



## JUST ADD WATER - INITIATIVE

### INTERSECTION OF AGRICULTURE AND INDUSTRY

The western states of New Mexico, Texas, Colorado, Oklahoma, North Dakota, and Wyoming have two things in common:

- ⇒ **They all have arid lands with less than 15" of rainfall a year.**
- ⇒ **They all are major oil producers.**

These two facts offer a **paradigm change** for not only agriculture and industry, but also state governments and even the environment.

**This paradigm change happens by just adding water into the situation.**

**We can solve many human condition problems if we 'Just Add Water.'**



*"We cannot overstate the positive outcomes from this simple act of adding water where historically there has been none. Everybody wins."*

*- Marvin Nash, Encore Green Environmental*

To understand this fully, we must take it a few steps at a time. Let's discuss:

1. Benefits of 'Just Add Water' Initiative
2. Source of the Water
3. What is Carbon Sequestration?
4. Carbon Sequestration Benefits Beyond Environmental
5. Conservation By-Design

## 1. Benefits of the Just Add Water Initiative

When we look at the current situation among these western states, we realize that every conservation process that is planned, every crop that is grown, every herd that is grazed, and every aquifer this is managed is based upon there being a scarcity of water.

Encore Green Environmental's 'Just Add Water' Initiative changes that paradigm by introducing a new source of water, which we'll detail in a moment.

But first, let's fully understand how impactful the introduction of water can be.

### Water Creates Vegetation

The dry dusty images of these western states would be radically changed if rainfall doubled. Instead of rolling brown hills, this same land could rival rainfall-plenty states like Kentucky and have green landscapes across the hills. But more, vegetation has stunning positive consequences.

### Better Soil Health

Without water, soil become barren of needed nutrients and turns to dry dirt. Our soil health is vital to agriculture and conservation. Our current soil is in need of heartening; the recent Farm Bill renewed government incentives to increase our soil health.

### Lack of Erosion

Wind often removes the top layer of soil, keeping it malnourished. Water, and subsequently vegetation, hold the soil in place and keeps it where it needs to be.

### Agriculture

Producers of both crops and herds must fight a lack of water. With more

water, more crops or different crops could be grown. Herds could increase in both quantity and quality.

### Aquifers

Aquifers are often drained by agricultural and industrial needs. Both oil companies and agriculture need water and ag need water. Often this precious resources comes from the same aquifer. If these needs for water could be met without draining the aquifer, the troubling projections about dry aquifers could be mitigated.

### Carbon Sequestration

We will discuss this in detail shortly, but Carbon Sequestration is the natural process by which carbon in the air is 'sequestered' and locked away in the roots of vegetation and surrounding soil. By removing CO<sub>2</sub> from the air, many scientists conclude that we can mitigate changes to our climate that happen because of too much carbon being expelled into the air by machinery and vehicles.

## 2. New Source of Water

The source of this water is not actually new. However, how to make it useful is brand new.

In the dry, dusty vista of these arid lands, you will see thousands of oil wells dotting the horizon. It's this intersection of arid lands and oil wells that creates this opportunity.

These wells produce crude oil. However, what is not often known is that these wells ALSO produce by-product water, anywhere from 3 to 7 times the amount of oil.

While these numbers can vary wildly,

- ⇒ a typical oil well can produce **1,000 barrels** of oil a day.
- ⇒ That's **42,000 gallons** of oil a day.

At the same time, they will also

- ⇒ produce around **4,000 barrels** of by-product **water** each day.
- ⇒ That's **168,000 gallons** of by-product **water** a day.

Over a year's time, that's **61.3 million gallons of produced water**. And that's just from **ONE** well – and a low volume one at that! There are over 900,000 oil wells in the US. The vast majority of these wells are in these arid western states.

So, there's plenty of water in these arid states. But what's the problem?

The problem is that this water cannot just go straight out of the oil well to water the land because of its exposure to minerals in the formation and contact with the oil.

Based on decades old technology and economics, the EPA allows this water to be piped or trucked to an injection well, where the uncleaned water is put back into the ground.

Past efforts to clean this water have been either hampered or prevented by the combination of ineffective technology and risky economics.

*But today there is another option.*

The technology to clean the water is no longer a multi-million dollar "treatment plant," but rather a shipping container sized "box" that can sit in proximity to the well with a footprint of around 45' x 10'. This water can be cleaned to strict

standards and then applied to the ground, creating the benefits we've described. This process will be discussed in detail shortly.

For now, understand that how we used to do things is no longer our only solution. Just as the crude oil doesn't go straight into your gas tank, but must be refined, so must the water. However, the by-product water isn't treated or refined. The thermal or reverse osmosis process removes any unwanted elements and keeps the good ones, leaving only water that is cleaned to match the surrounding soil.

The injection well, where most of this by-product water ends up, has many inherent problems. Uncleaned water of unknown makeup is put into our ground. We don't know what the water is, nor do we know where the water goes once in the ground. We can guess, but that's not knowing. And what do we do when there's no more wells to inject this water? With over a trillion gallons of by-product water a year, we have to have a better solution.

To that end, we have developed a brand-new approach. We will discuss Conservation By-Design™ methodology shortly, which economically solves the oil companies' problems and environmentally solves the regulator's problems.

But we want to turn our attention to what could be the driver of this solution and that's Carbon Sequestration.

### 3. What is Carbon Sequestration?

Carbon Sequestration is the process by which carbon dioxide, CO<sub>2</sub>, is taken from the air and stored in the soil and vegetation roots. But why is this important?

Many scientists have become alarmed at the increase of carbon in our air, which is a result of vehicles and other machines. This elevated level of carbon contributes to climate change and the experts in this field say that we must somehow reduce the amount of carbon in our air. The most viable method is through Carbon Sequestration.

While it may sound complicated, Carbon Sequestration is simply what vegetation does naturally. Photosynthesis is the process by which a plant (with water and sunshine), releases oxygen into the air and pulls carbon dioxide into their root system and surrounding soil. This carbon is then sequestered or locked away.

As you can see, this is the point of opportunity.

- ⇒ Currently we have **arid** lands with **limited** Carbon Sequestration.
- ⇒ **But**, that's because there's limited vegetation.
- ⇒ And **THAT'S** because there's limited water.
- ⇒ **Therefore**, if you want to increase Carbon Sequestration, you just add water.

The water means vegetation can grow, which increases the sequestering of carbon dioxide.

Given the extreme volume of cleaned by-product water available to apply to the land, it's easy to see that this can be an enormous increase in Carbon Sequestration.

#### 4. Benefits of Carbon Sequestration Beyond Environmental

As can be seen, the potential environmental impact is staggering. And applying water to the land for Carbon Sequestration and the resulting environmental stewardship is reason enough to pursue this solution.

However, there are additional opportunities for parties to benefit directly from this on the carbon exchange market.

**Carbon can be both measured and monetized.**

When cleaned by-product water is applied to the land and vegetation begins to grow, the amount of carbon dioxide being sequestered can be calculated based on location and type of vegetation.

Then, that carbon (measured by the metric ton) can be offered as a carbon credit to individuals and companies who voluntarily wish to mitigate their carbon output (footprint) . The individual or company buys a credit (1 ton of carbon) from the entity that is sequestering the carbon.

Let's use the numbers from a recent Colorado project completed by the Environmental Defense Fund. They used 2 large ranches for their project, but we'll use their output numbers but adjust to a smaller single owner parcel of land for our model.

- ⇒ Using cleaned by-product water, grass is grown on a 4,480-acre ranch.  
**Over a year, this ranch would sequester 2,000 metric tons of CO<sub>2</sub>.**

Then, we can take that figure to the carbon credit market.

- ⇒ That sequestration could be offered as a carbon credit on the carbon exchange market and potentially receive revenue per credit (1 credit = 1 ton). The amount varies a great deal based on market, but for model purposes, we can say \$35 a credit.
- ⇒ **With 2,000 tons, which is 2,000 credits, at \$35 a credit, that'd be \$70,000.**
- ⇒ This could be used to keep the sequestration functioning, fund conservation projects, and be an additional source of revenue.

## 5. Conservation By-Design™

Encore Green Environmental is an agriculture company which holds the patent-pending method to effectively and efficiently accomplish all that has been described in this document. T

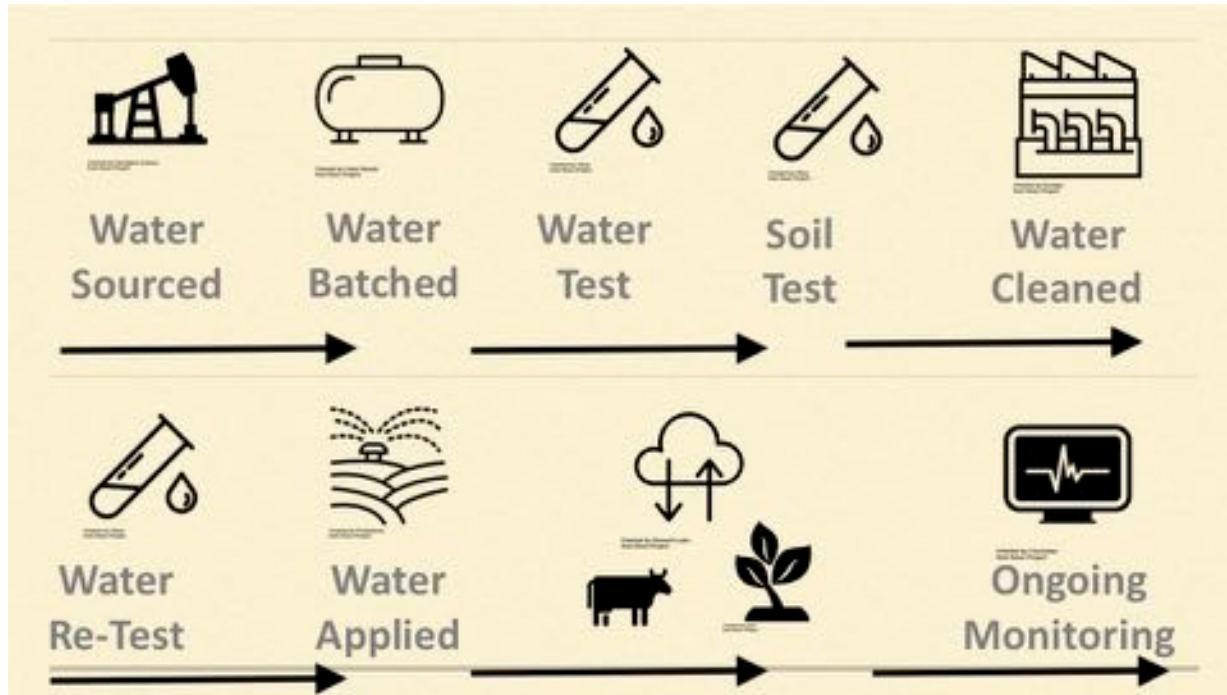
The proprietary method is *not* the technology used to clean the water; this method works with all major technology units.

Rather, the method is how the water is handled from production to application ensuring traceability and quality control.

It's called Conservation By-Design™ because each project must be custom tailored for the unique aspects of each parcel of land.

⇒ Greater vegetation	⇒ Conservation goals realized
⇒ Better soil health	⇒ A cleaner environment
⇒ Agriculture goals realized	⇒ Water, land, air quality assured

## Here's the Conservation By-Design™ Process

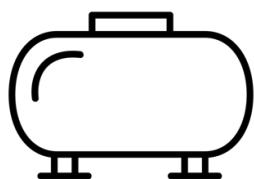


Now, let's look at each element in detail.



Created by Georgiana Ionescu  
from Noun Project

The water is sourced as a by-product of the oil well.



Created by Fabio Rinaldi  
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For data gathering and traceability, the water is batched. In this way, should a batch not comply with testing, it's easy to identify that batch of water for re-cleaning. This is similar to agriculture batching for vegetables and pharmaceutical batching for medications.



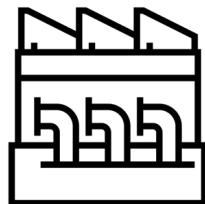
Created by Olivia  
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The water is tested to determine its current makeup and identify which elements are present.



Created by Olivia  
from Noun Project

The soil is also tested to determine its constituency.



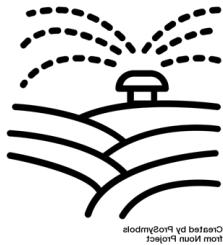
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The water is cleaned to match the soil testing. For instance, if there's nitrogen in the water and not enough in the soil, then nitrogen would not be removed from the water. Conversely, if there's enough nitrogen in the soil, then the nitrogen would be removed from the water



Created by Olivia  
from Noun Project

One cleaned, the water is re-tested to make sure the cleaning was successful.



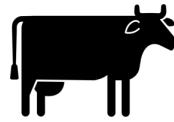
The water is applied to the land.



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from Noun Project

Conservation increases. Agriculture thrives. Carbon is removed for a cleaner environment.



Created by Clockwise  
from Noun Project

This entire process is repeated daily as water goes out on the land. No water is applied that has not been tested, cleaned, and re-tested. All data points of water and soil are continually monitored, and the results are made publicly available.

## 6. Verification Seal

There are many ways that by-product water can be cleaned today.

**However, there is only ONE method to take that cleaned water and apply it to the ground with assurance of traceability, two-step verification for water quality, economic viability, and management of liability.**

## That method is Conservation By-Design™.

To maintain quality and to assure the consumer and business partners of the integrity of the process, Encore Green Environmental has developed the

### ConserVerified™ Seal

so that any oil well/water site using the Conservation By-Design™ method will have this seal on paperwork and the physical site.



- ⇒ This seal means that the water has been tested, re-tested, and now matches the soil for optimal vegetation growth
- ⇒ This seal means that the testing was conducted by a third-party lab.
- ⇒ This seal means that the water has been batched and is traceable.
- ⇒ This seal means that the water quality on the land is publicly available.

## Conclusion

The single biggest need for the western states is water. Cleaning up existing by-product water creates positive outcomes for all stakeholders.

Encore Green Environmental is committed to helping you steward our lands.

**All we have to do now is Just Add Water.**