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Folder Title:
Climate Change International COP 6 [Conference of the Parties]: Liability

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Liability

Department of Energy
Washington, DC 20585

May 1, 2000

MEMORANDUM FOR THE ASSISTANT SECRETARY OF STATE
OCEANS AND INTERNATIONAL ENVIRONMENTAL
AND SCIENTIFIC AFFAIRS

FROM: MARGOT ANDERSON, DEPUTY DIRECTOR
OFFICE OF POLICY

SUBJ: ASSISTANT SECRETARIES' LIABILITY DISCUSSION

Because only a few Assistant Secretaries could attend the discussion on liability that occurred April 19th, I wanted to reiterate our concerns about the timing of any changes in the U.S. position. As Mark Mazur expressed at that meeting, DOE believes that the U.S. should continue to maintain its current support for a seller plus liability option for the foreseeable future. Our reasons are as follows:

1. A decision on liability is one of the most crucial at COP6. It is inextricably linked to the outcome on compliance and the success of the Kyoto Mechanisms in lowering cost. A change in our position should be tied to achieving a significant negotiating concession from others. In our view, assuaging any fears about rogue state behavior is not a sufficiently valuable concession. More significant concessions however, cannot be made until COP6.

2. We don't believe the papers prepared by staff or the drafts that are in preparation now for the AS Group have adequately considered the range of issues which should be considered in a position change. For example, the papers are weak on the discussion of private sector behavior with hybrid options. Because devolvement is at the core of the U.S. approach, clearly understanding private sector behavior in the neighborhood of switch points is essential. More importantly, the political and diplomatic implications of a position change have not been adequately discussed. Complicated hybrids may be difficult to explain to the public and the Congress and will create new negotiating requirements. They must be explained internationally to a non-expert audience of negotiators and will also require additional guideline negotiations in order to make them work.

DOE does not necessary oppose any of the liability options. We fully concur with the view that a change in our position ultimately may be necessary. Our principal concern is with the timing of that decision. For the reasons noted above we believe that any change should occur at COP6 and be preceded by a more extended staff expert analysis and diplomatic/political assessment of the options.

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Liability

Discussion draft. Not for distribution.

Policies to prevent egregious over-selling of GHG allowances
4/20/2000

Executive Summary:

The U.S. and the Umbrella Group currently support unconstrained seller liability trading. We have said that effective monitoring and reporting, along with binding consequences for not meeting targets, is sufficient discipline to ensure compliance. These policies, however, cannot prevent so-called "rogue nation behavior." This paper examines options that would limit overselling, but not be as restrictive as the Swiss Proposal, which allows no sales until inventories show a Party's emissions are likely to be below its assigned amount.

We present two "Seller Hybrid" approaches, Seller/Buyer and Post-Verification, along with a more qualitative political approach. The hybrids both allow a certain level of seller liability sales, such as 30% of assigned amount, after which further transfers are conducted through buyer liability or post-verification trading. Early trading can reduce uncertainty for buyers, provide funds for sellers, and create a spot market that reveals prices, helping the development of futures and derivatives markets and helping firms better plan their trading and emissions reductions strategies.

It is uncertain which hybrid approach would better constrain overselling. If buyers under a Seller/Buyer hybrid hedge their risks, total emissions could be lower. Under either hybrid, buying countries could fail to meet their target if they cannot purchase enough valid allowances.

Both hybrids delay valid tons from entering the system relative to seller liability. Under both hybrids, buyers can use contingent contracts to limit their financial risks. These contracts give the selling Party a financial incentive to stay in compliance. They can also be enforced by commercial law rather than the compliance system under the Protocol. Futures contract may have to address more uncertainty than contingent contracts on buyer liable tons. For the Seller/Buyer hybrid the public registry records could help quantify risk of a given acquisition.

Both of the hybrid approaches are feasible but complicated relative to seller liability. Policymakers will need to decide whether reducing the risk of rogue nation behavior is worth these complications and costs. The paper does not assess whether each of the options would be workable under the compliance regime.

A. Seller hybrid with buyer liability

If a selling Party does not meet its target, then the last allowances transferred out of its registry after the trigger are invalidated to make up the difference.

Seller/Buyer Hybrid Pros:

- The goal of getting top dollar for allowances could provide discipline for sellers, because the reduction in price correlates to the perceived risk of noncompliance by seller.
- Could provide strong incentives to comply and could protect the environment in the case of egregious overselling.
- Allows more seller liability sales than pure buyer liability.
- Encourages buyers to seek information about Parties they buy from.

- Through contingent contracts, buyer liable tons can be sold without significant financial risk for purchasers. This could encourage better seller performance.

Seller/Buyer Hybrid Cons:

- Buyer liability would make allowances heterogeneous goods, which have less market liquidity and greater transactions costs than homogenous, seller liability allowances. Similar to bond market.
- Would not prevent egregious overselling. Hard to assess how much it would discourage overselling.
- Could complicate domestic implementation by leaving many tons in question until the end of the grace period.
- Would place more demands on registry than seller liability.

B. Seller hybrid with post verification trading

After the initial sales within the trigger amount, the cap is increased as the inventories of selling Parties demonstrate that their further sales are likely to be excess, similar to the Swiss Proposal.

Post Verification Hybrid Pros:

- Limits overselling.
- Encourages timely submission of inventories in order to increase sales cap.
- Avoids many disadvantages of buyer liability.
- Could release more valid tons during the commitment period for a given trigger level than Seller/Buyer Hybrid.

Post Verification Hybrid Cons:

- Compared to seller liability, this hybrid would delay the sales until reductions show up in reported inventories. Forward sales could partly address this delay.
- Would require a check on each trade, and a system for allocating limited transfer rights.
- More involved than seller liability. Requires an allocation scheme, and national registries would have to do the trigger check. Would need a system to update sales caps after each inventory.
- If the trigger point is 30-40% of assigned amount, depending on the allocation scheme, the cap may not be raised until after the second or third year inventories are final.

2. Multi-lateral Political Commitments to address overselling if it occurs:

Parties could recognize the rogue nation problem now, commit to avoiding purchases from rogue nations, and decide later exactly how to make that happen. Parties could develop a structured and quantitative approach, or decide to allow a flexible response to evolving market situations. Even if this approach would not ultimately satisfy the EU, it could form an opening bid as a departure from seller liability.

This approach could be difficult to explain, enforce, and incorporate into domestic law. The US may apply it more stringently, possibly leaving US firms disadvantaged relative to those in countries that allow more questionable acquisitions.

Discussion draft. Not for distribution.

Introduction:

The U.S. and the Umbrella Group currently support unconstrained seller liability trading. We have said that effective monitoring and reporting, along with binding consequences for not meeting targets, is sufficient discipline to ensure compliance. Critics of unfettered Article 17 trading point out that a Party could sell its entire assigned amount the first day of the commitment period yet be in compliance with all of its obligations under the Protocol until the compliance assessment six years later.

This paper examines options for dealing with so-called "rogue nation behavior." The analysis describes the tradeoffs between reducing a Party's capacity to oversell allowances and allowing unimpeded trading. These options should be evaluated relative to our current position of seller liability and relative to other policies that are under international consideration: Buyer Liability and the Swiss Proposal.

Current proposals to address overselling

The interagency group has discussed a number of policies that address over-selling. Appendix 1 discusses some of these policies, including the "empty tank rule" and "annual true-up." These approaches would discourage or flag overselling, but they would not prevent it.

The Swiss Proposal, also called post-verification trading, appears to be gathering momentum in international discussions. Appendix 2 evaluates the Swiss proposal. Most agree that it would largely prevent egregious overselling. However, some are concerned about how it might impede trading and complicate our domestic implementation. The EU and some NGOs have supported Buyer Liability, though there appears to be some movement towards the Swiss Proposal. Many features of Buyer Liability are discussed below in the Seller/Buyer Hybrid section.

Other Options

1. Seller Hybrid approaches:

"Seller Hybrid" approaches allow a certain level of seller liability sales before special conditions set in. If and when a Party reaches the threshold level of sales, further transfers are thereafter conducted through a system such as buyer liability or post-verification trading. The Seller Hybrid approaches differ from the Swiss proposal in that:

- some sales can occur before any emissions inventories for the commitment period have been submitted, and
- Parties such as the US that would probably never meet the selling test in the Swiss Proposal can engage in at least some net sales.

Allowing a significant level of unimpeded sales allows the trading system to start right away. It puts some certain funds in the Sellers' hands to improve systems for monitoring and reporting and undertake early investments in real reductions. It also allows buying entities to bolster their allowance accounts, possibly reducing their uncertainties about complying with domestic obligations. Early trading can create a spot market that reveals prices, helping the development of futures and derivatives markets and helping firms better plan their trading and emissions reductions strategies.

Both of these hybrid approaches are feasible but complicated. Both constrain domestic implementation and make trading more costly through delays and uncertainties. Both would be less flexible than a multi-lateral political commitment, but could be quantitatively more certain. Policymakers will need to decide whether reducing the risk of rogue nation behavior is worth these complications and costs.

Defining the Trigger

The initial number tons that a Party could sell unimpeded would be set by agreement, but defining and negotiating an acceptable trigger may be challenging. Ideally, any international sales from countries that are likely to be net buyers (including the U.S.) would occur under seller liability. The switch would only be triggered for deep sales from economies in transition that go beyond expected "hot air," about 30% of their assigned amount. If we cannot justify using 30% because it relates to hot air, we could point to the potential lag of two years until the first annual inventories are finalized. That could justify a trigger of 30-40% (0.4 is 2/5) representing roughly the first two years of assigned amount.

How would the registries implement the trigger? The simplest approach would be for the trigger to assess all holdings within a registry. The total would exclude retired units from previous periods and, for the seller/buyer hybrid, units acquired under buyer liability. For simplicity, the total would include allowances owned by foreign entities. Each time an account holder requests a transfer out of the registry, that national registry would check whether its holdings were greater than the trigger amount. If so, the units would not transfer under seller liability. Implementing this check would add some cost but should be technically straightforward. The registry holdings of Party can be an imperfect measure of the allowances that it and its entities have legal control over, but the total could be close enough.

Many questions arise in making a trigger work in practice. For example, how would additions and subtractions of assigned amount for sinks contributions under Article 3.3 and 3.4 be treated? What about subsequent commitment periods? Will a 30% trigger make as much sense then? Perhaps the hybrid should apply just for the first period, to build confidence, and then the system could convert to seller liability in the second period. Another question is whether to ever turn the triggered system off. A Party could be close to the threshold and go above and below it several times. The system would have to address such cases.

End of period Issues

Both hybrids require a grace period after national inventories are reviewed in order to appropriately allocate buyer liable units or release post-verified units. Countries that devolve would need to delay domestic reconciliation until the allowances are validated. International reconciliation would need to be delayed further, but this is workable and consistent with our current support for a grace period.

A. Seller hybrid with buyer liability

After the trigger level of sales is reached, this approach would allow further sales under a buyer liability status. There are several approaches to allocating liability across buyers, but the generally preferable one is Last-In First-Out (LIFO). For example, if a seller is 100 allowances short of meeting its target, the last 100 allowances it sold would be invalidated. The owners of those allowances would not be able to use them for compliance.

Seller/Buyer Hybrid Pros:

- Could reduce demand, and therefore the price, of the allowances of the overselling Party, thus limiting the Seller's revenue from those sales. The goal of getting top dollar for allowances could provide discipline for sellers not to sell too much.

- Could provide strong incentives to comply and could protect the environment in the case of egregious overselling.

- Allows more seller liability sales than pure buyer liability.

- The reduction in price correlates to the perceived risk of noncompliance by seller. However, the market may not accurately perceive the risk of noncompliance. For example, a selling Party has much better information about whether an allowance it sells is likely to be excess, and emissions can be hard to project, even for experts with good information.

- Encourages buyers to seek information about the levels of sales and emissions by Parties they buy from.

- Through contingent contracts, buyer liable tons can be sold without significant financial risk for purchasers. For example, a buyer could delay payment until the allowances are determined to be valid at the end of the commitment period. This could encourage better seller performance.

Seller/Buyer Hybrid Cons:

- Buyer liability would make allowances heterogeneous goods. For example, the country of origin of an allowance would matter, possibly along with its place in the history of that country's sales or the sales of subsequent buyers. Heterogeneous allowances will have less market liquidity and greater transactions costs than homogenous, seller liability allowances.

- A buyer liability system bears a resemblance to markets to international bonds. One can imagine the role of rating services, political risk insurance and hedging to reduce the risk of buyer liable tons. Bond markets are significantly less liquid than commodity markets.

- Buyer liability does not *prevent* egregious overselling. It is difficult to assess how much it would discourage overselling.

- Raises questions of implementation. For example, do we count buyer liable tons in the holdings of a registry when assessing the trigger? What if a Party's sales position goes above and below the trigger level a number of times? Is buyer liability ever un-triggered?

- Could complicate domestic implementation by leaving many tons in question until the end of the grace period, but this complication would be worse under pure buyer liability.

- Would place more demands on registry than seller liability. To implement LIFO, any units transferred after the trigger would need to have their serial numbers tagged with the date and time of transfer. If a registry holds foreign-issued allowances at the time the buyer-liability trigger is hit, those allowances could also need to be tagged with the country of risk. These additional registry functions would add cost, but should be technically straightforward.

B. Seller hybrid with post verification trading

Under this approach, sellers would not be able to transfer more than a certain cap on sales. At first, the sales cap is set at the initial threshold level, such as 30% of the initial assigned amount. After that, the cap is increased as the inventories of selling Parties demonstrate that their further sales are likely to be excess, similar to the Swiss Proposal. Appendix 3 presents an example of the seller hybrid with post verification trading.

This approach requires a benchmark allocation against which emissions would be compared. Under the Swiss proposal, the assigned amount is divided up into annual allocations with some flexibility to front-weight the early years. Under this seller hybrid, the allocated amount could be the entire assigned amount or the amount above the threshold. Flexibility to front-weight the allocation may not be desirable provided the trigger amount is reasonable.

Post Verification Hybrid Pros:

- Limits overselling.
- Encourages timely submission of inventories.
- Avoids many disadvantages of buyer liability.
- Could release more valid tons during the commitment period for a given trigger level than Seller/Buyer Hybrid.
- If rogue walks away late in period, the allowances already sold would be valid.

Post Verification Hybrid Cons:

- Compared to seller liability, this hybrid would delay the sales until reductions show up in reported inventories. Forward sales could partly address this delay. It is hard to predict how much trading activity would move into forward contracts. The Post Verification Hybrid would likely generate less futures market activity than the Swiss Proposal because it allows an unrestricted block to trade right away.
- Would require a check on each trade. The registries could allocate transfers on a first-come first-served basis, or exporting Parties could issue export permits of some sort for its entities.
- More involved than seller liability. Requires an allocation scheme, and national registries would have to do the trigger check. Would need a system to update sales caps after each inventory.
- If the trigger point is 30-40% of assigned amount, the cap may not be raised until after the second or third year inventories are final. However, we could develop allocation schemes that could allow earlier sales of real reductions.

Discussion draft. Not for distribution.

Comparison of the two seller hybrid approaches : Effect on Environment

It is uncertain which approach would better constrain overselling. The post verification hybrid would prevent egregious overselling, but would not prevent all overselling because a Party may accelerate its emissions. The seller/buyer hybrid would discourage overselling through incentives, which are hard to predict.

If buyers under a Seller/Buyer hybrid hedge their risks, they may over-comply, thereby lowering total emissions. Under either hybrid, buying countries could fail to meet their target if they cannot purchase enough valid allowances.

Comparison of the two seller hybrid approaches: Market Effects

Both hybrids delay valid tons from entering the system, relative to seller liability.

Under both hybrids, buyers can use contingent contracts to limit their financial risks. These contracts give the selling Party a financial incentive to stay in the treaty and be in compliance in order to receive the remaining funding. They can also be enforced by commercial law rather than the compliance system under the Protocol. Under Seller/Buyer, there would arguably be more transactions in contingent contracts. How much more would depend on how many valid tons would be released under the Post-verification Hybrid. Futures contract activity may be stimulated by a post-verification approach. Thus, those contracts could be more subject to uncertainty about how many tons are already under contract.

For the Seller/Buyer hybrid (assuming LIFO), the public registry records could help quantify risk of a given acquisition. The system would have to address what happens to any buyer liable allowances if the selling Party stops reporting an annual inventory.

2. Multi-lateral Political Commitments to address overselling if it occurs:

The rigid formulas employed in the Swiss proposal and the Seller Hybrid Options described above provide firm limits to overselling. The downside, of course, is that such formulas draw bright lines that can be arbitrary, difficult to assess, and complicated to negotiate, administer, and enforce. The rules can also complicate domestic implementation.

One option to avoid these complications would be to seek a middle ground between seller liability and a Seller hybrid. An example would be for Parties monitor selling behavior, and if overselling occurs, to collectively or individually refuse to buy allowances from those rogue sellers. This approach could have the distinct advantage of not having to be negotiated in detail right now. Parties can recognize the issue now, commit to avoiding purchases from rogue nations, and decide later exactly how to make that happen. Parties could develop a structured and quantitative approach, or decide to allow a flexible response to evolving market situations. Even if this approach would not ultimately satisfy the EU, it could form an opening bid as a departure from seller liability.

This approach could be difficult to explain and enforce, and it may not satisfy the EU or other critics of unfettered sales. If Parties choose a qualitative approach to buyer discipline, the commitment may be difficult to incorporate in domestic law. The US may apply its political commitment more stringently than others, possibly leaving US firms disadvantaged relative to those in countries who allow more acquisitions from questionable sellers. A quantitative approach to buyer discipline would not be that different from the seller hybrids described below, except that the rules would apply to buyers instead of sellers.

The approach could involve certain commitments by Parties, for example:

- to develop a common understanding of what "egregious overselling" means
- to develop a process for unilaterally or jointly designating a Party and its entities as overselling, as well as a process for removing the designation
- to not purchase allowances from designated oversellers
- to prohibit or control purchases by affiliated domestic entities from designated oversellers
- to continually monitor sales and emissions of selling Parties, and to project their future compliance
- to provide timely information to domestic entities and other Parties as to when and whether an overselling designation might be made
- to address the possibility that, despite this agreement, a Party or its entities continue to buy from a designated overseller

Discussion draft. Not for distribution.

Appendix 1
Other International Sales and Compliance Proposals

This Appendix describes some of the policies to address overselling that the interagency group has considered. So far, the USG has not firmly endorsed any of these.

One can think of sales being drawn from a tank, where the tank is defined as:

TANK = **Assigned amount (adjusted by sinks) - cumulative reported emissions - net sales.**

Empty tank sales provision: A Party can no longer sell abroad when it no longer holds enough allowances to cover the emissions it has already reported. The empty tank rule would not effect previous sales. For example, suppose a Party holds 100 million tons of allowances and has reported of 100 million tons. When the next year's inventories come in, it if cumulative reported emissions accrue to a level that is 100 MMTCE above the allowances it holds, then further sales would be prohibited. However, the Party would not have to acquire the 100 M allowances to cover those emissions until the end of the commitment period – or the grace period thereafter.

Annual True-up: Some have suggested a stronger version of the empty tank rule that would apply to all Parties, not just those with Article 17 sales. This "annual true-up" rule would require Parties to hold in reserve enough allowances to cover emissions already reported. Thus, if reported emissions accrue to 100 MMTCE above currently held allowances, the Party would need to acquire those 100 M additional allowances to boost its reserve to the required level. While this rule could provide interim integrity to the system, it may be difficult to enforce. An even stronger version of this rule is ***Annual Retirement***, which would require Parties to retire those allowances as emissions are reported, either in a designated domestic account or by surrendering allowances to the Secretariat.

Annual True-up and Annual Retirement are <u>not</u> the same as an annualized target. Each Party can emit more in the first year of the commitment period than the last, and more in each year than one fifth of its assigned amount. The annual true-up only requires that each Party hold enough allowances to cover the emissions it has already reported, whatever level they were.

Although annual true-up or annual retirement would not actually affect Parties' when and where flexibility, communicating these policies to concerned domestic interests could be challenging.

Discussion draft. Not for distribution.

Appendix 2
The Swiss Proposal: Post-Verification Trading

The "post-verification" trading model as proposed by the Swiss would:

1) divide countries' 5 year commitments into annual chunks, with each year's allotment within 20% of 1/5 of the entire assigned amount; and
2) limit international transfers to the difference between emissions and the annual allotment.

Each year, the total allowable sales are incremented by the certified excess units. No allowances (AAUs) could be transferred internationally under Article 17 until: 1) a Party submitted its annual inventory; 2) the inventory was reviewed; and 3) the Secretariat completed the annual comparison and certified the "excess AAUs". For the first commitment period, it would likely be at least 2010 before international transfers could occur.

The post-verification proposal should not affect units transferred using Articles 6 and 12. However, it is unclear how it would affect subsequent trades of ERUs and CERs that, in our view, fall under Article 17.

Swiss Proposal/Post Verification Pros

- **Limits overselling:** By delaying transfers until allowances are shown to be above the chosen allocation, the Swiss model would limit the magnitude of overselling. The Swiss formulation would prevent rogue behavior, but would not completely prevent a Party from being in non-compliance with their target at the end of the period. Parties may "front load" their allocations to sell as much as possible early in the period, and then emit above the annual allotment later in the period.

- **Seller liability basis:** Excess AAUs would be traded without the burdens of buyer liability.

- **Encourages timely submission of inventories:** Since a Party cannot sell until its inventories are approved, this approach would encourage Parties to submit a credible inventory as soon as possible after the end of each year.

Swiss Proposal/Post Verification Cons

- **Could delay international emissions trading.** The start-up delay would not allow international transfers through the first half of the commitment period, slowing the development of a robust international spot market. Futures and options trading might increase transaction costs relative to unrestricted spot market trading, but these contract trades would reduce the impacts of these delays. Some argue that futures trading would provide better compliance discipline because futures and other private contingent contracts are enforceable under commercial contract law rather than the compliance system of the Protocol.

- **Could increase the uncertainty for private sector participants.** Many mitigation options require significant up-front capital investment and time before reductions can be realized. This proposal could complicate those investment decisions by putting a wedge between private investment decisions and the opportunity to sell allowances; private entities may not be certain that their reductions could be sold. Parties, investors in emissions reductions, and regulated entities need timely information to analyze options and determine an optimal compliance strategy, especially an estimate of the market price of an allowance. Although early futures and options trading can help with price discovery, the ban on international transfers through the first half of the commitment period could stunt the development of a robust international market for emissions trading. This will result in increased costs.

- **Could increase administrative burden:** Post-verification would not limit domestic trades, but Parties would have to determine which of its entities could transfer internationally and when. Parties that are sellers may have to allocate the right to export across entities that produce reductions. Parties that are net buyers may have entities that wish to sell. Under the Swiss proposal, such entities would be unable to sell their allowances abroad. Although the U.S. would likely have robust domestic demand for domestically supplied allowances, the Swiss Proposal could inhibit international partnerships between US and foreign firms to reduce emissions.

- **Could complicate domestic implementation and make annual reconciliation more difficult:**

  Some Parties may wish to collect allowances annually from their regulated entities. Domestic annual reconciliation would provide the Party with valuable information about the effectiveness of the trading regime and increase certainty about the Party's ultimate ability to meet its commitment. The post-verification trading model could make it difficult for a Party to conduct timely annual reconciliation because it would delay access to low-cost reductions abroad. Domestic reconciliation in the first years of the period would need to rely entirely on domestic reductions, use of the Party's five year assigned amount, or early investment in JI and CDM.

CONCLUSIONS

- At a minimum, the Swiss post-verification trading proposal could delay and constrain international emissions trading, and could raise the global cost of greenhouse gas reductions. Delays and uncertainties could reduce incentives to undertake reductions.

Discussion draft. Not for distribution.

Appendix 3
Example of Seller Hybrid with Post-Verification Trading

The following example shows one way of implementing this hybrid for illustrative purposes. Many other approaches are possible. Suppose a Party has an assigned amount of 100 tons and the initial sales threshold is 30% of initial assigned amounts.

Step One: The Party is allowed the threshold level of unimpeded sales
Initial assigned amount = 100 tons (for five years)
Threshold sales level = 30 tons (30% of 100 tons)
Remaining tons to allocate over five years = 70 tons

Step Two: Party determines allocation of 70 tons over five years.

One option is to divide that equally across the five years. One fifth of 70 tons = 14 tons.

Allocation:

Year 1	Year 2	Year 3	Year 4	Year 5	Total
14 tons	14 tons	14 tons	14 tons	14 tons	70 tons

Step Three: Trading
The Table below shows an illustrative scenario. Row 6 reports the maximum sales level at any time during the commitment period. Total allowable sales stay at 30 tons, at least until the first inventory is in. the level is increased only if reported emissions are below the allocation of the remaining assigned amount .

	Tons	Year 1	Year 2	Year 3	Year 4	Year 5
			14 tons	14 tons	14 tons	14 tons
1	Allocation	14 tons	14 tons	14 tons	14 tons	14 tons
2	Cumulative allocation	14	28	42	56	70
3	Annual Reported Emissions (after lag)	14	12	12	11	13
4	Cumulative Reported emissions	14	26	38	49	62
5	Cumulative Allocation – Cumulative Emissions (Row 2 – Row 4)	0	2	4	7	8
6	Total allowable sales	30 allowed sales remain at threshold until Cumulative Emissions are below Cumulative Allocation.	30 until 2nd inventory, then 32	32 until 3rd inventory, then 34	34 until 4th inventory, then 37	37 until 5th inventory , then 38

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