



Veles Water

MARGINING OF WATER FUTURES MADE EASY

September 2021

UNDERSTANDING FUTURES MARGINING

H2O Futures can be used to gain direct exposure to the price of water in California and whether to hedge or enhance a present water position or for investment purposes. A futures contract is a leveraged financial product that can allow a trader to manage a much larger position in the underlying asset with a reduced amount of cash, allowing the trader to more efficiently deploy capital. To explain by example, with the NQH2O price of water being circa \$859 per AF, and assume 10 AF was required, instead of buying 10 AF of water and spending \$8590, you can place \$1650 as margin at the Exchange, buy one contract and have the same exposure.

Futures margin, an important concept to understand when trading in H2O futures, is defined as the amount of capital required by a broker/clearing firm to open and trade a futures contract. It is important to note that unlike most stock margins, futures margins are not a down payment and you do not own the underlying commodity. Futures margins are considered a deposit in good faith, to ensure that the trader can meet their financial obligations at the time the contract settles.

The margin requirements for trading H2O Futures are split according to the Exchange's assessment of the risk a trader poses to the Exchange.

CATEGORIES OF CLIENTS

There are **TWO CATEGORIES** according to the CME margining system.

Firstly, the **High-Risk Account Holder** which is required by the CME to deposit the Initial Margin Rate of \$1,650 per contract this has been designated **Initial Margin**.

When the margin of the above holder reduces due to losses on the account, it has to be topped up once it passes below \$1500. The top up margin must put the account balance back to being \$1650 per contract.

Secondly, the **Non-High Risk Account** which is required by the CME to deposit a margin of \$1500 per contract and this is called the **Maintenance Margin**. Any drop below \$1,500 would trigger a margin call requiring the account to post additional capital to bring it back up \$1,500 per contract.

Both High Risk and Non-High Risk Account Holders have a bare minimum of \$1500 per contract but the High Risk Accounts have to top up an extra 10% ie \$150 per contract which equates to the \$1650 per contract.

Historically Margin rates have been set at a percentage of the notional value, however with the new H2O contract the margin rates have been set at a fixed dollar amount. This can change subject to Exchange reviewal.

MARGIN TYPES

INITIAL MARGIN

The initial margin requirement is the amount of collateral required to open a position by a **High Risk Account Holder**. This amount is required by the exchange to be deposited on account by the futures position taker to allow the price of the position to move against the account holder and for the exchange not to suffer credit exposure to that account holder. In the case of H2O futures Initial Margin has been set at \$1,650 per contract.

MAINTENANCE MARGIN

This is the margin amount required for designated **Non-High Risk clients** and is set at **\$1500** per contract.

MARGIN CALLS

A **Margin Call** is triggered when funds in a trading account fall below the required minimum level (\$1500 per contract in both High-Risk and Non High-Risk clients).

Margin calls occur when having taken a position in the market and the market price has moved in the opposite direction. By buying a contract and the market price moves down then this will cause a margin call at a certain level. Conversely by selling a contract and the market price moves up, then past a certain point this will initiate a margin call. At this point more funds must be allocated to the account to return the margin to the initial margin level. When the total value of the collateral dips below the maintenance margin requirement, the position holder must pledge additional collateral to bring their total balance back up to or above the initial margin requirement.

On instruments determined to be especially risky, however, either regulators, the exchange, or the broker may set the maintenance requirement higher than normal or equal to the initial requirement to reduce their exposure to the risk accepted by the trader.

In the case of H2O futures, Maintenance margin has been set at \$1,500. It is important to note that margin calls require different actions depending on which category an account holder falls into.

A margin call on a **High Risk Account** would require additional funds to be deposited to reach \$1,650 per contract, however with a **Non-High Risk Account** the additional funds required would only need to reach \$1,500 per contract.

EXAMPLE 1.

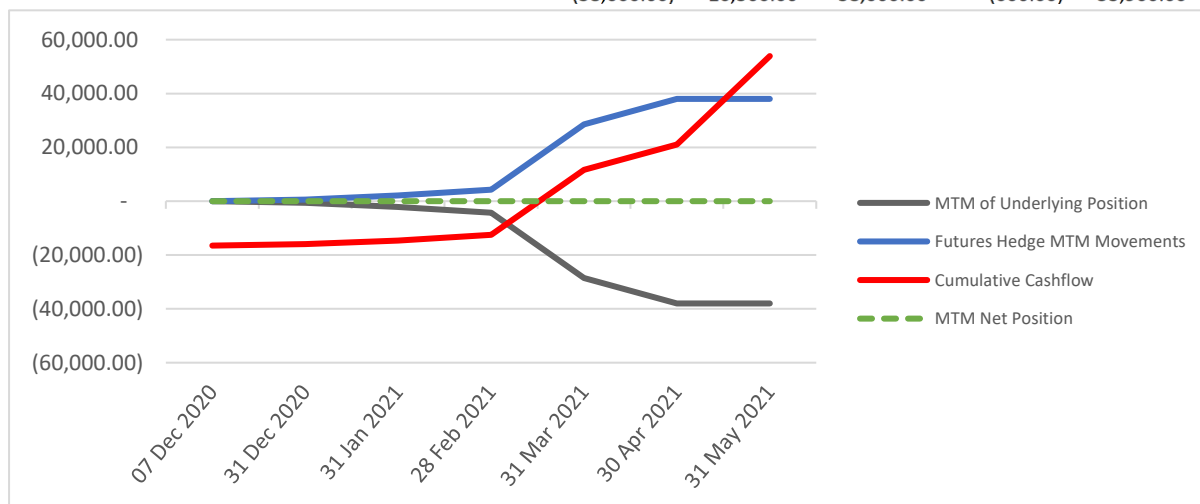
A FARMER WANT TO BUY 100 AF OF WATER IN 6 MONTHS

Scenario: A farmer who is classed as high risk by the exchange needs water in 6 months' time wants to hedge against an increase in water prices so in Example 1 they purchase water futures to protect their business on by locking in the price of water at the current spot level.

Assumptions:

- Farmer requires 100 AF in a futures contract in 6 months
- Water spot price is \$486.93/AF
- Purchase Futures Contract at \$487. (Note futures prices are not always exactly the same as spot prices other than on expiry date).
- Futures exchange set a Margin requirement of \$1650 per contract for a high risk client
- Water futures contracts are 10 AF/contract so farmer will need to buy 10 contracts
- Margin calls monthly (to save on daily data points, these can be added easily)
- Trade date is 7th Dec 2020
- Farmer exits the Futures position at \$867 on the 31st May 2021
- The above example is based on actual historic prices.
- The assumption is that the Farmer rolled his contract from month to month rather than buying the 6 month future.

Date	Spot price	Futures Price	Margin Req't	MTM of Underlying Position	Futures Initial Margin	Futures Hedge MTM Movements	Contract Roll	Cumulative Cashflow
07 Dec 2020	486.93	487.00	16,500.00	-	(16,500.00)	-	-	(16,500.00)
31 Dec 2020	492.56	493.00		(600.00)		600.00	(100.00)	(16,000.00)
31 Jan 2021	507.78	508.00		(1,500.00)		1,500.00	(100.00)	(14,600.00)
28 Feb 2021	529.43	530.00		(2,200.00)		2,200.00	(100.00)	(12,500.00)
31 Mar 2021	772.10	772.00		(24,200.00)		24,200.00	(100.00)	11,600.00
30 Apr 2021	868.70	867.00		(9,500.00)		9,500.00	(100.00)	21,000.00
31 May 2021	867.00	867.00		-	16,500.00	-	(100.00)	37,400.00
Fig. 1				(38,000.00)	16,500.00	38,000.00	(600.00)	53,900.00



Summary: In fig 1 the farmer requires 100AF in six months' time and is willing to purchase at \$487.00 /AF. During the 6 months the water price increases from \$487.00 to \$867 /AF creating what would have been an additional purchase cost of \$38,000. The hedge position of long 10 water futures acts as a price lock-in, hedging this additional cost, generating an offsetting cash settled gain of \$38,000 plus the return of the initial margin minus the cost of rolling the contract month to month (assumed at 10 points per month, hence totalling \$600). The farmer has locked in the target price level of \$487.00. The farmer started with a deposit of \$16,500 at the Exchange and once he had bought and sold, plus return of margin, he had a net balance of \$53,900.00. $(\$16,500(\text{deposit which is returned}) + \$38,000(\text{mark to market gain which he banks}) - \$600(\text{loss from rolling the contract 6 times}) = \$53,900$ in the account). The farmer has realised a net gain of \$37,400.00 in the futures market plus the return of the initial margin.

EXAMPLE 2.

FARMER WANTS TO SELL 100 AF OF WATER IN 6 MONTHS

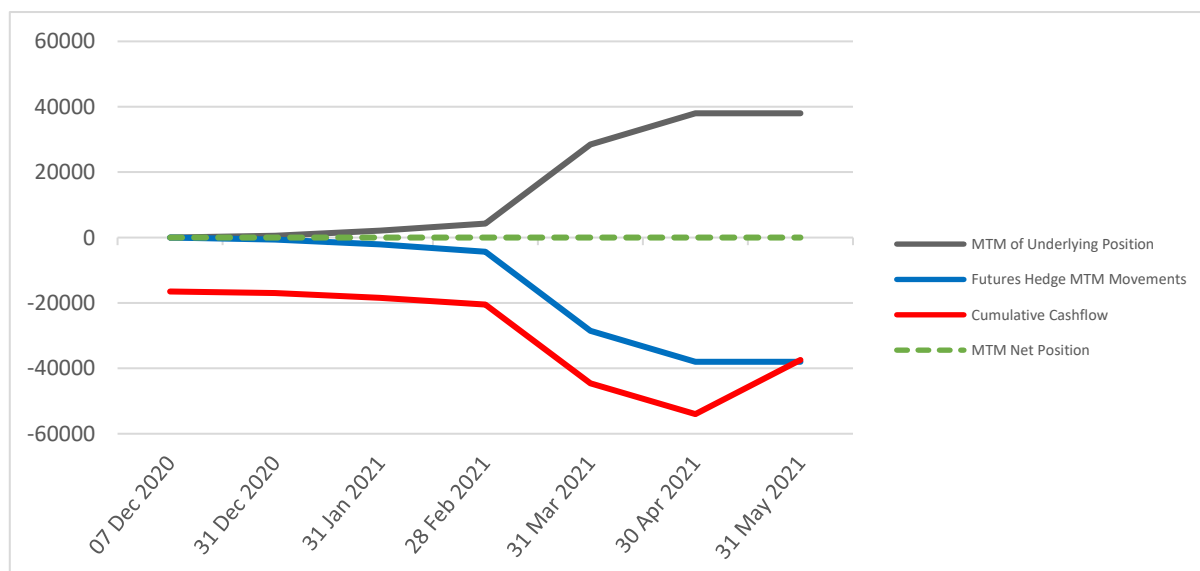
Scenario: A Farmer who is classed as high risk by the exchange wants to sell their surplus 100AF of water in 6 months' time. They believe the price has peaked and is happy to sell their surplus water at \$487.00. Looking to protect their business from falling water prices he sells 10 H2O futures contracts. The Farmer in this scenario has taken the opposite position of the trade in example 1.

Assumptions:

- Farmer sells 100 AF of the quality captured in a futures contract in 6 months
- Water Futures price is \$487.00/AF
- Futures exchange set a Margin requirement of \$1650 per contract for a high risk client
- Water futures contracts are 10 AF/contract so farmer will need to sell 10 contracts
- Margin calls monthly (to save daily data points, these can be added easily)
- To roll a contract month to month \$10 per contract cost.
- Trade date is 7th Dec 2020
- Farmer exits the futures position on the 31st May at \$867.
- The above position was calculated on actual historical prices.

Date	Spot price	Futures Price	Margin Req't	MTM of Underlying Position	Futures Initial Margin	Margin Call	Margin Account	Futures Hedge MTM Movements	Contract Roll	Cumulative Cashflow
07 Dec 2020	486.93	487.00	16,500.00	-	(16,500.00)	-	(16,500.00)	-	-	(16,500.00)
31 Dec 2020	492.56	493.00		600.00		-	(15,900.00)	(600.00)	100.00	(17,000.00)
31 Jan 2021	507.78	508.00		1,500.00		(1,500.00)	(16,500.00)	(1,500.00)	100.00	(18,400.00)
28 Feb 2021	529.43	530.00		2,200.00		(2,200.00)	(16,500.00)	(2,200.00)	100.00	(20,500.00)
31 Mar 2021	772.10	772.00		24,200.00		(24,200.00)	(16,500.00)	(24,200.00)	100.00	(44,600.00)
30 Apr 2021	868.70	867.00		9,500.00		(9,500.00)	(16,500.00)	(9,500.00)	100.00	(54,000.00)
31 May 2021	867.00	867.00		-	16,500.00	-	-	-	100.00	(37,400.00)
					16,500.00	(37,400.00)			600.00	(37,400.00)

Fig. 2



Summary: In fig 2 the farmer wants to sell 100AF in six months' time and is willing to sell at \$487 /AF. The Farmer in this example has taken the opposite position to the farmer in Example 1. During the six months the water price increases from \$487.00 to \$867.00 /AF resulting in margin calls totalling \$38,000.00. As the Farmer met all of their margin calls the initial margin was returned at the end of the trade plus the \$600.00 received from rolling the contract. (This time the roll factor is in the farmers favour hence a gain of \$600). The farmer has realised a loss of \$37,400.00 in the futures market. In his account there will be (\$16,500+\$600= \$17,100) which will be returned to the farmer on closing out of the position.

EXAMPLE 3.

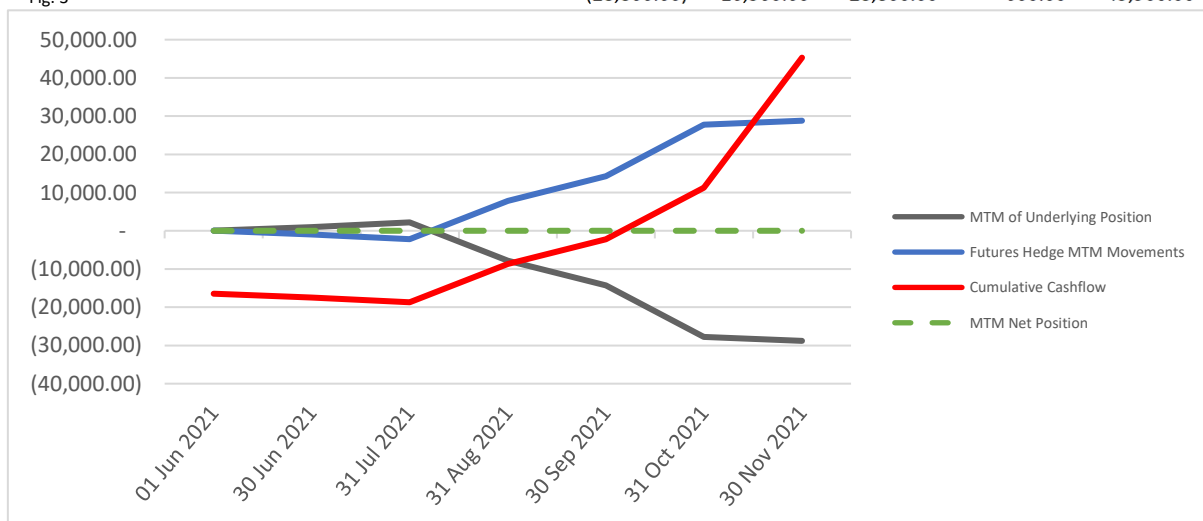
FARMER WANTS TO SELL 100AF IN 6 MONTHS

Scenario: It's the middle of the summer irrigation season and a farmer has a surplus 100 AF of water they would like to sell on a 6 month basis. The water price and its associated futures have risen to \$900 the Farmer decides to protect their business from any downside water price risk and sells 10 H2O futures contracts at \$900.00.

Assumptions:

- Farmer sells 100 AF of the quality captured in a futures contract in 6 months.
- Water Futures price is \$900.00/AF.
- Futures exchange set a Margin requirement of \$1650 per contract for a high risk client.
- Water futures contracts are 10 AF/contract so farmer will need to sell 10 contracts.
- Margin calls monthly (to save daily data points, these can be added easily).
- To roll a contract month to month \$10 per contract cost.
- Trade date is 1st June 2021.
- The following trades are based on a historical sale price but the exit price is a theoretical one as is in the future and hence is an assumption.
- Farmer exits the futures trade on November 30th at \$590.00.

Date	Spot price	Futures Price	Margin Req't	MTM of Underlying Position	Futures Initial Margin	Futures Hedge MTM Movements	Contract Roll	Cumulative Cashflow
01 Jun 2021	900.00	900.00	16,500.00	-	(16,500.00)	-		(16,500.00)
30 Jun 2021	910.00	910.00		1,000.00		(1,000.00)	100.00	(17,400.00)
31 Jul 2021	912.00	912.00		1,200.00		(1,200.00)	100.00	(18,500.00)
31 Aug 2021	800.00	800.00		(10,000.00)		10,000.00	100.00	(8,400.00)
30 Sep 2021	735.00	735.00		(6,500.00)		6,500.00	100.00	(1,800.00)
31 Oct 2021	600.00	600.00		(13,500.00)		13,500.00	100.00	11,800.00
30 Nov 2021	590.00	590.00		(1,000.00)	16,500.00	1,000.00	100.00	29,400.00
Fig. 3				(28,800.00)	16,500.00	28,800.00	600.00	45,900.00



Summary: In fig 3 the farmer has a surplus 100AF and wants to sell in six months' time. They are willing to sell at \$900.00 /AF. During the 6 months the water price initially increases (creating a mark to market loss) and then decreases from \$900 to \$590 /AF resulting in a profit of \$28,800.00 in the futures. The hedge position of short 10 water futures has acted as a price lock-in, hedging against this downside price movement, generating a cash settled gain of \$28,800.00 plus the return of the initial margin plus the gain of rolling the contract month to month (assumed at 10 points per month, hence totalling \$600). The farmer has locked in the target price level of \$900.00. The farmer started with a deposit of \$16500 at the Exchange and once he had sold and bought, plus return of margin, he had a net balance of \$45,900.00. (\$16,500+\$28,800+\$600=\$45,900.00). The farmer has realised a net gain of \$29,400.00 (\$28,800+\$600). This completely offsets his loss in the underlying water position that he has.

EXAMPLE 4.

FARMER WANTS TO BUY 100AF IN 6 MONTHS

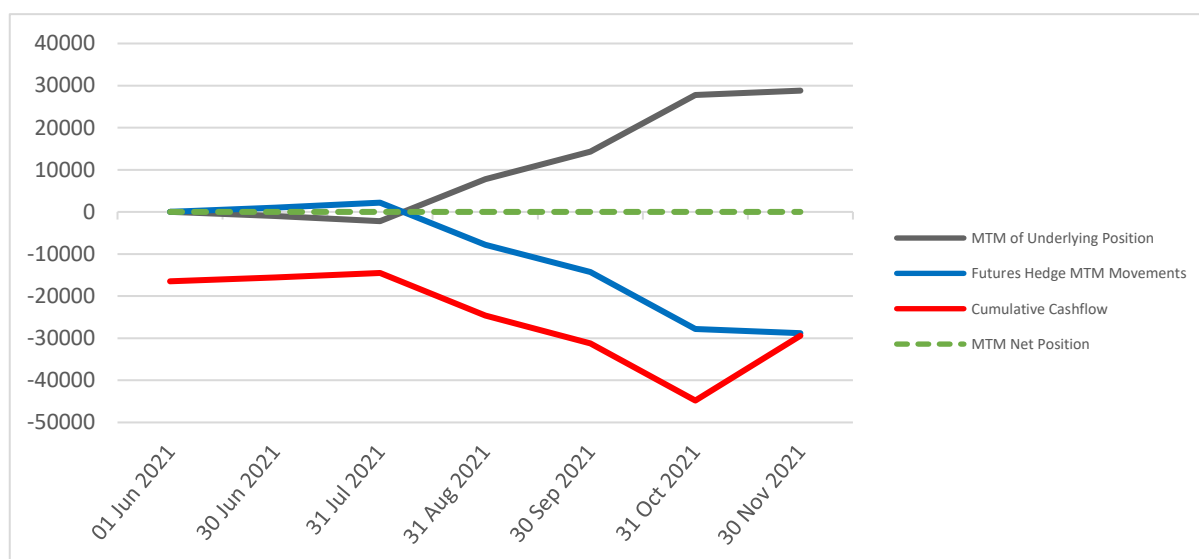
Scenario: It's the middle of the summer irrigation season and a farmer needs to purchase water in six months' time. They believe the price of water will continue to increase over the next six months and is happy to purchase water at \$900/AF. The farmer in this scenario has taken the opposite side of the trade to the farmer in example 3.

Assumptions:

- Farmer buys 100 AF of the quality captured in a futures contract in 6 months.
- Water Futures price is \$900.00/AF.
- Futures exchange set a Margin requirement of \$1650 per contract for a high risk client.
- Water futures contracts are 10 AF/contract so farmer will need to sell 10 contracts.

Date	Spot price	Futures Price	Margin Req't	MTM of Underlying Position	Futures		Margin Account	Futures Hedge MTM		Cumulative Cashflow
					Initial Margin	Margin Call		Hedge MTM Movements	Contract Roll	
01 Jun 2021	900.00	900.00	16,500.00	-	(16,500.00)	-	(16,500.00)	-	-	(16,500.00)
30 Jun 2021	910.00	910.00		(1,000.00)	-	-	(16,500.00)	1,000.00	(100.00)	(15,600.00)
31 Jul 2021	912.00	912.00		(1,200.00)	-	-	(16,500.00)	1,200.00	(100.00)	(14,500.00)
31 Aug 2021	800.00	800.00		10,000.00	(10,000.00)	(10,000.00)	(16,500.00)	(10,000.00)	(100.00)	(24,600.00)
30 Sep 2021	735.00	735.00		6,500.00	(6,500.00)	(6,500.00)	(16,500.00)	(6,500.00)	(100.00)	(31,200.00)
31 Oct 2021	600.00	600.00		13,500.00	(13,500.00)	(13,500.00)	(16,500.00)	(13,500.00)	(100.00)	(44,800.00)
30 Nov 2021	590.00	590.00		1,000.00	(1,000.00)	(1,000.00)	(16,500.00)	(1,000.00)	(100.00)	(29,400.00)
				28,800.00	16,500.00	(31,000.00)		(28,800.00)	(600.00)	(29,400.00)

Fig. 4



Summary: In fig 4 the farmer requires 100AF in six months' time and is willing to purchase at \$900.00 /AF. During the 6 months the water price decreases from \$900.00 to \$590.00 /AF resulting in margin calls of \$31,000.00 minus the initial gains of \$2200.00 to equal \$28,800.00. As the farmer has met all of the margin calls (net total being \$29,400 including roll costs) during the 6 months. The initial margin of \$16,500.00 will be the net balance in the account which will be returned. The net loss to the farmer is \$29,400 (\$28,800 mark to market margin call +\$600 roll cost).



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If the market moves against you, you may sustain a total loss greater than the amount you initially invested. You are responsible for all the risks and financial resources you use. You should not engage in investing unless you fully understand the nature of the transactions you are entering into and the extent of your exposure to loss. If you do not fully understand these risks you must seek independent advice from your financial advisor.

All trading strategies are used at your own risk.

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