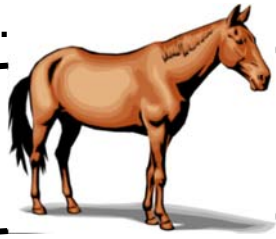
Notes from....



Serrano Creek Ranch Equestrian Center

NOVEMBER 2017

25200 Trabuco Road, Lake Forest, CA 92630
Office Phone 949-768-5921 Email: <SerranoCreekRanch@msn.com>

Maybe I'm old and crotchety, but does it seems like the world is getting meaner and meaner? Whether it's *Real Housewives* going off on each other, bachelors scheming for a chance at the girl, or (dare I mention) the current political environment. So what pleasure it was to see the horse community gather so quickly to assist in the evacuation of Peacock Stables. While the fire spread was rapid, the response to aid was far faster. While all were very helpful, special mention goes to a few that really did a great job.

Special mention goes to Lee Schwoebel for taking charge and managing the settling of the incoming horses so efficiently. She was one of the first to arrive that day, and one of the last few that night. In such a time of stress and chaos, her calm and collected manner not only efficiently found stalls for the incoming horses, but created a wonderful sense of organization that calmed many frayed nerves.

Assisting her was Brianna Haley. By the end of the night, these two had a detail spreadsheet (be still my heart) report of every horse, the owners' names, and proper feed. There were no horses unclaimed through their efforts, which included even searching Facebook for an owner.

The trailering of Mark Hedgpeth and Leslie Thomson as always was efficient and professional. Additional kudos goes to Lauren Jennrich. No doubt I've missed quite a few who quietly went about their efforts, making that Monday run so perfectly.

Lastly special thanks to all the SCR boarders that have been so welcoming to their new house guests. Over the last couple of weeks I have heard so many positive comments by the folks from Peacock. It looks like it may take some time to complete the arduous task of rebuilding and our guests will be here for a while. The positivity that imbues the stable makes coming here, whether for work or play, a very life-affirming experience.

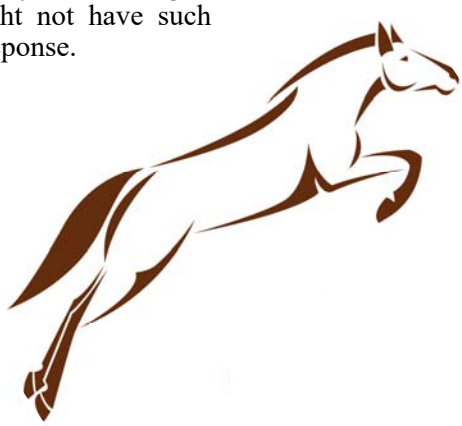
Winterization 2017

The annual winterization will begin November 6th starting with the park area stalls. From there, the work will move toward the front finishing at the front breezeway by mid-December. The normal bird's eye and decomposed granite (both $49/ scoop) will be brought in. In addition, we've also built a sizeable pile of reclaimed bird's eye ($27/ scoop) during the year, which is pretty similar to the "fresh" bird's eye, but a whole lot cheaper. Supplies are obviously limited for the reclaimed material.

Over the last few years, we've found that a mixture of birds' eye gravel and decomposed granite (D.G.) creates a footing that is more stable than straight (reclaimed) birds' eye but not as hard / abrasive as straight decomposed granite. Mixing the two allows the D.G. to fill the voids between the birds' eye, thus making it less likely to move under the weight of your horse's hoof. It seems that the sweet spot is 3 parts gravel: 1 part D.G.

Please take time to either fill out the attached form, or email the office with your desires. Also here are links to two monographs on preparation for winterization if you need a reminder, or are unfamiliar with the winterization procedure.

Because we have so many new over-winter guests, I've taken time to include some of our greatest (?) articles about rain and winter. For me re-reading was very stimulating. It's possible you might not have such an enthusiastic response.



Stall -Gram
2017

Stall Number_____ Owner's Name_____

☐ Do Nothing ☐ Do What You Think Is Best

☐ Do What You Think Is Best, But Don't Spend More Than $_____

----------OR----------

Detailed Instructions:

Cleaning: ☐ Remove Everything ☐ Remove Only Wet Shavings

Note a Disposal Fee $10 (up to 1 scoop) $20 (More than 1 scoop) is charged based on amount removed.

Materials :

_____ Scoop(s) of D.G. ($49 / scoop) _____ Scoop(s) of Reclaimed Birds' Eye. ($27 / scoop)

Detailed Instructions

Stall Map

Zen And The Art Of Stall Maintenance

To understand what is the best winterization strategy, always remember the single most important rule:

It's better to shed water than to soak it up.

Again, this is absolutely the rule to follow.

Now let's explore the wonders of winterization in depth!

Maintain Slope:

Every pipe stall is built in such a way that it has a minimum 2% slope. Over the years we have found that any less, and rain stays in the stall. How much is 2%? It's 6" of fall over 24'. Typically this means that from the gate under the shelter to the back, the height difference is 6". In a rainstorm, if the proper grade is maintained, rainfall will flow easily out of the stall. Without survey equipment, how do you know what 2% is? That's easy; just follow the angle of the pipe rails which have been set to the proper angle.

It is also important to remember that drainage flow is not directly out the back but typically is diagonally out of the stall. This allows not just an individual stall to drain, but for the whole block of stalls to drain. Building walls, dams, mounds, etc. of stall footing to prevent your upside neighbor's water from flowing into your stall is unfair. That's because you are also sending some of your rainfall into your downside neighbor's stall. The other issue arising from building dams/walls, is that you're trapping the water in your upside neighbors stall, thus preventing the drainage and putting their horse at risk. Remember that not only is your stall draining, but the block of stalls also has to be put on a slope so once the water from the individual stalls drains out, then all that water must then leave the block of stalls.

Pack it hard.

The harder the surface of the footing, the faster the water will shed off. In a dream world, your stall's footing will be like concrete (when it rains) so that water will quickly run off. The faster the water leaves, the more time that any remaining moisture can evaporate between storms. Then, when the next storm comes, the footing is hard, dry, and smooth. Thus the next storm's water quickly runs off. Life just gets better and better.

This cycle can also work in reverse. If a stall gets muddy, it will get worse because the surface is unable to be restored in between storms. First the horse tromps in the footing creating deep depressions. Then the next storm comes along, and the depressions fill up, resulting in even more water being trapped. The footing is now muddier and consequently gets even deeper depressions. With each rain event, it gets worse.

By taking a few minutes each day (and especially after a rain event) and raking your stall to fill in any hoof prints, you'll be developing a solid footing for the next storm. Remember that your horse's hooves are very heavy and they will compact the soil in whatever shape it's left in. If raked even and smooth, it will compact even and smooth. Leave it uneven, and that's what you'll get, only harder.

The importance of soil/footing compaction can't be emphasized enough. When the soil is loose, it contains many pockets of air. These same pockets then fill up with water when it rains. Because the water is below the surface, it can't run off. The only way to get rid of it is through evaporation, and this takes quite awhile. Remember that only a very small amount will percolate down into the subsoil. So don't think that is your exit plan. Over the years we have tried all manner of drains and seepage pits. They all fail quickly. Again the primary objective is to shed the water off.

Shavings Usage

Given the above, hopefully, you'll see that putting shavings to soak up wet stalls is not advisable. Placing shavings in exposed areas acts as a mulch that prevents moisture from evaporating or running off. Shavings also degrade, and this raises the bacteria level which leads to thrush. Lastly, shavings create small voids in the soil which also hold more water than if there was none. The emotional rush of dumping a few bags of shavings to make the stall smell and look pretty ultimately will prevent the water from flowing and from evaporating. Down the road, this will create an even bigger problem. Shavings do play a role if they are kept under the shelter.

Also, placing shavings only under the shelter will encourage him/her to make fewer trips outside. This means fewer hoof prints and thus less water retention.

FAQ

What do I do if for some inexplicable reason my stall turns into a mud pit?

First of all, several hours of self-flagellation is a good start. Now that that's over, you may be tempted to dig out all that mud until you hit bedrock. That's all well and good until the next rain when now your stall becomes the local swimming hole. If there is enough of a break in the storm pattern, it's best to rake your stall and allow it to compact. You might also consider adding some birds' eye gravel to "thicken" up the mush.

If digging is the only action that will still your heart, then the ultimate answer is to fill the pit you've dug with 100% bird's eye gravel. Since it won't have time to compact, you're better off filling it with a material that can support the weight of your horse.

Here' a brief synopsis of other products that may show up in an especially heavy REM stage:

DryStall: The all-mineral pumice-like material provides some cushion, and more importantly won't decompose. It does eventually get ground up and turns finer and finer, eventually disappearing. I give high marks to the marketing department of DryStall for such a great name, but it is not the solution to muddy problems Remember that the primary rule is to shed water, not to trap it and have it percolated. DryStall does fill voids and doesn't decompose.

Shavings:

Micro-Shavings - Do not use when it's raining!!!

Mini- Shavings and Regular - are good if kept under the shelter.

Cedar Shavings are a good alternative to pine shavings. The cedar resists decomposing, and thus the bacteria level is far lower. Fewer bacteria = less thrush.

What is a good rake to use in my stall?

Home Depot / Lowes sell cheap garden rakes like this one.

If you want to take it to another level then purchasing a landscape rake—it does a nice job. It does cost about $40 or more, but it does make for flatter abs.

A word of caution for those with OCD; the goal is to fill and flatten the stall. "Really going at it" will make things worse because over raking creates air pockets, and remember these hold water. This is especially true if your sweat starts to create mud. Just a few minutes each day is enough.

Stable Winterization

While rain may seem like forever and a day away, your dedicated staff at Serrano is making preparations for that hopeful eventuality!

Arenas: Between now and the rains, some minor re-grading of the arenas will be done to restore the proper slope to facilitate drainage. As the rains approach, we will close the arenas, compact them, and lock them. The office will send out rain notification emails/texts as soon we can determine the likelihood and intensity of the predicted storms. Interested in how we make our rain closure decisions? A few pages further on we explain our method of arena closure.

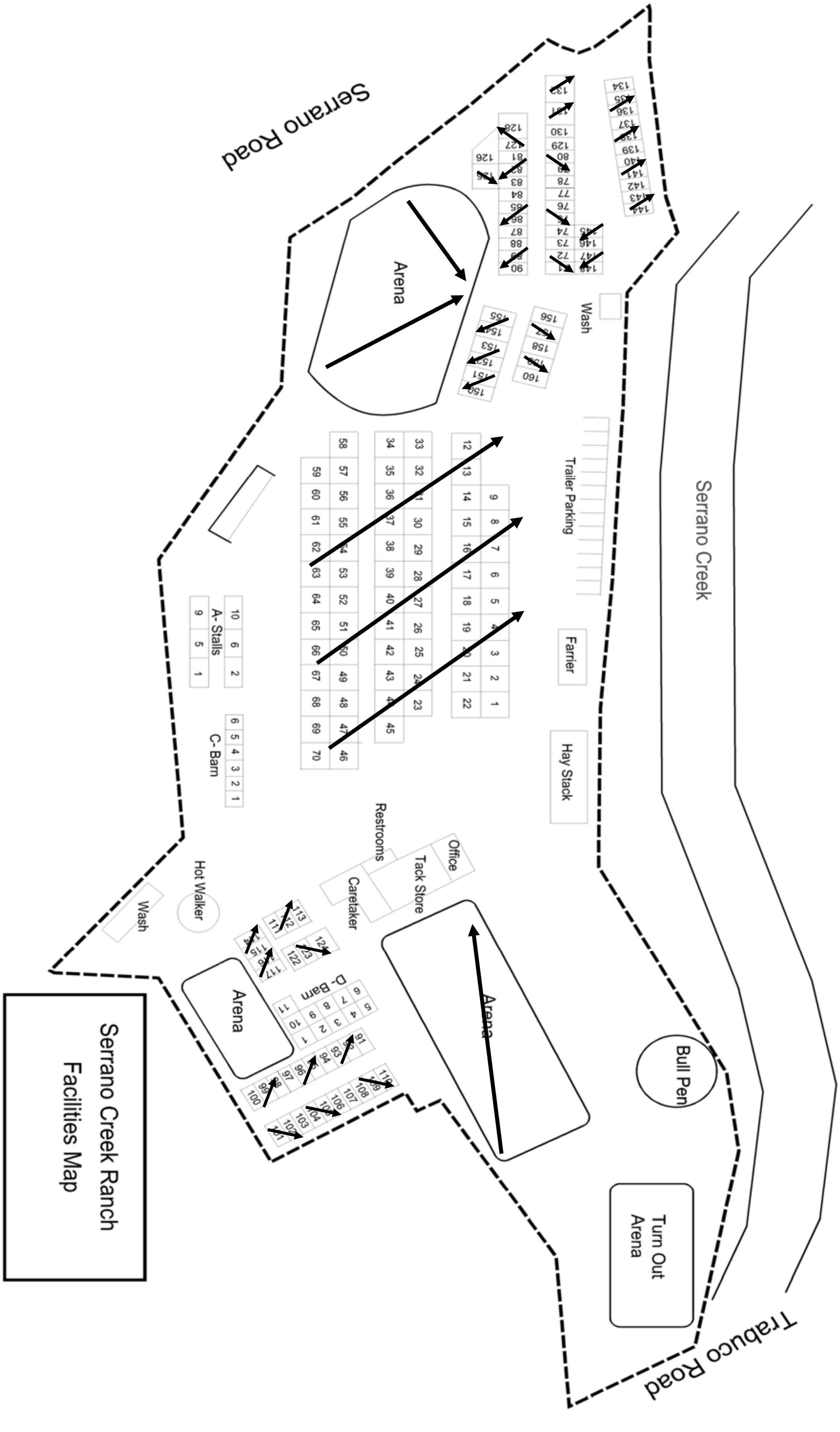
Sediment Control: You might notice a strange structure at the drainage point of the stable. We were "asked" to better control the sediment runoff from the stable. Specifically, sediment is required to be captured before entering the creek. There are two reasons for this. The first is the sediment itself, which eventually makes its way to Newport Bay, where it then must be dredged out at a very high cost. Secondly, nutrients such as nitrogen and phosphorus will bind to sediment and then later feed the algae growth in Newport Bay. When these algae bloom, their eventual decay can absorb a large percentage of the oxygen in the water, thus killing the marine life from hypoxia.

Before any expected rainfall, the screen is dropped in place. It is a series of smaller and smaller screens to trap the sediment, and slowly allow the cleaner water to pass. After the rain, we'll tilt it up, and clean it for the next time. While down it will protrude slightly into the path of travel. So we ask that you exercise caution during those times. Also since it is designed to slow the flow of small and moderate rainfalls, expect it to create a pool of water while the sediment is trapped. In the case of heavy rain, it is designed to allow the flows to go across the top. So please don't worry, we're talking inches here, not feet.

Stall Winterization: We will begin the winterization of the stalls on November 6th. For folks that have been here many years, the stall-a-gram in the newsletter will be familiar. Please return ASAP so that we can complete this arduous task as efficiently as possible. If you are new to the stable, each year we'll prepare your stall for the upcoming rains. Please note that while we seek to meet your specific requirements on the stall-a-gram, the stable has a master drainage plan. Whatever is done in your stall must conform to the overall design. As always, we're happy to answer any of your questions.

Stable Grounds: We'll also be fine-tuning the walkways and roads to facilitate rapid drainage. During and shortly after it rains, we ask you to please not drive your car/truck on any dirt areas. The weight of the tires damages the grade resulting in standing water. Typically rainstorms have a small break between them, and by keeping the drainage maintained, the paths and roads have a chance to dry. We can then restore them before the next storm. If they are heavily damaged from cars and trucks, then we can't re-grade them, and with the following rain, the road becomes impassable. We expect that horses and carts need to be able to access all areas of the stable all the time. Sadly, your desire to keep your dress shoes clean can result in a nightmare for others who need access. Thank you for your understanding.

Drainage Maintenance: As noted above, the stable has a master drainage plan. For it to work, rainfall must be able to exit the stall in a straight line. Whenever water is diverted, its longer path results in a flatter slope, which means that it is more likely to stay in the stall and cause problems (remember from Jr. High math: rise/run = slope). This straight line does not follow the pipe rails; it runs diagonally through the stall. Figure 1 shows


Serrano Road
Arena
Wash
Trailer Parking
Serrano Creek
Farrier
Hay Stack
A- Stalls
C- Barn
Restrooms
Office
Tack Store
Caretaker
Hot Walker
Wash
D- Barn
Arena
Arena
Bull Pen
Turn Out Arena
Trabuco Road
Serrano Creek Ranch
Facilities Map

the master drainage plan for the stable. As you see, just about every stall receives some runoff from its upper neighbor, and in turn, sends water to its lower neighbor. Figure 2 is a small theoretical grouping of stalls showing the

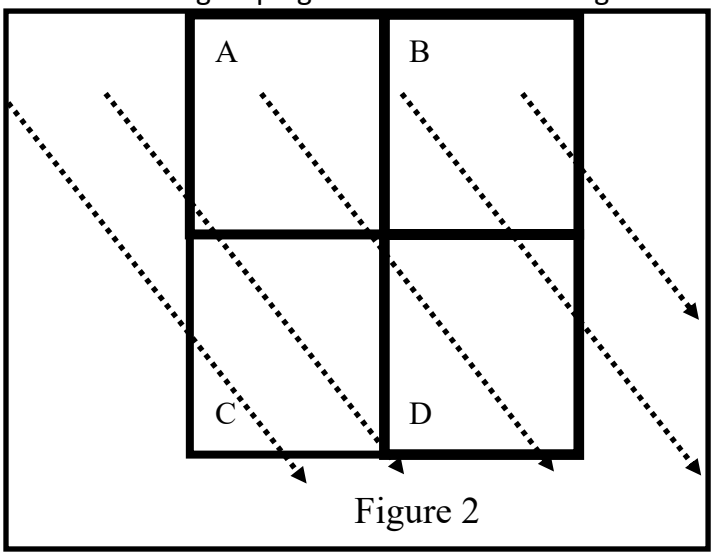


Figure 2

approved drainage. In figure 3, Stall C has placed barriers to prevent water from entering that stall. The effect of this is that the water must travel a

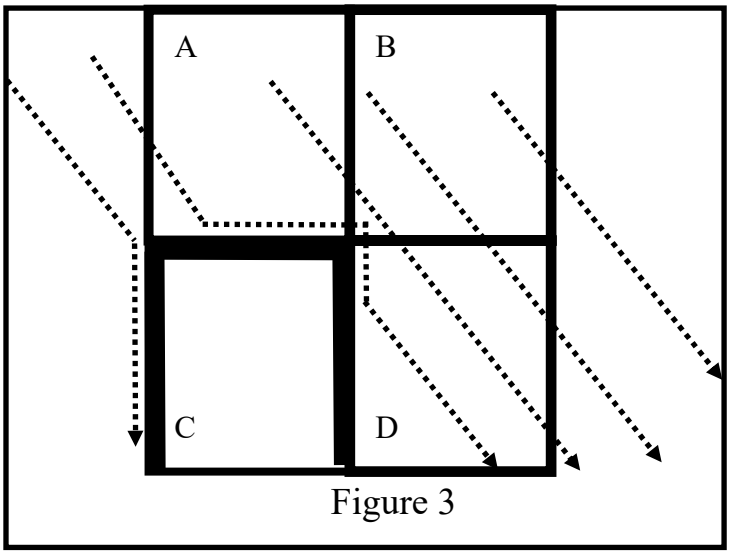


Figure 3

longer path to exit. Theoretically, rather than the 33' which is the hypotenuse, it must travel 48' (24' + 24') or approximately 50% further. Put another way, the effective slope of the stall is reduced by 50%. The net effect is that water will much more likely pool in the stall, resulting in the unnecessary mud.

Secondly, while Stall C can block the upper neighbor's water from entering, the problem hasn't gone away, it has just been shifted to stall D. Now stall D takes the water from its upper neighbor Stall B, plus the additional water that was supposed to have passed through stall C. The net effect is that Stall D now receives twice the rain. Therefore the actions of Stall C have placed an unfair burden on stall D. The same is true with Stall A as the slower moving water will pool behind the barrier. Remember that the secret to a dry stall is to pass the rain as fast as possible through and out the stalls.

Additionally, air movement is the key to drying out the stables. As barriers are constructed, the airflow can be retarded, significantly extending the drying time not for just the "barriered" stall, but for neighboring stalls. To maintain not only the master drainage plan, but fairness to all stall occupants, the placement of barriers to divert incoming water along the stall's edge is prohibited.

If you desire to prevent water from entering your horse's principal stall area, you may place a barrier as long as it is a minimum 18" measured from the rail to the outside edge, to divert all receiving waters. All water that is diverted as a result of the barrier must now exit through the same stall. Figure 4 shows the allowable installation. Allowable barriers can be no more than 12" high and made of durable rubber, rot resistant posts such as pressure treated wood posts/railroad ties, or mounded dirt. As an alternative, you may raise the stall footing grade for all areas other than the surrounding 18" of the two sides and back. These culverts must be maintained by you. No matter what option you choose, at no time may the water be diverted to other stalls. The small sections of plywood that have been placed by the SCR to prevent horses in 12' wide stalls from exchanging feed are exempt from the prohibition. If you have placed anti-kicking mats on the walls of the stall, there must be a minimum of 6" clearance between the master drainage grading level of the stall and the bottom of the mat.

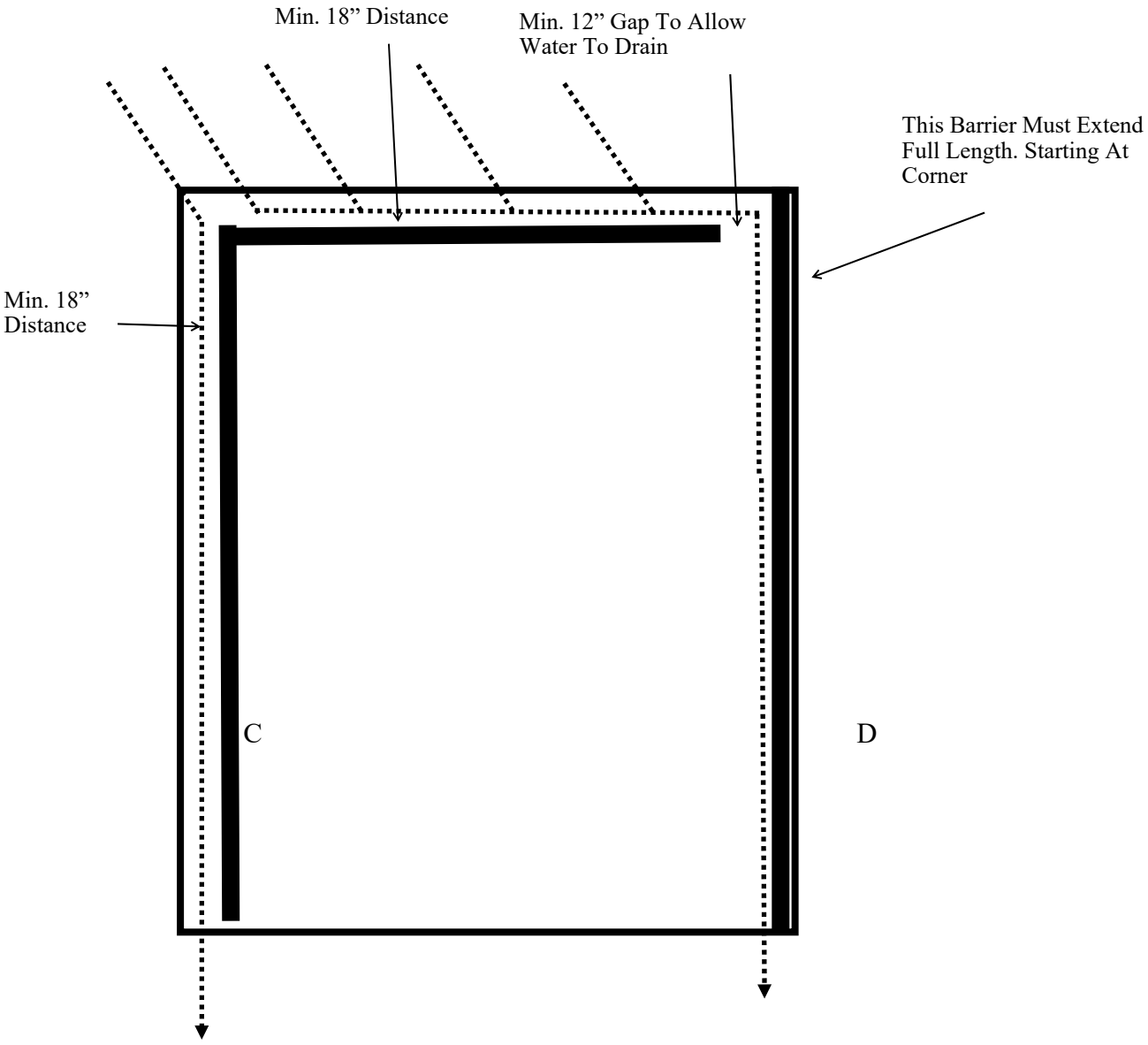

Min. 18” Distance
Min. 12” Gap To Allow Water To Drain
This Barrier Must Extend Full Length. Starting At Corner
Min. 18” Distance
C
D

Figure 4

Rain Prediction / Arena Closures

Ever wonder what goes on in the "black box" that leads to arena closures? Now's your chance to peek inside the secret algorithms your analytical SCR management team uses.

There is a wealth of information available on the National Weather Service Website.

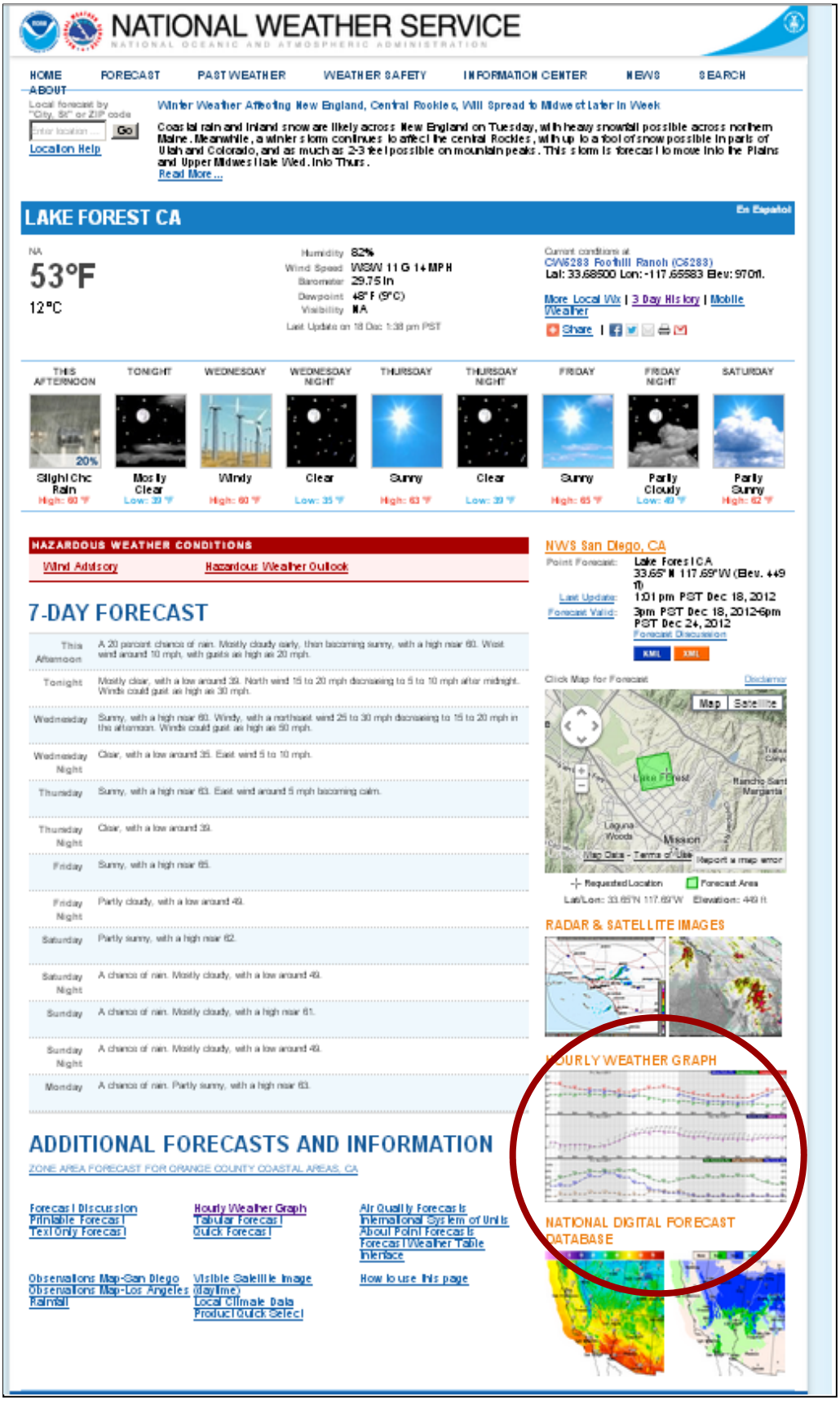
http://www.weather.gov/

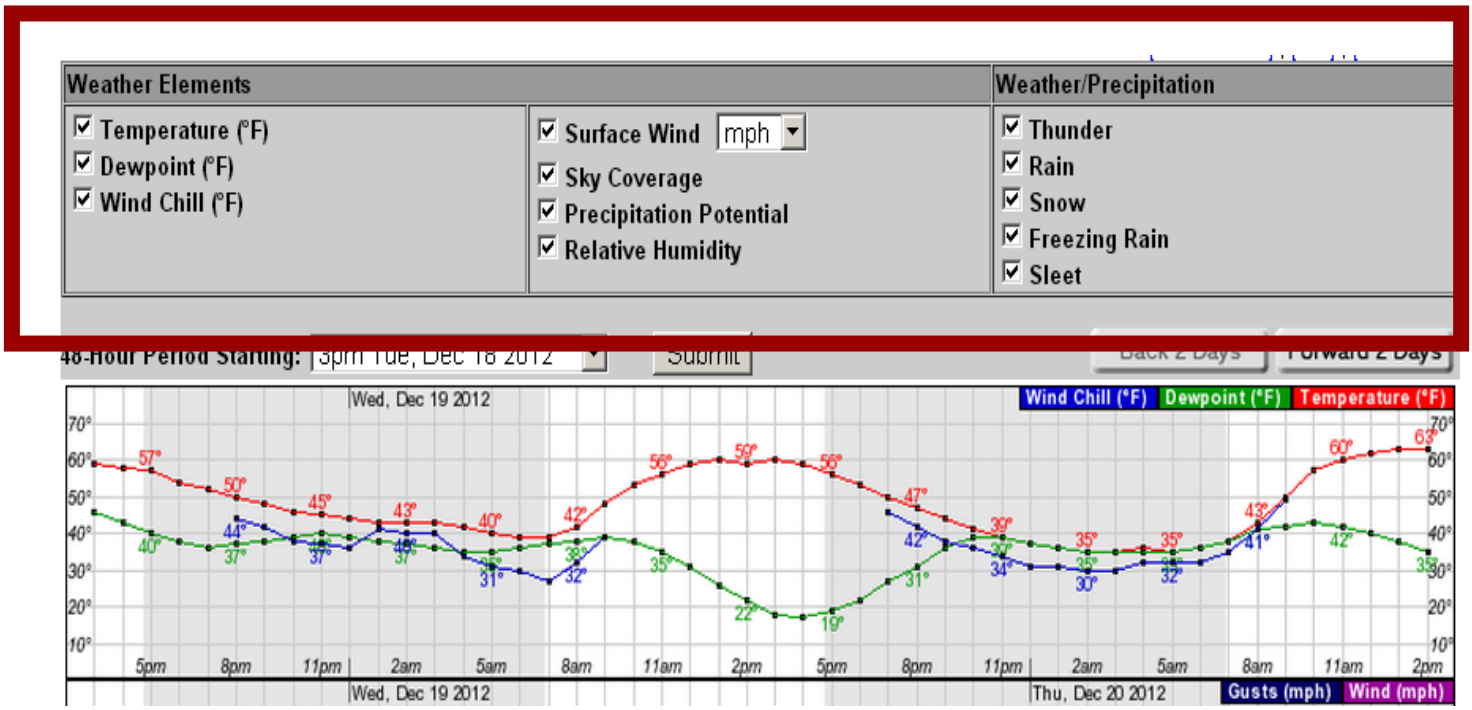
While there are many weather sources with cute icons, and short-skirted weather girls; all their forecasts are drawn from the data available on this website. As a rule, I stay away from celebrity newscasters and instead rely on the nameless dedicated civil servants who toil endlessly with supercomputers. As an aside note, the number of variables in weather prediction is unfathomably huge. Of course, more data means a better prediction. Only the latest supercomputers can run the newest models, and still, a significant amount of data must be left out. Followers of chaos or complexity theory understand the absurdity of expecting perfect predictions.

On the National Weather Service (NWS) landing page, type in the 92630 zip code, This will take you to Lake Forest, CA, and hopefully, the page will look something like this:

In the bottom right corner (see red circle) is the hourly predictions page link.

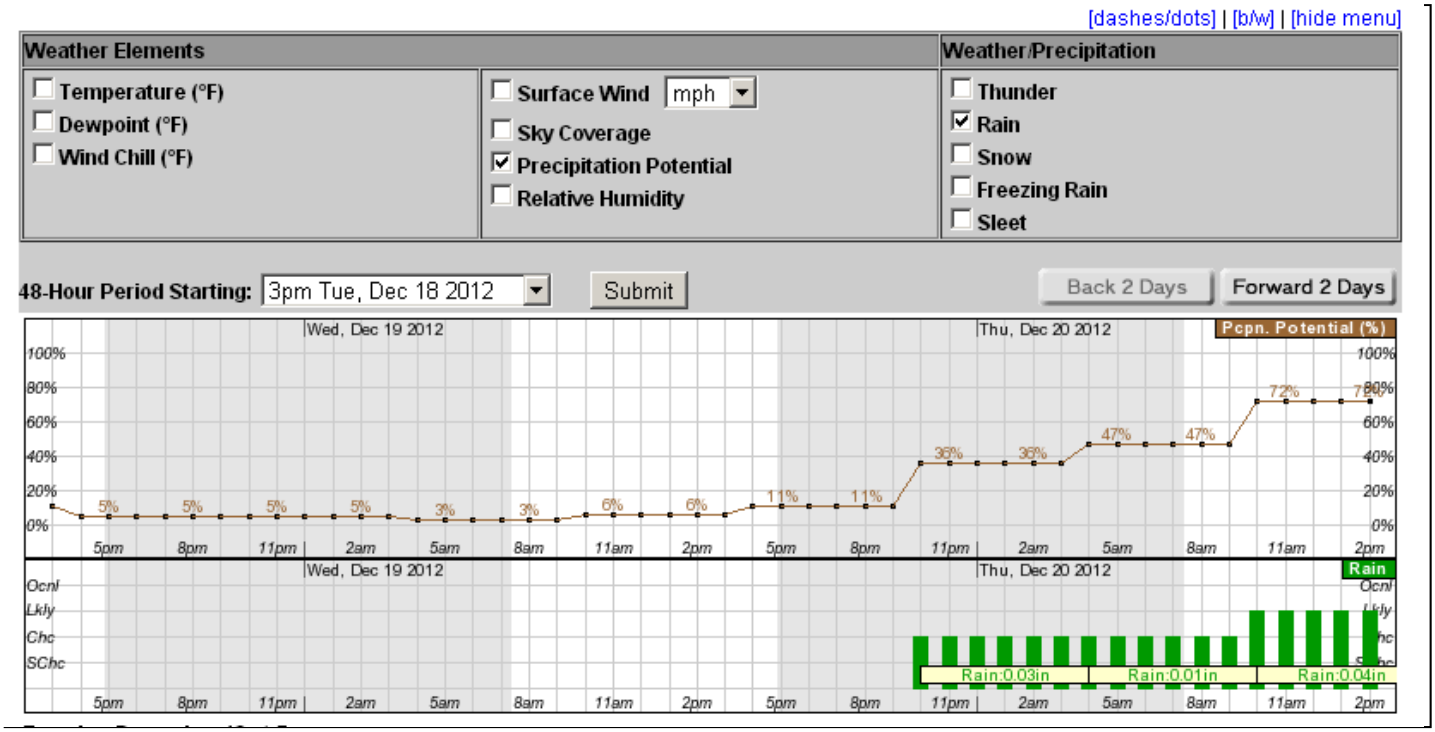
Again forget all the pretty graphics for the illiterate, you're running a major equestrian

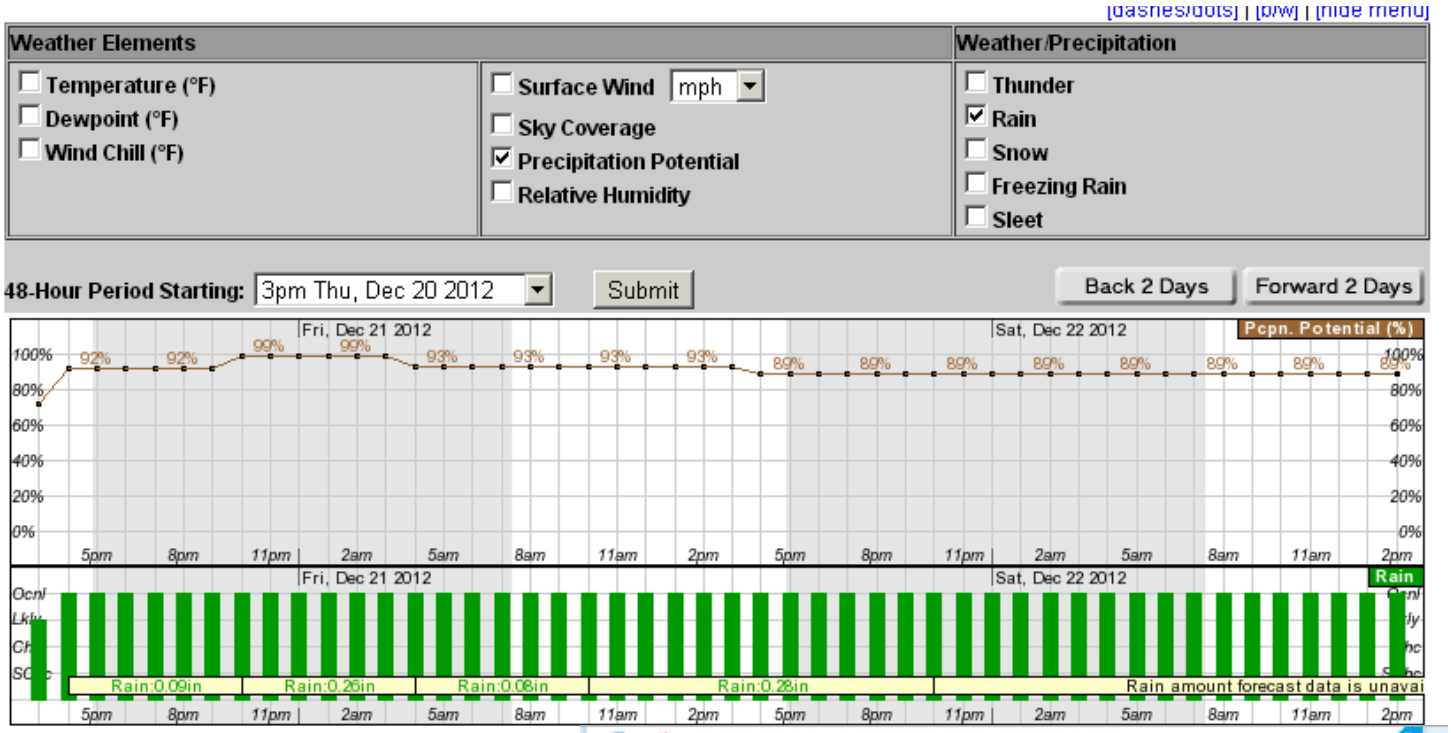




facility, *dude*, and do not need such superficiality. Click on this chart, and it will take you to the hourly prediction page. What is shown is a truncation of the page you'll get.

Because we're looking for a rain forecast, check only the boxes for "Precipitation Potential," and "Rain." All others are unchecked. After pressing submit, you'll receive an hourly prediction. While the pretty icons may say "rain today," you need to know exactly when the rain will begin to maximize the available arena time; yet still leave time for their compaction. For example, if the hourly rain graph is predicting that the rain will begin slowly, we'll extend the riding time. If it appears that the storm will begin strongly, then we'll make sure that adequate time is available before it's arrival. In the example below, it seems that the rain it will come in gradually between 11 p.m. and 2 a.m. period. We have to also look at the "probability" of the rainfall happening. In this case, multiply the predicted rainfall (green bars) by the probability brown line for each period.

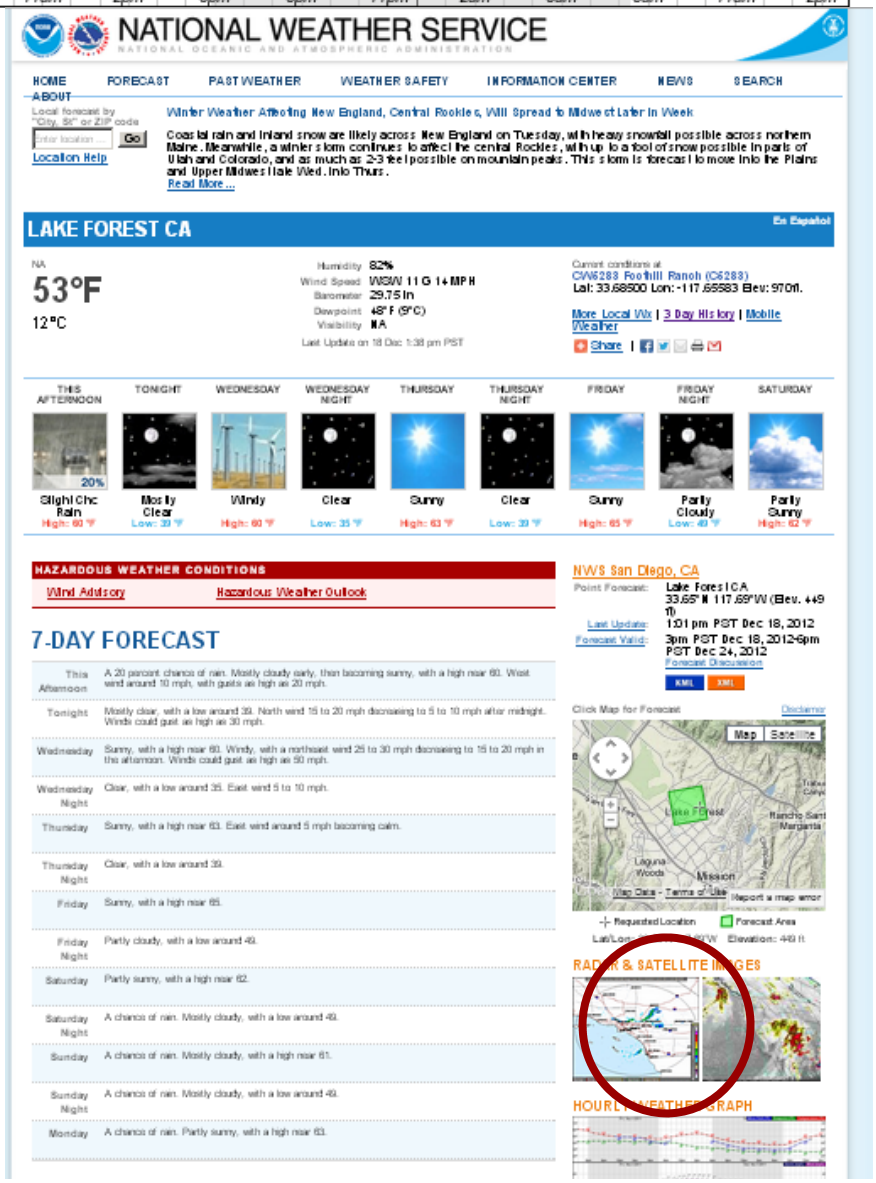


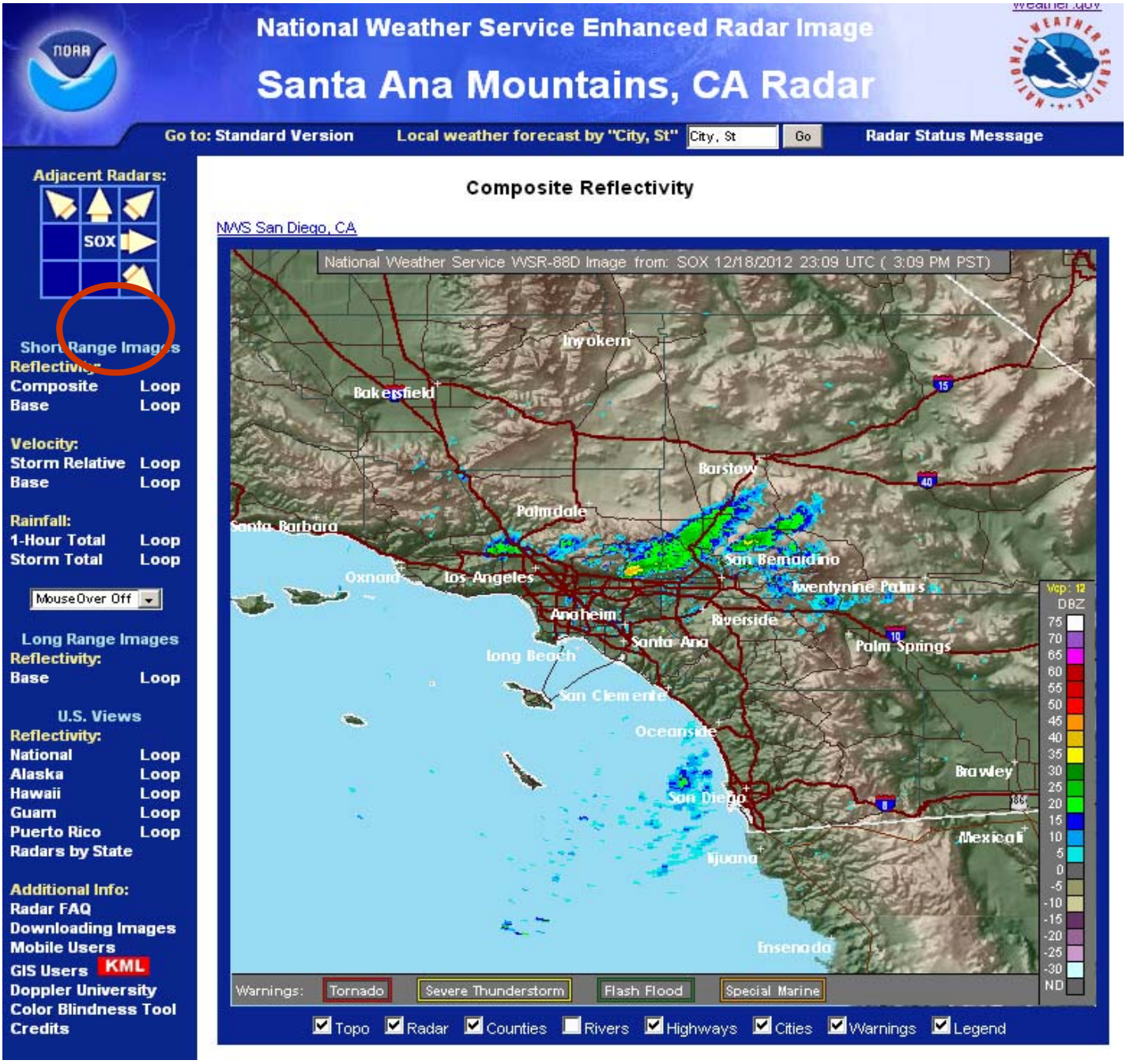


So *expected* rainfall would be: 11pm - 4am = .01", 4am -10am = .05" 10am - 2pm = .03". For this 13 hour period is .045". If this were the entire predicted rain, the arenas would be left open, as the amount is quite low and easily absorbed.

Let's see what the next two days have in store before we decide to leave the arenas open by pressing the *Forward 2 Days* button. Now we see that a significant amount rainfall is predicted. We'd better get on the tractor and start preparing. The forecast calls for rain to begin in earnest by 3 pm. Since it takes about 4 hours to compact the arenas, and we don't want to get caught with an earlier than expected arrival, we'll plan on beginning compaction and closing 6 hours prior. That means around 9 a.m. we should start. Since the initial bands of rain are typically fragmented, we can be even better managers by consulting the Weather Service's radar. The radar will tell us in real time when exactly the rain will arrive.

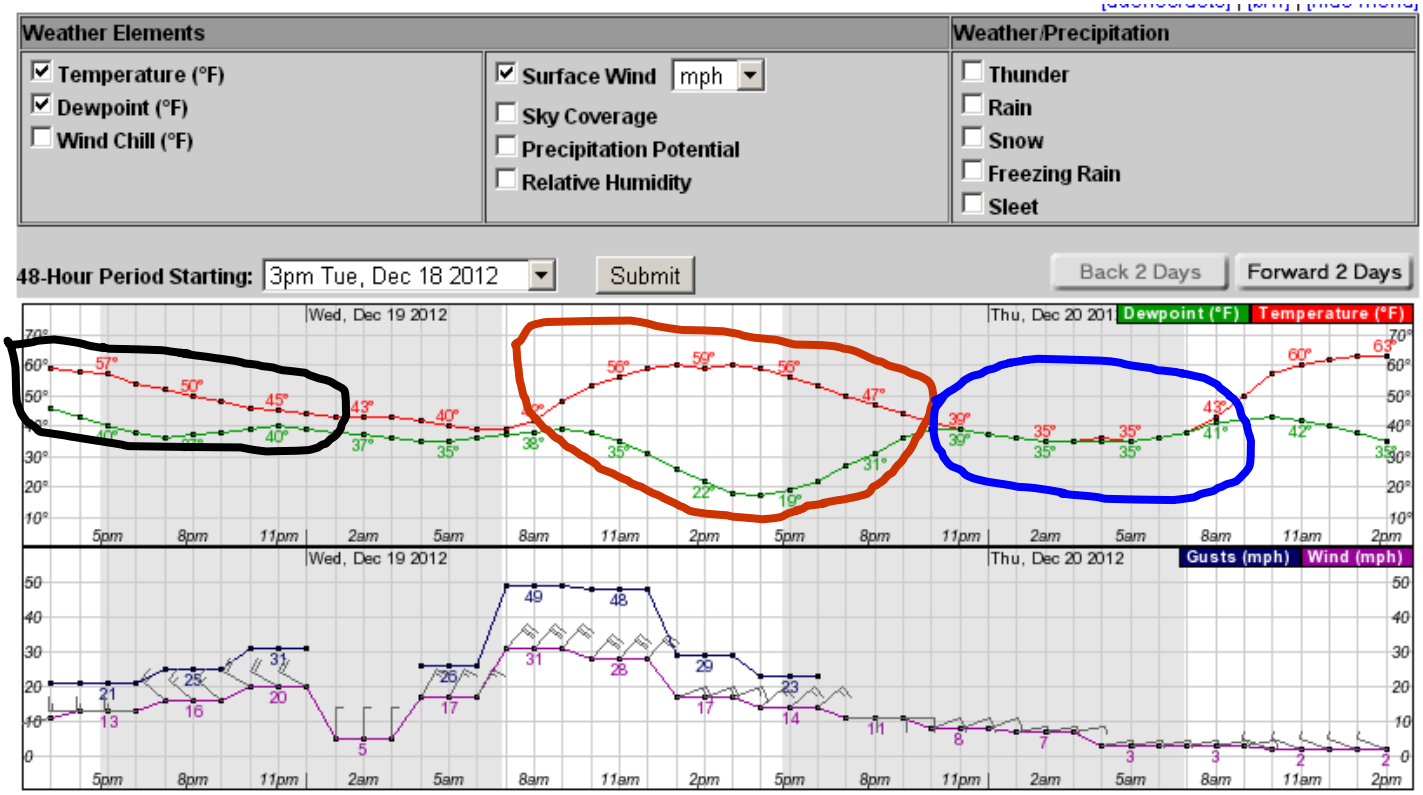
Going back to the Lake Forest weather page, we should click on the radar link (red circle.)





On that page (see red circle) you'll want to click the composite loop button. This will then play a series radar images taken within the last hour. This will give an idea how fast the storm is moving in and where it's going. Now you'll be able to determine in real time if you're behind or ahead of schedule. The radar images are colored. These correspond to the colors on the chart to the right of the webpage (my highlighted red box) These colors correspond to the amount of water in the clouds. Using the handy radar decoder to the right, anything lower than green— "Forget about it." As you move up the chart into the yellows and oranges, rain is coming. If you're into the magentas or purples, "Adios, it was a nice life." Knowing exactly the storm's intensity and speed, allows us to possibly have one or two arenas open a little longer with confidence.

The value of the radar allows us to go beyond looking at the sky and determining if the storm has passed. This is especially important if the arenas are marginal. Nothing is worse than thinking that the rain has finished, folks start riding, then another big rain band comes through. Then water that would have run off is now caught in the thousands of hoof prints/divots– necessitating closing the arena and adding days until it is reopened.



While the rain may have stopped, the reopening of the arenas is still another decision to make. This has to do with the ability of the arenas and the stable, in general, to dry out post-storm. First some science. Air can hold a certain amount of water based on its temperature. Lower temperatures mean less water can be suspended as water vapor. This is why moisture forms on the side of a glass of iced water. While the air in the room is warm and easily holds all the available water vapor, around the glass the air is much cooler, and the water vapor condenses. The term "relative humidity" is the percentage of water holding capacity being consumed by current conditions. The term "dew point" is the temperature when the relative humidity exceeds 100%, and water goes from a vapor to a liquid.

Let's now change the hourly forecast page on the Weather Service to: Temperature, Dew Point, and Surface Wind. When the temperature line and dew point line are close (see black circle on the left), very little water will evaporate, and the stable will remain damp. We would be cautious about opening arenas as they will take very long to dry. In the circle in the center (red) the dew point will fall considerably and create a potential for much more water evaporation. In this case, there was a Santa Ana condition. With the high winds, the transfer from soil moisture to air moisture is even faster. In this example, the stable would be fully functional in a day. In the blue circle, we see that temperature and dew point are the same so we can expect zero evaporation during this period. While not shown, when the temperature falls below the dew point, moisture will condense, and the ground will then become wetter.

If the arenas are marginal, we may keep them closed a little longer when the conditions of the black circle are forecasted. The stomping of the horses' hooves will create a deep mush that will greatly lengthen the time required to dry out because moisture will be driven deeper into the footing. With the conditions of the red circle, we know that the arenas will dry up quickly, and may let riders in a little sooner. Also, we can plan to dedicate more tractor time since very quickly any turned footing will dry out. The forecasted wind will mix up the air and further dry out the footing by constantly bringing drier air to the soil/air interface.

. . . . So that's the science, now for the art. . . .

If the arenas have been open for several days, then all the horses have had the opportunity to be exercised and are assumed to be in a mellow

state. In this case, we might close the arenas a little earlier when the next storm is to arrive. Conversely, if there has been a series of storms, and the horses are getting wound-up from being in their stalls for a long time, then we'll close later with the idea that a lunge today is worth a lot more. Doing so knowing that we risk getting caught from an earlier arriving storm The opposite holds true for the opening.

A single storm event means that we might wait longer to open. If the horses have been stall bound, then they need to get out as soon as possible, and we'll risk an arena becoming torn up and being lost to the next storm.

You might see us watering the arenas before a storm. So why add water when everything is about minimizing the water staying on the footing? Compacting the arenas has two functions. The first is to restore the grade to a smooth, angled surface so that the rainfall runs off as quickly as possible. The other benefit is to remove as much air from the footing as possible. If not done, then the rain will soak into these spaces and add a significant time to dry out. Not only is there a greater volume of water to evaporate, but by being in the footing, the sun and wind can not get to it. If you have tried to compact dry flour, you see that no amount of kneading will compress it. Add a little water, and quickly the material sticks together and can become compressed. The same is true with the arena footing. The moisture allows the smaller particles to get into the voids between the larger particles and lock into place. The net effect is that the amount of air in the footing has been replaced by the nonwater absorbing particles that displace the air spaces. Less water-holding capacity means that more water will run off the arena surface.

Another decision is to what degree should the footing be loosened. If the window between storms is short, we may open an arena but keep the footing hard. That way the arena can remain open longer, and then closed much closer to the storm. The worst thing that we can do is loosen the footing, and then get hit with rain. Unfortunately, due to the complexity of weather forecasting, there is a greater chance of error. It is very hard to go from fully fluffed footing to compaction without hours of work just for a single arena. Thus we tend to err on the side of caution.

Lastly, our workday ends around 4:30. If a storm is coming in the evening, we have to decide, and then act all before quitting time. Previously we could start on the arena compaction very early in the morning. It now seems that we have a neighbor that sends the Sherriff for any work before 7:00 a.m. So we try to balance the accessibility for those who come in the evening and may compact an arena but leave it open- knowing that this will come at the cost of the "daytimers".

When arenas are closed, we'll lock them. There may be times when the "lock" is just a hay string. Please rest assured that quite a bit of consideration and labor went into preparing for the storms. Thank you for your understanding and support as we enter the next few months of rain. Please know that we do our best to maximize the time arenas are open and that all users have an opportunity to exercise their horses during the wet months.