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SURVEY PROGRAM FOR BETA/GAMMA CONTAMINATION

The Survey Program for Beta/Gamma Contamination will be used for beta/gamma surveys of personnel and equipment ~~exiting restricted prior to entering unrestricted~~ areas at the Crow Butte facility to meet the requirements of 10 ~~CPR~~CFR Part 20, Subpart F. The program includes surface contamination detection capability (minimum detection concentration (MDC)) for radiation survey instruments, including scan MDC for portable instruments, used for contamination surveys to release equipment ~~and~~ materials for unrestricted use and for personnel contamination surveys. The detection capability ~~in the scanning mode for alpha and beta radiation are in terms of dpm per 100 cm².~~

Personnel Surveys

Personnel ~~leaving a restricted~~entering an unrestricted area will be required to perform alpha and beta/gamma surveys ~~and as well as~~ record the results and sign the survey logs. ~~To eliminate the possibility of attenuated alpha particles from the scanning of wet boots, boot wash stations will not be utilized immediately prior to exiting the area performing radiological monitoring.~~ At a minimum the hands and soles of the boots/shoes will be surveyed. ~~The release limit for personnel scanning will be 1000 dpm/100 cm² for alpha and beta/gamma radiation. Scanning stations will be posted with the limit in terms of either the total counts allowed in specified time and/or count rate, depending on the available meter. The limits will be established based on routine background measurements taken at the scanning stations. If a reading above the limit occurs, decontamination and resurveying will be required along with notification to the RSO. Surveys of personnel will generally be performed using scalar, or integrated, counting instead of scanning.~~

The requirements to be free of visible uranium ~~and to meet the limit for alpha contamination~~ prior to leaving the restricted area will reduce the potential for the spread of contamination outside of the restricted area. The monitoring will consist of ~~a visual~~an examination to detect any visible yellowcake ~~and an alpha meter survey to ensure that any suspected contamination is below the acceptable limits. To eliminate the possibility of attenuated alpha particles from the scanning of wet boots, boot wash stations will not be utilized prior to exiting the restricted areas.~~

All contamination on skin and clothing is considered removable,

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~~so therefor~~ the limit of 1,000 dpm/100cm² is applied to personnel monitoring. If this limit is exceeded, personnel must decontaminate their skin and/or clothing and repeat the ~~alpha~~ survey along with RSO notification. As stated in Regulatory Guide 8.30, if the action level is exceeded, the RSO will perform an investigation of the cause of the contamination and take corrective action if appropriate. Survey stations will be posted with the limit in terms of either the total counts or disintegrations per minute allowed in specified time and/or count rate, depending on the available meter. The limits will be established based on routine background measurements taken at the survey stations. Surveys of personnel will generally be performed using scalar, or integrated, counting instead of scanning.

Personnel must complete the beta/gamma scanning process and be below the limit of

1000 dpm/100 cm² before entering an unrestricted area such as the office areas, eating areas, or leaving the site. ~~If the background beta/gamma count rate exceeds the allowed values, personnel will be required to pass the 1000 dpm/100 cm² limit for alpha contamination and then move to a lower background area within the controlled area to monitor for beta/gamma radiation.~~

Material & Equipment Surveys for Unrestricted Use

For materials and equipment being released for unrestricted use, Regulatory Guide 8.30 indicates the removable release limit is 1000 dpm/100cm², the average total activity limit is 5000 dpm/100cm² and the total maximum activity limit is 15,000 dpm/100 cm². Using the previously mentioned assumptions, if the background levels for beta/gamma reach 3450 counts in 5 minutes or 500 counts in 1 minute, this will result in MDCs of 745 dpm/100cm² and 741 dpm/100cm² respectively. ~~—If this background count rate is exceeded then smears will be required in order to release the equipment, as per existing site procedure, or the equipment will need to be moved to a lower background area within the controlled area for surveying. If contamination levels exceed 750 dpm/100cm², an alpha smear will be required. Prior to leaving the restricted zone, the equipment must meet the alpha release limits outlined in Regulatory Guide 8.30.~~

Surveys of materials and equipment will be performed by the RSO or a qualified HPT. Equipment must meet the limits for ~~both alpha and beta~~ contamination ~~prior to being assigned~~ before entering a controlled release status area (controlled area is described in more detail below).

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Controlled -Area

In circumstances ~~were materials and equipment are moved from a restricted area and where~~ the ~~background count rate~~MDC is exceeded ~~within the restricted area~~, the materials and equipment will ~~need to be moved~~transported to a low background area within the controlled area and surveyed for ~~free release~~unrestricted use. The ~~free release~~ surveys for unrestricted use will be conducted in areas immediately adjacent to the Central Processing Plant, ~~R-ORO~~. Building and Maintenance Building. No materials or equipment that have not been surveyed for ~~free release~~unrestricted use will be allowed to be stored in the controlled area.

~~Personnel leaving a~~ If equipment is moving from one restricted area ~~will beto~~ another through the controlled area, it must meet the alpha limits outlined in Regulatory Guide 8.30 prior to leaving the first restricted area.

Personnel are required to perform alpha and beta/gamma surveys ~~and as well as~~ record and sign the logs prior to ~~exiting the~~entering an unrestricted area. If personnel are required to move through the controlled area to perform the required survey after exiting the restricted area, they may not enter into the office area, lunchroom or their personal vehicles prior to performing the alpha and beta/gamma surveys.