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Washdown Areas – what are your requirements?

Richard Stuttard, Environmental Consultant of the STRI, writes...

The issue of contaminated water discharge from golf course machinery washdown areas is one that is quite rightly currently receiving a great deal of attention throughout the golf industry.

There is an increasing acknowledgment at club level of the need to ensure golf facilities are operating within the confines of what is increasingly stringent legislation. There is however a great deal of confusion surrounding what exactly is, and is not, acceptable practice. As is frequently the case, the legislation encompassing this issue is quite complex and baffling, leading to many clubs choosing to ignore and claim ignorance, rather than act.

This article sets out exactly what the legislation means to golf and guides you through the options available to your club to ensure compliance.

The legislation

The key piece of legislation relating to the discharge of contaminated water is the Environmental Permitting Regulations (2010). Replacing the Groundwater Regulations (1997) the purpose of this legislation is to govern the level of pollutants entering surface and groundwater. Environmental Permits to Discharge (issued by the Environment Agency) determine the permitted limits of pollutants, with differing limits set dependant on pollutant type and site location. Pollutants most relevant to golf are nitrates and phosphates (present in grass clippings with levels enhanced by fertiliser applications) which have limit levels typically set at one part per million (ppm) and pesticides, with limits of typically one part per billion (ppb).

If you're thinking that doesn't sound like a lot, you'd be right, however, only minute amounts of these

pollutants are enough to damage ecosystems. The discharges from golf facility washdown areas are typically around twenty times the legal limits specified above. It must be stressed that concentrations of contaminants will vary significantly depending on the amounts of chemicals and fertilisers used on the course, time of year and the extent to which best practice is followed when applying chemicals, but it is certain to be the case that your club is exceeding legal limits by some margin frequently during the course of the year.

Are you compliant?

If your current practice is to wash machinery on waste ground, or in front of the sheds and allow water to discharge away (with no prior cleansing) to a ditch / other surface water, or allow it to soak-away to groundwater you are not complying with legislation unless you have been granted an Environmental Permit to Discharge by the Environment Agency. This is something that all clubs who discharge water (whether it is cleansed or not) should have. This comes at an annual cost to the club and will only be granted if the level of contaminants within the clubs discharge is below the legal limits set for your area, which, in almost all cases, clubs will find it won't be.

To be certain of compliance, your club must be adopting one of the following options:

1. Machinery is washed down on a bunded washpad with all contaminated water collected in a sump, which is then collected and disposed of by a licensed waste management contractor.

2. Machinery is washed down on a bunded washpad with all contaminated water fed into a mechanical water recycling system where it is cleansed and can be re-used or discharged.





3. Machinery is washed down on a bunded washpad with all contaminated water fed by sealed pipe into a dedicated and bespoke reedbed system, where it is cleansed sufficiently for discharge or re-use.

The above options will be legal requirements for the vast majority of golf clubs in the UK, however there are circumstances, relating to the type of substrate water is being discharged to, where a club may be permitted to discharge without prior cleansing. As such, it is well worth a call to the Environment Agency to have your individual situation confirmed.

Equally if you are discharging to foul sewer, the issue is no longer the concern of the Environment Agency and it is down to your local water board to determine whether they are happy for the discharge to be sent through their systems without prior cleansing. It is the duty of the golf club to inform the relevant water board and confirm permission.

There has been a certain degree of scaremongering going on throughout the industry in recent times with threats of quite exorbitant fines being instantly imposed on golf clubs found to be contravening regulations.

The claims of six figure penalties are quite outlandish and should be taken with a pinch of salt. That, said, it is certainly the case that action will be taken against clubs found to be non-compliant with, at the very least, a requirement made for the club to rectify the problem immediately. As legislation tightens over the coming 2-3 years it is likely that fines will be used more frequently as a method of encouraging compliance and as such now really is the time to establish your clubs requirements and begin to set aside funds to fulfil your club's needs.

Best Practice is important

Following best practice guidelines relating to pesticide and fertiliser application is essential for all users of such products and will ensure that the amount of pollutants being discharged from your facility is kept to a minimum. As such it is crucial to ensure that all operators of spraying equipment are appropriately trained and are fully aware of best practice operating.

Reedbed Systems

Many of you may not have previous knowledge of the option of reedbed systems to solve your waste water problem. Reedbed

water filtration systems bring with them a raft of benefits to the golf club thanks to their low cost, low maintenance attributes and their natural appearance.

Reedbed systems, when designed correctly, are highly effective cleansing systems with reductions in contaminants facilitated through sedimentation, filtration, chemical precipitation, microbial interaction and plant uptake. Now, you may think I'm trying to blind you with science and that this is some hair brained 'muck n magic' idea with no substance behind it. The truth is however that this is by no means a new technology. Such systems have been in use in a variety of industries for more than 30 years and, over the last 5 years or so, have gained an ever increasing following in the golf sector.

Design and installation of these systems will cost typically between £5000 and £7000 and once installed their maintenance requirements consist simply of an annual clean out of any decaying vegetation at the base of the reeds and a cutting operation every few years to keep the reeds healthy.

Additionally, their attractive appearance means that they can be situated out on the golf course (within areas of rough etc) if space within the maintenance area is short, thereby further enhancing their appeal.

There are a significant number of examples of reedbeds in use within golf facilities throughout the UK and further afield with numbers rising rapidly. As such these systems are certainly worth considering as a viable solution to this pressing issue.

In Summary

Don't panic! The purpose of this article has been to provide you with a definitive answer to the question of wastewater discharge on the golf course, not to instil panic in those of you who now fear you may not be complying with legislation.

In essence, each facility is different and as such a call to the Environment Agency, or to STRI, who will act on your behalf, will be the first step towards determining your requirements. Once you have answers, you can act accordingly.

The topic is an important one however, and I would urge those of you who have doubts regarding your clubs compliance to look into this issue at the earliest opportunity.

More information can be obtained by contacting Richard Stuttard at STRI on 01274 565131.

Alternative Washdown Solutions

Authorised water recycling systems for washdowns are exempt from the drought order bans. Two providers of these systems give their thoughts on the situation below..

Historically, we have always relied on our reservoirs being refilled during the winter. However, two unusually dry winters has left reservoirs, aquifers and rivers well below normal levels in many parts of the country.

The start of the drought was largely restricted to the south east of the country, which has been in the grip of the worst drought in 30 years since last year. This is now spreading across large swathes of the country, with rivers such as the Tern, Sow and Leaden at their lowest ever recorded levels and the river Lathkill in Derbyshire drying up, requiring an emergency rescue of the fish.

In an effort to preserve water supplies seven water companies covering south-east England and East Anglia implemented hosepipe bans commencing in early April and the Environment Agency are warning water use restrictions may need to be imposed as far north as Yorkshire if the prolonged dry weather continues.

Despite recent rain the drought has continued to spread with official drought zones being declared in a further 17 counties in mid April,

coupled with the warning from the Environment Agency that water shortages could now last until Christmas!

Environment Secretary, Caroline Spelman said "As more areas of the UK move into drought it is vital that we use less water to protect the public's water supply."

With the population of the UK now well past 60 million and heading towards 70 million pressure on water supplies is only going to continue to increase, whether it rains or not. Prudent use of water will be expected by everyone to try and avoid future shortages. The authorities are actively promoting a number of initiatives, including the use of recycled water wherever possible, to assist the efforts to avoid future water shortages.

Golf courses need to ensure they are environmentally responsible and yet many continue to 'waste' up to a million litres per course undertaking the (necessary) task of washing-off golf course maintenance equipment using mains water.

The Waste2Water Recycling Wash-Off System is the perfect answer for washing your equipment in Drought conditions:

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With the anticipation that the hosepipe bans and official drought zones will be upgraded to full Drought Orders in the near future, now is the time to upgrade to a Waste2Water Recycling Wash-Off System. If imposed, a Drought Order will ban washing-off vehicles and equipment unless a Recycling Wash-Off System is used. Installing a Waste2Water system ensures you can continue with necessary equipment cleaning operations even during periods of drought.

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Will it take hose pipe bans and drought orders to see legislative compliance? David Mears reports

The duties and responsibilities of anyone operating a washdown system, the legal requirements and the latest penalties for non-compliance have been covered at length in the media for some time, yet still a number of businesses and golf clubs don't see the need to take action.

Why? The Groundwater Regulations 2009 are not a recommendation, they are law. Compliance is mandatory and to claim ignorance will not be seen as a defence.

Perhaps the time is right to invest in a biological washpad water recycling system, save precious water and meet your legal duty.

It is potentially only a matter of time before hosepipe bans implemented on 5th April 2012 by seven water companies in the south and east of the UK become Drought Orders. Already the south-east of England and East Anglia are reported to be suffering the worse drought for 30 years. Areas as far north as Yorkshire and as far west as Wiltshire and Hampshire could

be affected we are told.

It was in 2006 that Drought Order powers were granted to only three water companies (Sutton and East Surrey Water, Mid-Kent Water and Southern Water) to limit or prohibit non-essential uses of water and a number of golf courses were badly affected.

Only golf courses that recycled water were able to continue washing off machinery. One such course was Woodcote Park in Surrey using their ClearWater system and featured on BBC TV news. This time, the drought appears to be more serious and widespread.

It seems clear that drought conditions, regrettably, are here to stay probably affecting us each year. Like it or not, we must strive to conserve water and the sooner the better.

Washing off machinery with water running to waste is not only causing pollution but is costly and irresponsible in these times. Water meters fitted to recycling installations have shown that around ¼ to ½ million litres of water could be

wasted washing down equipment at golf courses if not recycled. National Trust's Andrew Mudge calculated their ClearWater recycling system at Cliveden would save them in excess of 200,000 litres of water. Installing a biological recycling washpad system would therefore appear to be a sensible move right now, especially as there are special offers to be found from the major players.

Often the expense of a completely new washpad can be saved by upgrading an existing one too and finance is usually available. Self-installation is possible also in some instances. Further savings can be made if purchasing approved systems.

A system approved and on the UK government-backed Water Technology List (WTL) qualifies for 100% first year capital allowance under the ECA (Enhanced Capital Allowance) scheme. This means that companies / clubs buying and installing such a system can write off 100% of the total cost of their investment against taxable profits in the year of purchase!

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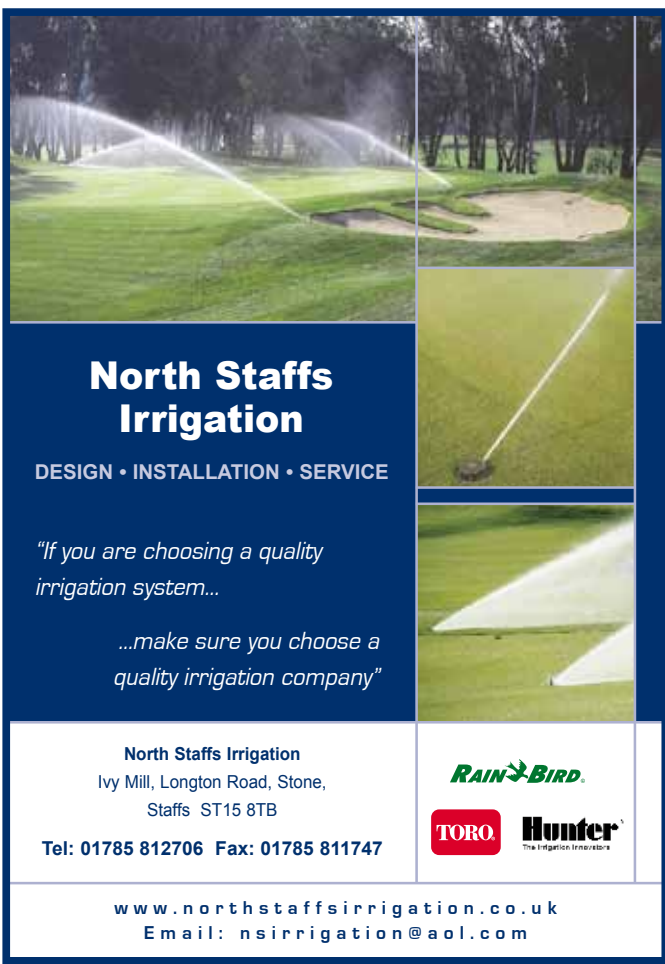
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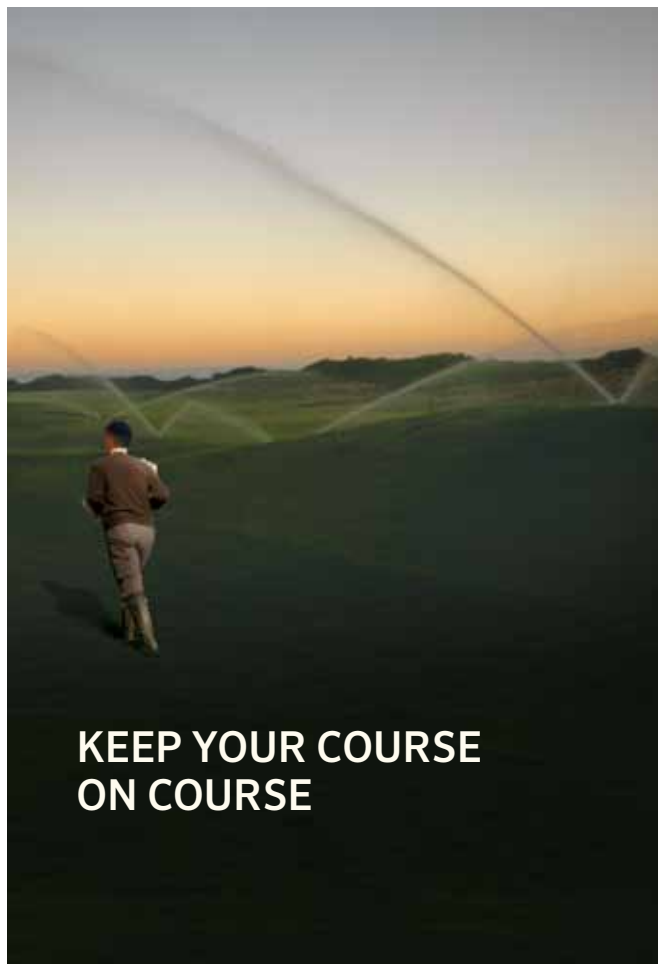
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Utility and dedicated sprayers to suit budgets and demands

If you are looking to buy a sprayer, your initial choices may seem somewhat daunting. For most, however, a few key decisions can pretty much determine the main types of sprayer to consider, writes James de Havilland



Take a look at the range of amenity sprayers on the market and you can soon shortlist units that are suitable for work on a golf course. Key requirements include stability, a low boom operating height and a low ground bearing pressure.

Dedicated sprayers are also becoming a more popular choice for golf courses. Designed around a purpose developed chassis, dedicated sprayers are built just to spray and are ready for work pretty much as soon as they are filled and the booms unfolded.

Smithco from Ransomes Jacobsen

The Smithco Spray Star range of self-propelled sprayers is marketed throughout Europe by Ransomes Jacobsen, with the Spray Star 1000 targeting those looking for a manoeuvrable, lightweight sprayer. With a boom width of 4.5 metres it should deliver decent productivity too. Power comes from a 25 hp (19 kW) twin-cylinder petrol engine with traction power to the rear wheels.

Offering a travel speed of up to 20 km/h, the Spray Star is fitted with an elliptical 416 litres tank made

from cross-linked polyethylene with UV inhibitors to prevent degradation. Filling access is via a 41cm diameter hinged lid with nylon debris strainer basket. Tasked with tank agitation for even chemical distribution is via what Smithco describes as its 'Quadra-Jet' four venturi system. Agitation is an important aspect of sprayer design, some powders needing quite a bit of work to ensure they are thoroughly mixed prior to starting spraying.

Application rates can vary between 38-265 litres per minute with pressures ranging from 0.7-7.0bar and delivering anything between 180-2,050 litres per hectare. Productivity is put at 2.6 hectares per hour at 5.6 km/h. Users suggests 18 greens can be sprayed in well under 3 hours, this including the time taken to do a clean tank wash.

Spray control systems offered can cover fully automatic through to basic manual operation with boom types include a design with ground contour following wheels. Options and accessories include a choice of 12-volt electric or hydraulic boom lift, an electrically-operated foam marker system and clear water wash tank.

Built on the same platform, the

Spray Star 1000e drops petrol power in favour of solid-state 48-volt electric power. This model eliminates the chance of hydraulic fluid leaks and is also extremely quiet – a plus for those who wish to exploit still mornings for spraying. Features include positive ground speed control for the vehicle speed while spraying, a Raven SCS440 computerized spray control system coming as part of the package.

The next model up is the mid-size Spray Star 1750 which is claimed to be the only hydrostatic-drive model in its class. Fitted again with an elliptical polyethylene tank, the 1750 boasts a higher 662 litre capacity. Power comes from a 34hp (25.5 kW) three cylinder diesel engine.

Despite its higher capacity, the Spray Star 1750 has a ground bearing pressure of approximately 0.7 bar, hydraulic power steering easing manoeuvrability. The spray pump is a stainless steel centrifugal design equipped with a low volume warning horn and automatic air bleed. A choice of a Raven SCS440 computerised rate controller is offered, the sprayer having an electrical boom and pressure control system as standard. Simple manual boom and pressure control is the third choice.



INSET ABOVE: Spray Star sprayers are filled via 41cm diameter hinged lid.

MAIN ABOVE: Dave Callanan of Beech Park Golf Club uses a Smithco Spray Star 1000 and suggests he can spray 18 greens in around 2½ hours. Small, dedicated sprayers are ideal for those seeking to exploit spraying 'windows' quickly.



The Toro MultiPro 5800-D clearly illustrates how a dedicated sprayer differs from a demount alternative, doing away with the need for a demount structure reducing weight. Powered by a 35.5hp (26.5kw) Kubota diesel, the sprayer is fitted with Toro's Pro Control XP spray console

Wide choice from Toro

The Toro MultiPro 5800-D clearly illustrates how a dedicated sprayer differs from a demount alternative, doing away with the need for a demount structure reducing weight. Powered by a 35.5hp (26.5kw) Kubota diesel, the sprayer is fitted with Toro's Pro Control XP spray console.

The sprayer choice offered by Toro includes units designed to fit both its own Workman utility vehicle - as well as alternative makes - and a unit that will also mount on a trailer.

Among its more established designs is the Workman 200 Sprayer with a 757litre tank. Although it is a fully integrated fit to the Workman, the sprayer 'skid' mounts via an easy on/off system that is claimed to allow the unit to be fitted or removed in 20 minutes.

The aim is to have all the advantages of a dedicated design with the ability to free up the Workman for other work if required.

Equipped with a 5.6m boom, features include a mechanically-driven controller that is designed to automatically maintain the set application rate over varied

terrain and also accommodate variations in speed.

Toro has entered the dedicated sprayer market with its recently launched 1,136litre capacity MultiPro 5800-D. Powered by a 35.5hp (26.5kw) Kubota diesel, the sprayer is fitted with Toro's Pro Control XP spray console.

This is designed to provide an instant response to changes in the sprayers speed for greater application accuracy.

The sprayer is fitted with an exclusive six-diaphragm pump - claimed as an industry first - that offers twice the flow of more conventional designs to meet an increasing demand for high spray rates.

The sprayer also features a 'Cleanload Eductor' chemical induction system and an automated fresh water rinse system.

The standard 5.6m boom can be equipped with a lightweight Drift Reduction Boom Shroud.

This extends 30.5cm below the boom to minimise chemical drift. A further option includes an Ultra Sonic Boom Leveling System, which automatically adjusts the boom to the correct spraying height in undulating turf conditions.

Rounding off the company's line-up is the MultiPro 1250, a dedicated turf sprayer styled on Toro's Workman utility vehicle. Fitted with a 662litre tank, the machine is powered by a 20hp/15kW Kohler petrol engine and features a proportional drive spray-control system.

This adjusts the application rate in proportion to changes in vehicle speed. An optional enclosed boom is available.

BELOW: British made Team Sprayers are offered in a choice of demount designs and can be supplied with a range of standard or shrouded booms. Note the clean water tank for hand washing and induction hopper on pictured unit.



How a sprayer sits on the chassis of a utility vehicle can have a noticeable impact upon its centre of gravity. John Deere HD200 SelectSpray low profile sprayers are a good example, keeping weight low helping when traversing slopes.



Hardi Boss range demount models are offered with a wide specification choice, as well as models tailored to fit a range of utility vehicles. It is cheaper to specify what you want from the outset as opposed to upgrading to more advanced features at a later date.



The level of break back protection and contour following offered by booms varies. Wheels are designed to push the boom up if the terrain alters, but not run on the ground. Booms that break back in reverse as well as direction of travel help prevent damage when backing up to banks or other obstacles.



John Deere turf sprayer benefits from recent updates

The John Deere HD200 SelectSpray is an upgraded version of the company's 750-litre low profile sprayer first introduced in 2003. The HD200 can be specced with a choice of centrifugal or diaphragm pumps, manual or automatic rate controls and a range of boom options – the latter now come with electro-hydraulic boom lift and lower as standard. A common wiring harness is standard for all specifications, allowing the control system to be changed easily if required at a later date.

A CleanLoad chemical induction system is an option, the standard jet agitator ensuring the tank solution is mixed thoroughly. An integral tank wash system is also standard.

Designed as an attachment for John Deere's established 24hp ProGator utility vehicle, the 757 litre HD200 can be easily and quickly removed without tools. An optional storage stand incorporates wheels so that the demounted sprayer

can be moved around in a shed for storage and wheeled out for re-attaching. The HD200 utilises the whole of the ProGator's load space to provide a low centre of gravity for stability. The design also provides the operator with good visibility.

All booms options have standard triple nozzle bodies and are offered in 5.5m or three-way folding 4.6/6.4m sizes. A bi-directional safety breakaway system is standard.

The boom operates at up to 50cm above ground level and at ground speeds of up to 16km/hr. Individual boom sections can be selected as required, and boom height can be adjusted manually if necessary. The sprayer also comes as standard with a throttling valve to deliver constant pressure no matter how many boom sections are operating at any one time.

In addition to the main tank, the sprayer features a 75 litre rinse tank, operator clean water tank and clothing boxes, plus foam marker and chemical tanks. Options include a 60m hose reel and spray gun.



Gambetti UK continues to hone its products to match the specific needs of golf courses. As an example, it has improved the Windfoil boom for tighter ground contour hugging on both positive and negative contours, made it height adjustable to cope with greens, fairways and semi rough and also added more clearance around the nozzles to avoid run off from the covers. Gambetti also offers BRAVO 180 sprayer rate controllers customised for use with golf course sprayers. The operator can select up to 5 different spray rates at the touch of only 2 buttons. The display shows application rate and speed.