

NEXT GENERATION DRINKING WATER RADIATION SAFETY MONITOR

下一代饮用水安全监测器

Model ~ NEXGEN-SSS

FREQUENTLY ASKED QUESTIONS: 常见问题

Question: Since the scintillation material is inside the cell and contacts the water sample directly, is it OK to measure drink water by this way?

问题: 因为闪烁体材料在流室内直接接触水样, 是否可以用此方法测量饮用水?

What is done when contaminated water goes through? Does this mean when it is contaminated and background rises, then the whole detector should be replaced by a new one? Could customer replace by themselves on site, or a technician from your factory should travel to do this job?

如果污染水流过该怎么办? 是不是被污染后本底则升高然后整个探测器应该更换新的? 用户是否可以自己现场更换, 还是要工厂技术人员来现场处理?

~~~~~  
You are correct, flow through style detectors can be subject to contamination.

是的, 流室式探测器容易受到污染影响。

**Two points to consider (1) how susceptible is the Alpha flow cell to contamination and (2) how difficult is the corrective action.**

两点考虑 1.  $\alpha$  流室有多易受污染 2. 去污有多难

**(1) Susceptibility when measuring drinking water with possible low level contamination.**

当测量可能低水平污染的饮用水时

Please note that the NexGen-SSS system has particulate pre-filters that remove particulates from the water sample stream, so the Alpha emitters that flow through the Alpha detector are either dissolved (liquid phase) materials or else extremely fine (small) particles. Neither of these is likely to adhere to the scintillator material or the inner surfaces of the flow cell or to become trapped in the flow cell.

As you say, if over time, large amounts of Alpha emitters flow through the cell, the background level in the cell can increase enough to require detector replacement.

请注意 NexGen-SSS 有前过滤装置滤除水样中的颗粒物, 因此流经  $\alpha$  探测器的  $\alpha$  发射体要么是溶解了物质 (液态) 要么是极其微小的微粒, 这两种情况都不可能对闪烁体材料或者流室壁表面产生附着或者滞留在流室里。

正如您讲的, 随着时间推移, 大量  $\alpha$  发射体流经流室, 流室内的本底可能会增加到需要更换探测器程度。

**(2) Alpha Detector assembly replacement**

$\alpha$  探头组件更换

Removal of the Alpha Detector assembly requires disconnection of two hoses, two quick disconnect (BNC) cables, four mounting bolts, draining or blowing out residual water and that is all. A fairly simple process.

更换  $\alpha$  探头组件需要断开两根管子, 两根快速断开线缆, 四个安装螺丝, 排净或吹扫净残留水, 就这些而已, 非常简单过程。



**TECHNICAL ASSOCIATES  
OVERHOFF TECHNOLOGY**

7051 Eton Ave., Canoga Park, CA 91303  
818-883-7043 (Phone) 818-883-6103 (Fax)

[tagold@nwc.net](mailto:tagold@nwc.net)

[WWW.TECH-ASSOCIATES.COM](http://WWW.TECH-ASSOCIATES.COM)

Divisions of



US NUCLEAR CORP

# NEXT GENERATION DRINKING WATER RADIATION SAFETY MONITOR

## 下一代饮用水安全监测器

Model ~ NEXGEN-SSS

**(3) The old detector can be returned to TA for a trade-in allowance or to be refurbished and returned to the user as a back-up detector, if desired.**

旧的探测器可返回工厂折价或翻新后返回用户作为备用探头。

However if one or more NexGen-SSS will be used in a laboratory that handles high levels of Alpha emitters and thus possibly requiring frequent replacement or decontamination; then please let us know. Our engineering department can explore any appropriate design changes.

然而，如果 NexGen-SSS 用于实验室处理高浓度  $\alpha$  发射体，则需要经常更换或去污，也请通知我们，我们工程部可进行合适的设计改动。

.....

### **Question: About the Detectors**

#### **问题：关于探测器**

#### **1. Alpha Detector Does Not Use a Particulate filter cartridge**

$\alpha$  探测器无颗粒过滤盒

**ALPHA:**The NexGen-SSS Alpha Detector is a flow-through Alpha detection cell there is NO Alpha particulate filter to replace.

此系统探头为流过式  $\alpha$  探测室，无  $\alpha$  颗粒过滤器需要更换

#### **2. There are two Beta detectors 两个 $\beta$ 探测器**

**BETA-1:** The NexGen-SSS main Beta Detector is a flow-through Beta detection cell with NO Beta particulate filter to replace.

$\beta$  探头-1: NexGen-SSS主  $\beta$  探头为流过式  $\beta$  探测室，无  $\beta$  颗粒物过滤器更换

**BETA-2:** The Detector labeled "Particulate Filters" also measures ENERGETIC Betas. This detector does use a filter.

$\beta$  探头-2: 探头标出“颗粒过滤”，测量高能  $\beta$ ，此探头需要过滤器

#### **3. PAG Level 保护行动指南值**

The NexGen-SSS detector and software easily allows simultaneous display and records in 30 minute, 24 hour and 48 hour (or longer) readings for EACH detector.

此系统探头和软件可以同时显示和记录每个探头30分钟，24小时，48小时（或更长时间）读数。

### **Question: Concerning long and short counting periods for radiation measurement for the purpose of detecting extremely low contamination levels:**

#### **问题：关于测量极低污染水平的长时和短时辐射**

Unlike measurement in many other fields that use analog sensors, radiation measurement consists of detecting, recording and analyzing a series of distinct pulses. This is why radiation measurement is often referred to as "counting."

不像使用模拟传感器其它领域测量，辐射测量包括探测、记录和分析一系列显著脉冲，这也是为什么辐射测量经常指“计数”。



**TECHNICAL ASSOCIATES  
OVERHOFF TECHNOLOGY**

Divisions of



US NUCLEAR CORP

7051 Eton Ave., Canoga Park, CA 91303  
818-883-7043 (Phone) 818-883-6103 (Fax)

[tagold@nwc.net](mailto:tagold@nwc.net)

[WWW.TECH-ASSOCIATES.COM](http://WWW.TECH-ASSOCIATES.COM)

# NEXT GENERATION DRINKING WATER RADIATION SAFETY MONITOR

## 下一代饮用水安全监测器

Model ~ NEXGEN-SSS

The pulses we are interested in come from decay of a single radioactive atom in the water sample stream. Of course there are other pulses as well, that come from detector or circuit noise or from external radioactive materials.

我们感兴趣的脉冲由水流中单个辐射原子衰变产生，当然这其中还有其它由探测器本身或电路或外部辐射物质产生的脉冲。

The fact that we are counting pulses allows us to do statistical analysis and greatly improve our low end sensitivity, especially when we count for longer and longer periods.

我们计数进行统计分析，这极大地提高了探测下限，尤其当我们进行长时间计数的话。

Prior to computers and smart software, a water sample might be placed in a dish, and allowed to evaporate. Then the remaining solids were manually placed in drawer under a detector for one day, seven days or even longer.

在计算机和智能软件问世之前，我们把水样放在圆盘上蒸发，剩下的固体物手动放在抽屉里在探头下照射一天，几天甚至更长时间。

The total counts were added up, and sometimes this process was repeated for another week etc. In this case the user had no information until the count was completed, a very frustrating, inefficient, time wasting and, depending on lab fees, costly process.

总计数加起来，有时这个过程再重复一周等等，这种情况下用户等到计数结束才有信息，这是一种非常令人沮丧，低效，费时而且非常昂贵的（视实验室费用而定）事情。

But now we have computers and smart programmers and we can do better. When water flows through a detector in the NexGen-SSS each pulse is recorded into multiple buffers that simultaneously count the pulses for different time periods.

有了计算机和智能软件我们能更好地完成任务。水流流过 NEXGen-SSS 探测器，每个脉冲都被记录到多个缓冲区，对不同时段进行脉冲计数。

The user can set these as he pleases, to 2 minutes, 1 hour, and 24 hours OR to 30 minutes, 24 hrs and 48 hrs OR other count times of their choice. The result is that the user gets a quick warning in case of high levels and also achieves excellent low end sensitivity over longer count times.

用户可根据喜好设定到 2 分钟，1 小时，24 小时或 30 分钟，24 小时和 48 小时或其它时间。结果是如果辐射水平高，用户会快速得到警告；而且通过长时计数仪器可测到极低限

The on-screen display allows the user to view both the immediate count rate and the long term average which gives more and more precise value for the concentration of radioactivity in the water as each minute and each passes.

屏显允许用户立即看到计数率和长期平均计数，随着每分钟流过活度浓度测量值越来越精确。

.....



**TECHNICAL ASSOCIATES  
OVERHOFF TECHNOLOGY**

Divisions of



US NUCLEAR CORP

7051 Eton Ave., Canoga Park, CA 91303  
818-883-7043 (Phone) 818-883-6103 (Fax)

[tagold@nwc.net](mailto:tagold@nwc.net)

[WWW.TECH-ASSOCIATES.COM](http://WWW.TECH-ASSOCIATES.COM)