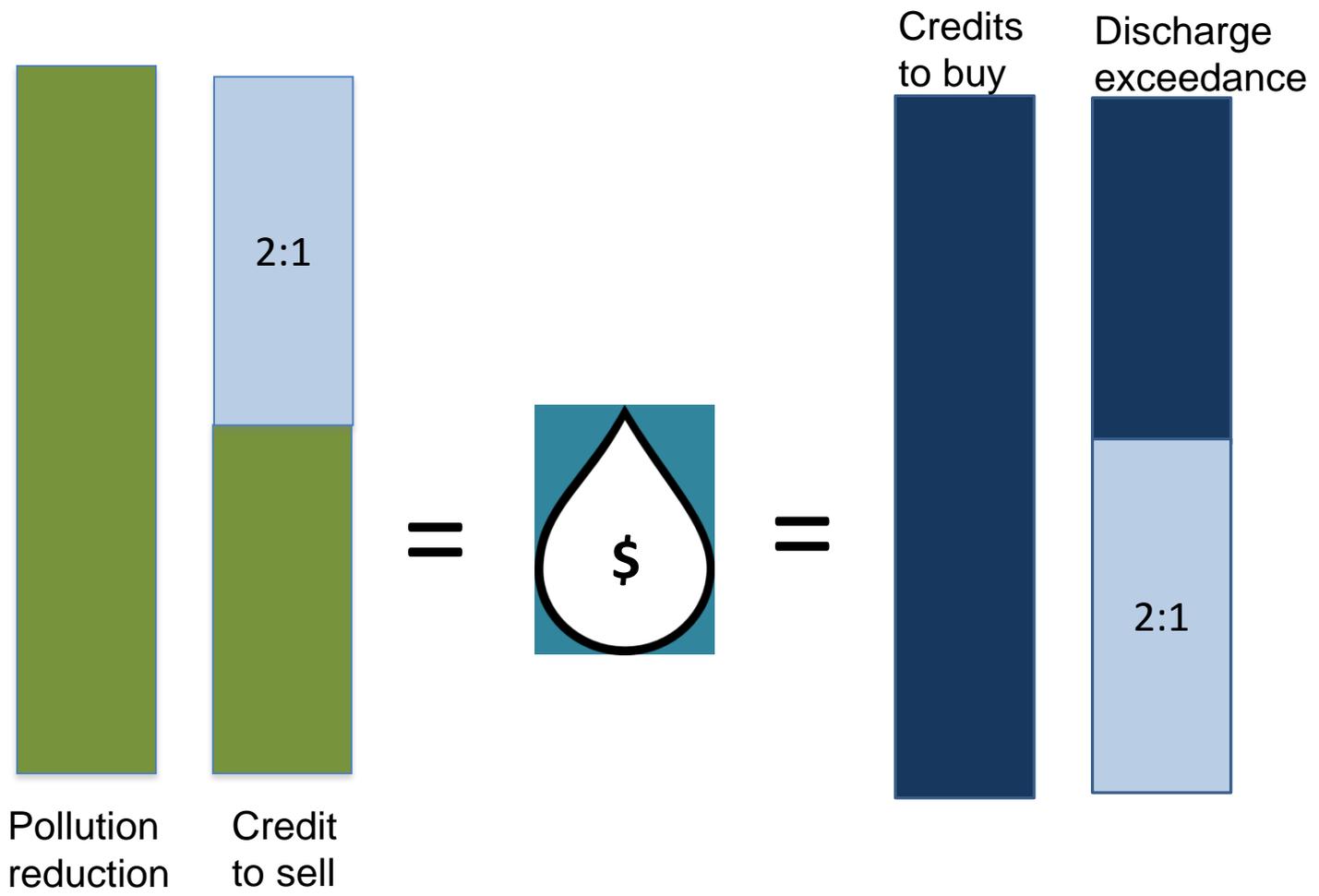
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Credit
to sell

Option B: BMP Implementation





Trading Ratios: Uncertainty



85 lbs/yr



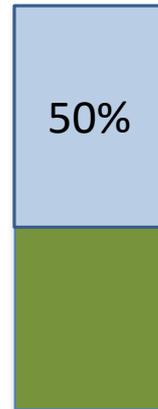
Pollution reduction

68 lbs/yr



Baseline

34 lbs/yr



Trading ratios

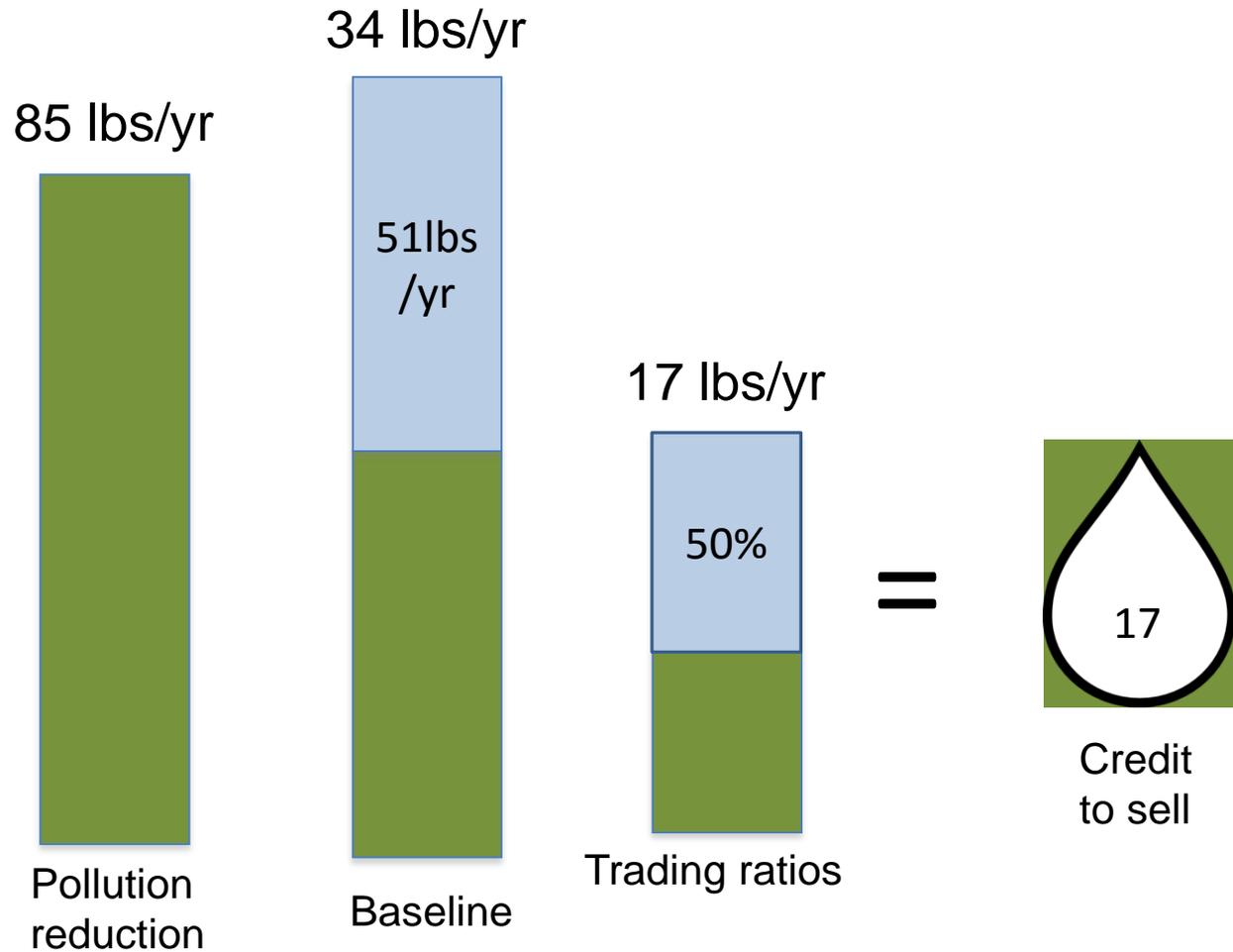
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Credit to sell

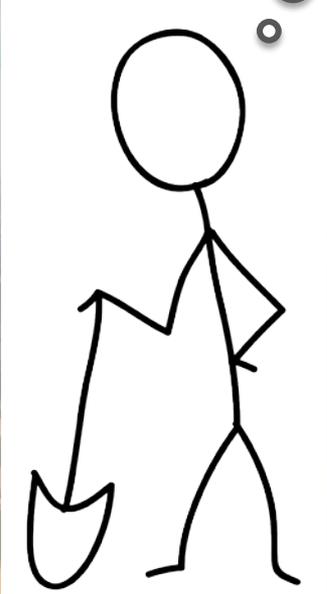
Trading Ratios: Uncertainty





Trading Ratios: Uncertainty

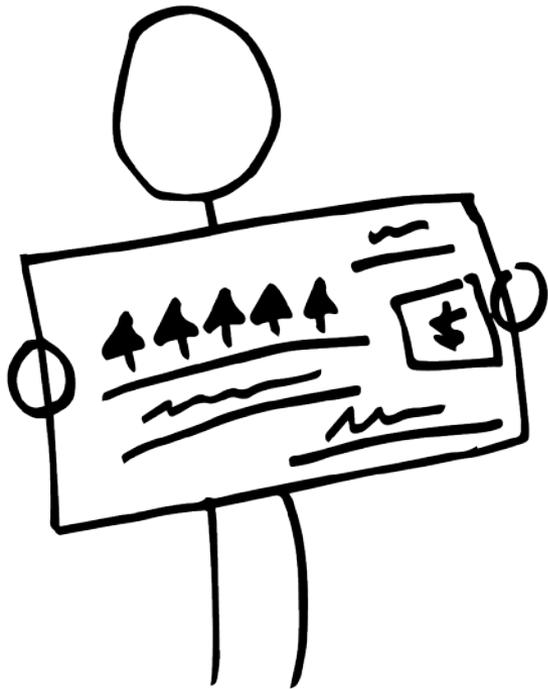


A simple black and white line drawing of a stick figure standing with one hand on its hip and the other holding a shovel. Above the figure is a large thought bubble containing the text "Does the project pencil?". Three smaller circles lead from the top of the figure's head to the main thought bubble.

Does the
project pencil?

Project cost considerations:

- Project design
- Construction costs
- Site screening
- Project verification
- Ongoing maintenance
- Monitoring
- Assurances

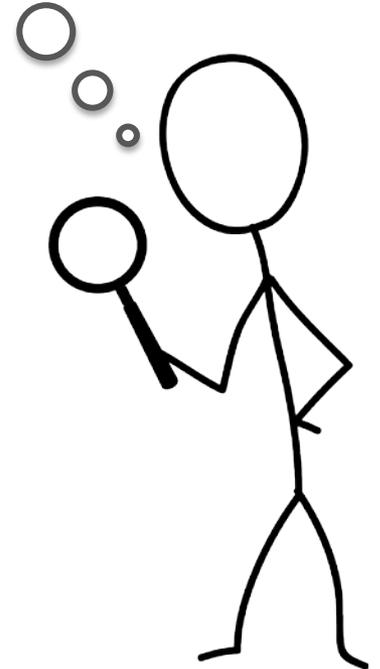
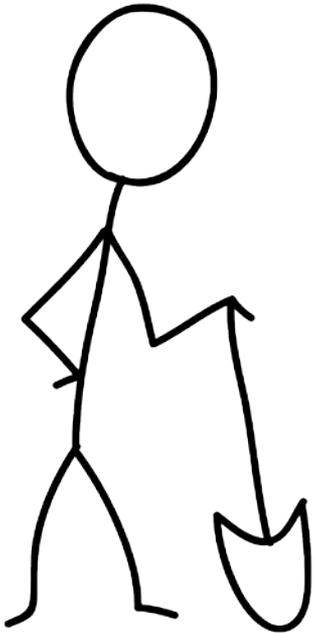


Purchase price considerations

- Opportunity cost
- Acquisition costs
- Length of contract
- Administrative costs

Document as-built condition
Final credit estimate
Final project documentation

Administrative review
Technical review
Site visit/confirm project implementation



Verify & Certify

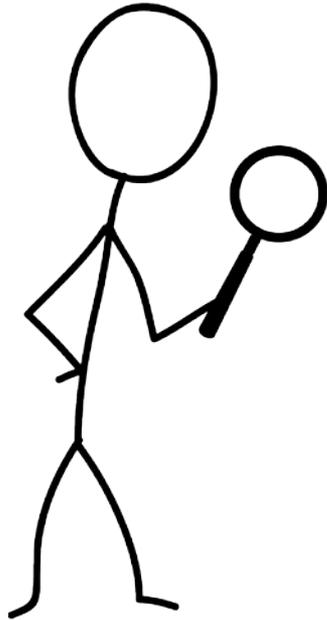
Select &
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Ongoing
Verification,
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& Transfer



Potential documents required for administrative review

Proof of ownership/rights to credits/land protection

Permits or other agency approval

Accounting area map

Service area map

Project monitoring plan

Project stewardship plan

Initial project design and map

As-built project design

Credit calculation

Administrative Review

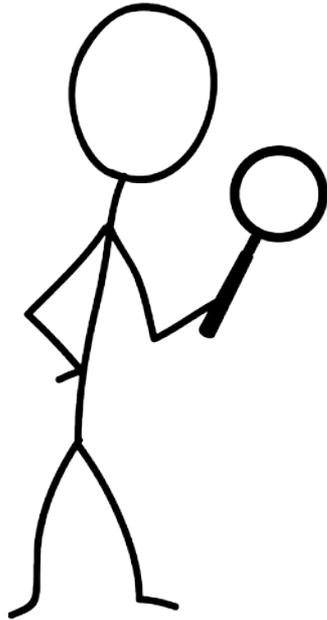
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Potential technical review procedures and documents

Initial project design

As-built project design

Credit modeling/calculation check

Baseline/Post implementation data

Technical Review

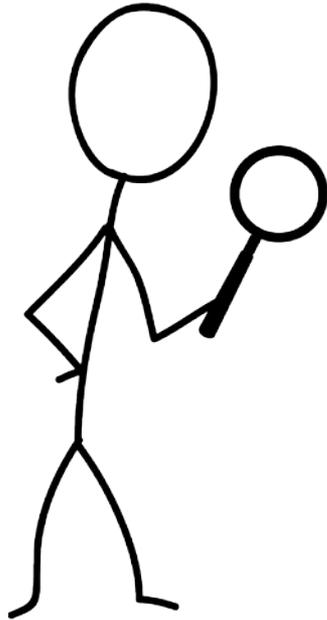
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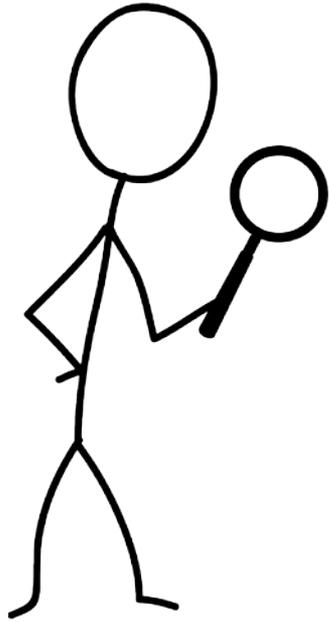
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Project Review

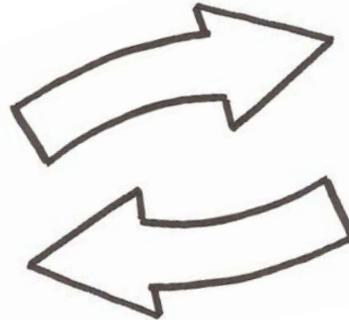
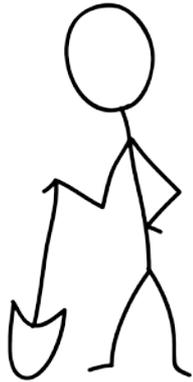




Project Review



I have 100 credits
calculated, verified and
ready to be issued



Your credits are registered
and posted online and
ready for sale!



Register & Issue

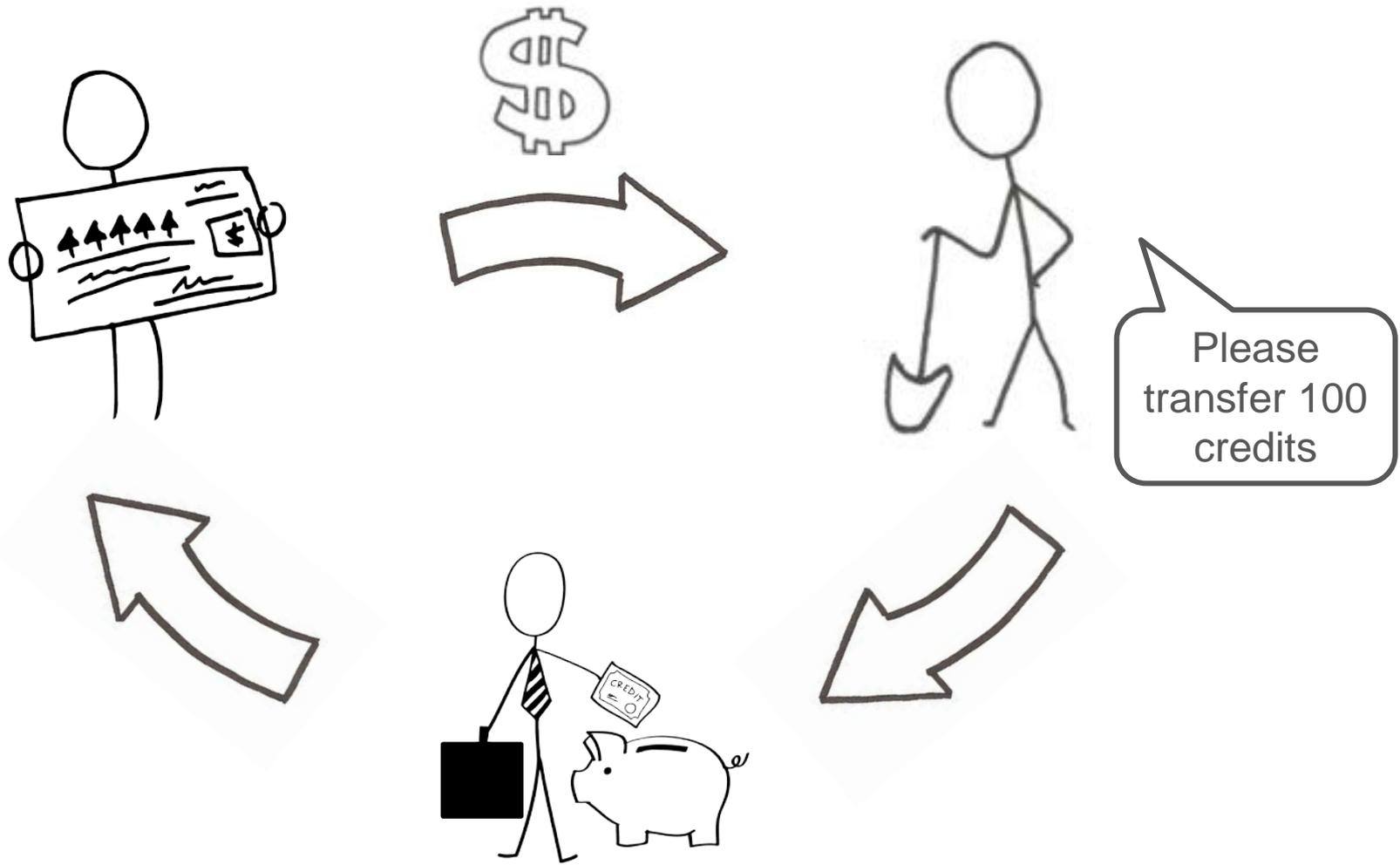
Select &
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Implement &
Calculate
Credits

Verify &
Certify Credits

Register &
Issue Credits

Ongoing
Verification,
Tracking
& Transfer



Transfer and Tracking



Show 10 entries

Search:

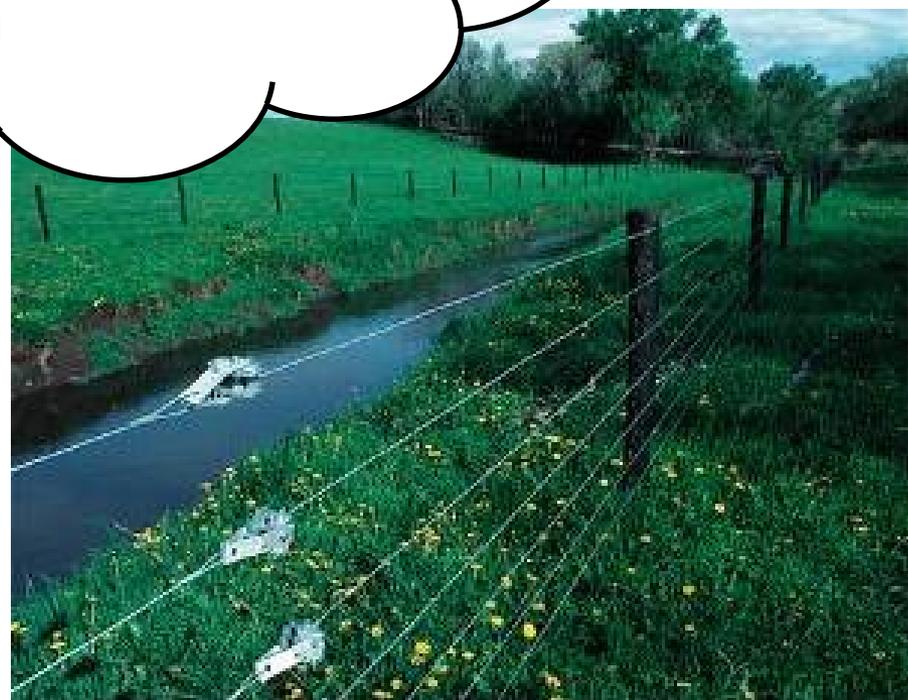
PROJECT NAME	ACCOUNTING UNIT	CREDIT TYPE	CREDIT QUANTITY	CREDIT UNIT	CREDIT STATUS	OWNER	PROJECT FILE	SERVICE AREA
Applegate RM29.5	1	WQ-Thermal	11786050	kcal	Active	City of Medford		Middle Rogue
Applegate RM30.0	1	WQ-Thermal	28460963	kcal	Active	City of Medford		Middle Rogue
Applegate RM28.5	1	WQ-Thermal	20904800	kcal	Active	City of Medford	Download	Middle Rogue
Rogue RM128	1	WQ-Thermal	34536811	kcal	Active	City of Medford		Middle Rogue
Applegate RM29.5	1	WQ-Thermal	11786050	kcal	Active	The Freshwater Trust		Middle Rogue
Applegate RM30.0	1	WQ-Thermal	28460962	kcal	Active	The Freshwater Trust		Middle Rogue
Little Butte RM8.5	1	WQ-Thermal	21412533	kcal	Active	The Freshwater Trust		Middle Rogue
Applegate RM 28.5	1	WQ-Thermal	20904800	kcal	Active	The Freshwater Trust	Download	Middle Rogue
Rogue RM128	1	WQ-Thermal	34536811	kcal	Active	The Freshwater Trust		Middle Rogue

Showing 1 to 9 of 9 entries

[Previous](#) [Next](#)

Track & Transfer

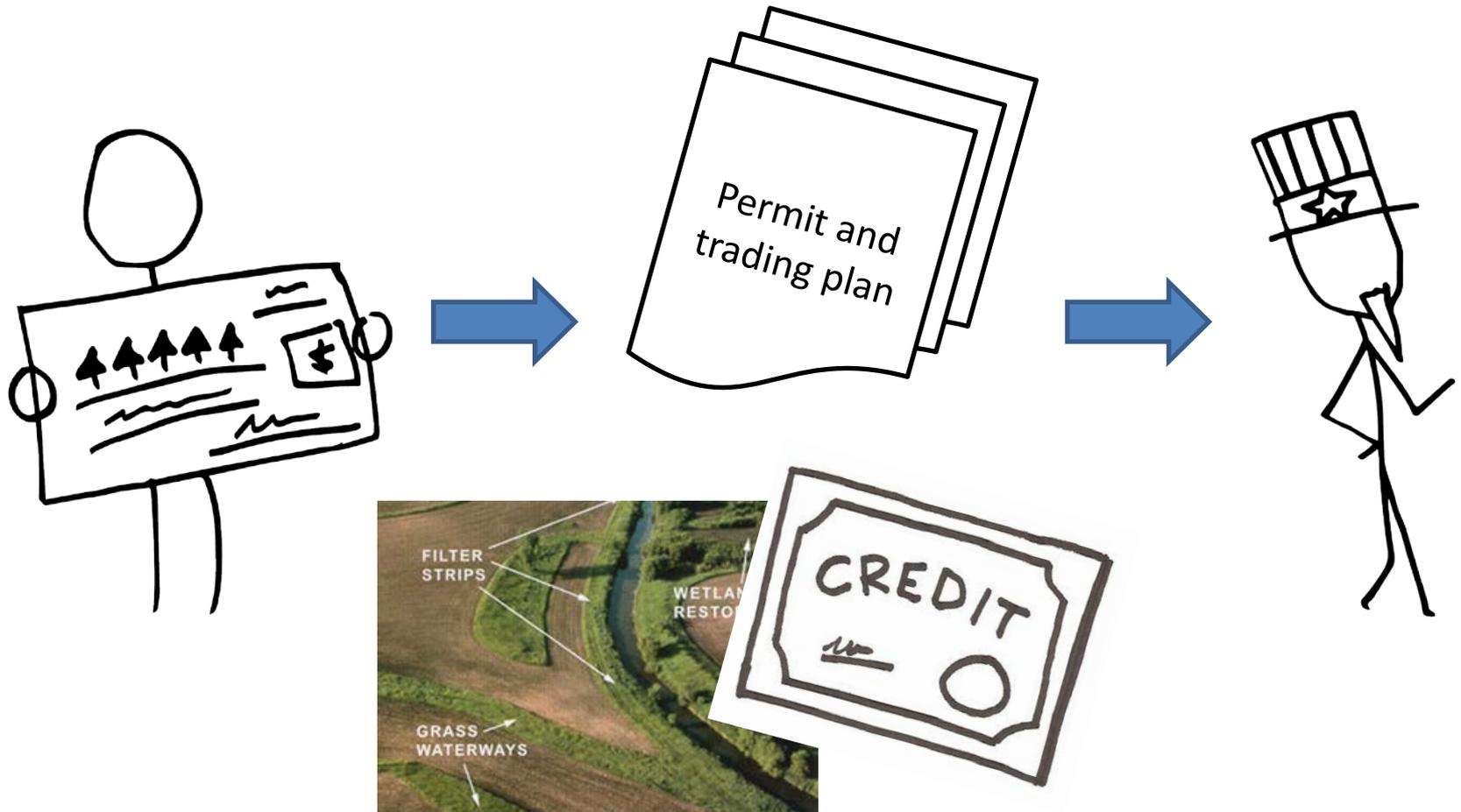




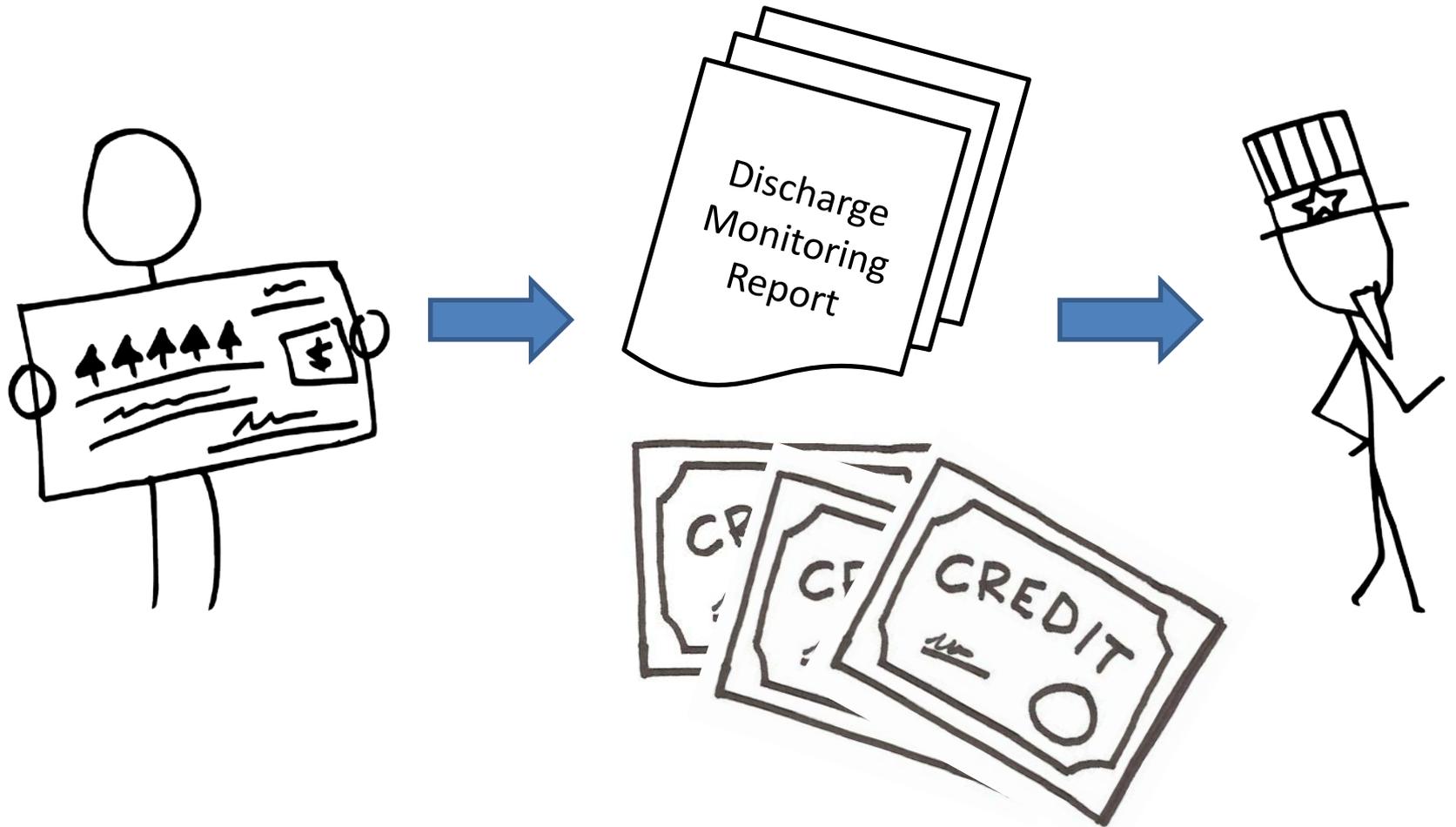
Ongoing Verification



How credits meet compliance



How credits meet compliance



Reporting and Transparency



Reporting and Transparency

2014 Total Phosphorus Credit Transfers

	Facility	Individual VPDES Permit No.	General Permit Registration No.	Discharged TP Wasteload Allocation (lbs/yr)	TP Delivery Factor	Delivered TP Wasteload Allocation (lbs/yr)	2014 Discharged TP (lbs)	2014 Delivered TP (lbs)	2014 Delivered TP Exceedance (lbs)	2014 Delivered TP Credits Obtained (lbs)	Source of Credits
Potomac	Strasburg STP	VA0020311	VAN010102	895	0.77	689	8,747	6,735	6,046	6,046	VNCEA
Potomac	Front Royal STP	VA0062812	VAN010010	3,655	0.77	2,814	8,896	6,850	4,036	4,036	VNCEA
Potomac	Massanutten PSC STP	VA0024732	VAN010039	1,371	0.77	1,055	5,820	4,481	3,426	3,426	VNCEA
Potomac	VA Poultry Growers Cooperative-Hinton	VA0002313	VAN010009	1,371	0.77	1,055	3,350	2,580	1,525	1,525	VAN010008 ^B VAN010011 ^C VNCEA
Potomac	Stoney Creek S.D. STP	VA0028380	VAN010015	667	0.77	514	754	581	67	67	VNCEA
Potomac	Merck (Outfall 101) ^A	VA0002178	VAN010007	4,384	0.77	3,376	1,879	1,447	0	603	VNCEA
Rappahannock	Urbanna WWTP	VA0026263	VAN020034	91	1	91	675	675	584	584	VNCEA
Rappahannock	Rapidan STP	VA0090948	VAN020026	548	1	548	914	914	366	366	VNCEA
Rappahannock	Reedville S.D. WWTP	VA0060712	VAN020101	1							
Rappahannock	Montross-Westmoreland WWTP	VA0072729	VAN020032	1							
James	E. I. DuPont-Spruance	VA0004669	VAN040079	7.8							
James	Buena Vista STP	VA0020991	VAN040063	3.4							
James	Lake Monticello STP	VA0024945	VAN040074	1.2							
James	Dominion-Chesterfield	VA0004146	VAN040086	1.2							
Eastern Shore	Tangier Island WWTP	VA0067423	VAN050004	1.2							
Eastern Shore	Shore Memorial Hospital	VA0027537	VAN050003	1.2							

Footnotes

^A In any year when credits are available after all other exchanges within the Potomac Basin are completed excess of 14,619 lbs/yr and TP discharged in excess of 1,096 lbs/yr. Credits are only generated if discharged lbs of TP credits for 2014.

^B VAN010008 - Alma Plant

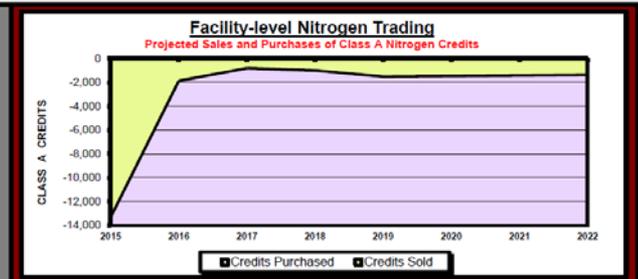
^C VAN010011 - George's Chicken

^D VAN040080 - Chesterfield County Aggregate

VNCEA = Virginia Nutrient Credit Exchange Association

NITROGEN FACILITY SUMMARY

ACSA-Stuarts Draft	
POTOMAC Trading Basin	



Loading & Credit Summary	2015	2016	2017	2018	2019	2020	2021	2022
	Planning Period				Future Estimates (non-binding)			
Design Flow (mgd)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Projected Flow (mgd)	1.33	1.40	1.47	2.00	1.52	1.60	1.68	1.76
Projected Avg. Annual Concentration (mg/L)	2.70	2.70	4.00	4.00	4.00	4.00	4.00	4.00
Discharged Load (end of pipe)	10,976	11,524	17,927	24,364	18,562	19,490	20,465	21,488
Delivery Factor	0.44	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Expected Load	4,829	576	896	1,218	928	975	1,023	1,074
Delivered WLA	21,441	2,436	2,436	2,436	2,436	2,436	2,436	2,436
Expected Credits (delivered)	16,612	1,860	1,540	1,218	1,508	1,461	1,413	1,362
Transfers In (Out) within Owner Bubble	0	0	0	0	0	0	0	0
Transfers In (Out) from Private Exchange	0	0	0	0	0	0	0	0
WQJF-Held Credits	0	0	0	0	0	0	0	0
Expected Net Credits	16,612	1,860	1,540	1,218	1,508	1,461	1,413	1,362
Class A Credit Sales (Purchases)	13,306	1,860	802	989	1,508	1,461	1,413	1,362
Expected Class B Credits	3,306	0	738	229	0	0	0	0

Program Improvement and Tracking

- DEQ and WAG will oversee adaptive management of Framework:
 - Quantification methods
 - New project types as eligible credit-generating actions
- Additional BMPs and associated quality standards will be reviewed and approved by ISWCC

Questions?

