

Anomaly in Borehole 30-08-02
RG McCain 9/17/2002

On September 11, 2002, RAS logging in borehole 30-08-02 (C Tank Farm) detected a possible anomaly which may indicate recent contaminant migration. A repeat log run with the RAS was made on September 12, yielding the same result. Attached are copies of the total gamma logs for the SGLS baseline data (3/18/97) and the RAS large detector. The first plot shows a side-by-side plot. The second plot shows the SGLS total counts scaled to provide values comparable to the RAS response. Comparison of the two logs indicates an increase in gamma activity at approximately 47 to 61 ft, and also at 67 to 75 ft. Evaluation of window counts and RAS spectra indicate the primary source of the anomaly is ^{60}Co .

SGLS baseline data for 30-08-02 (March, 1997) indicate ^{137}Cs and ^{154}Eu occurring at approximately 21 ft, with maximum concentrations of about 1000 pCi/g ^{137}Cs and about 20 pCi/g ^{154}Eu . ^{60}Co is detected from 46.5 to 79.5 ft, with a maximum concentration of approximately 10 pCi/g at 61 ft.

The 241-C Tank Farm Addendum shows a ^{60}Co plume originating between tanks C-108 and C-109, and extending downward and eastward. This plume is attributed to the cascade line between C-108 and C-109. The evidence of movement previously observed in borehole 30-06-10 (ref MACTEC letter to John Silko, Mar 10, 1999) appears to be part of the same contaminant plume. The presence of anomalies in both 30-08-02 and 30-06-10 suggests active contaminant migration may be occurring in a plume originating between C-108 and C-109, and extending downward and eastward under tank C-106. Although the plume does not appear to originate from C-106, it could impact the accelerated closure program.

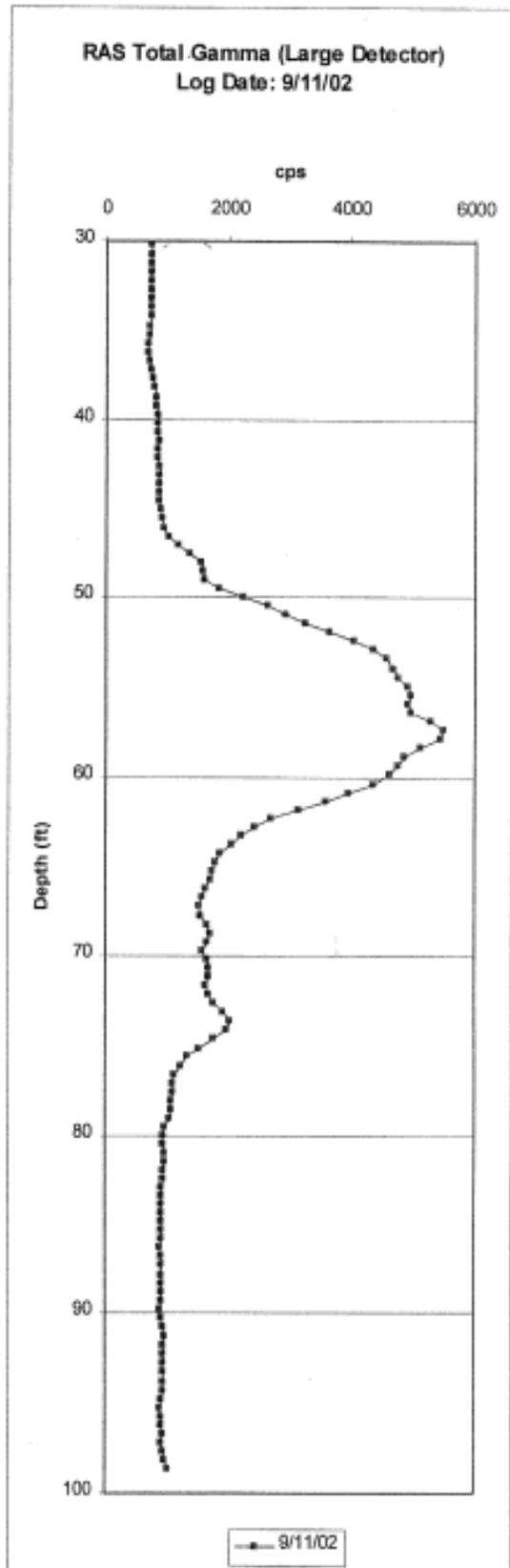
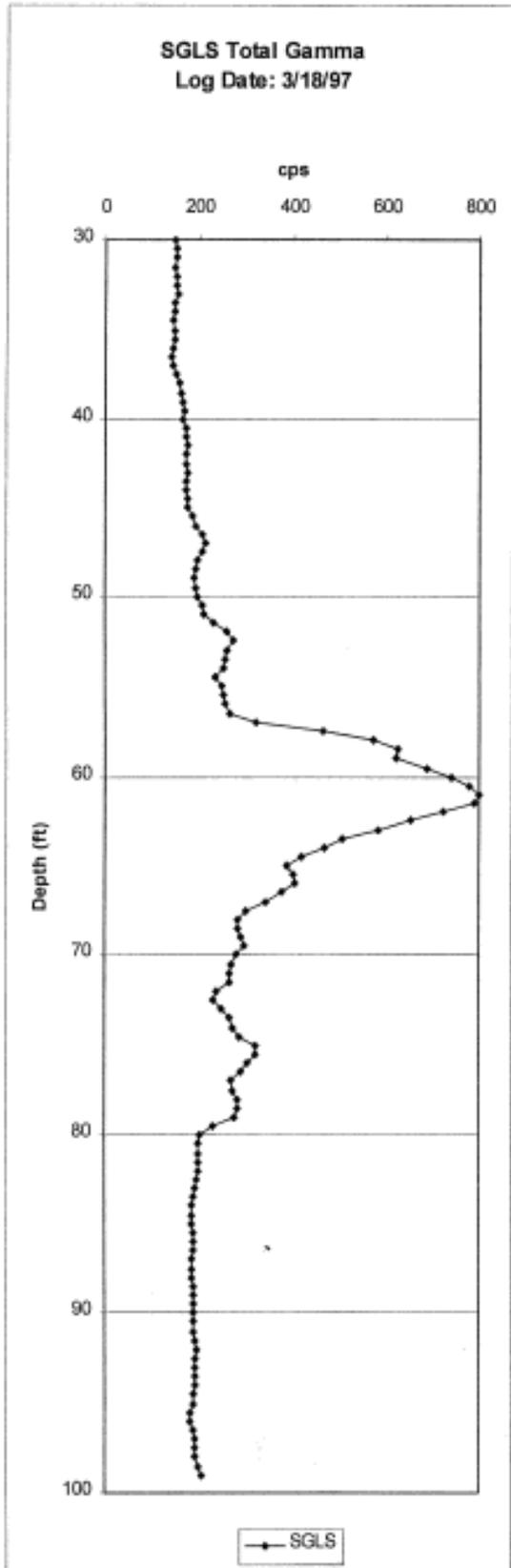
There are two drywells between 30-08-02 and 30-06-10. 30-09-07 was also logged with the RAS on September 11. Comparison of this data with 1997 SGLS baseline data indicate a possible anomaly at 68 to 80 ft. This is more subtle, and was not noticed in the initial comparison. Borehole 30-09-06 was logged with the RAS on April 23, 2002. Comparison with 1997 SGLS baseline data does not indicate any anomaly, although the presence of equivalent total count rate at 77 to 86 ft is suspicious, since the primary contaminant in this interval is ^{60}Co , with a half life of 5.27 years.

According to Hanlon (June 31, 2002), both C-108 and C-109 are designated as sound. Interim stabilization for C-108 was completed in March, 1984, and C-109 was interim stabilized in November, 1983. Both tanks are listed as "administratively stabilized." C-108 is reported to contain 66 Kgal sludge, and C-109 is reported to contain 63 Kgal sludge. Both tanks are reported to contain 4 Kgal drainable interstitial liquid.

Historical gross gamma data from 30-08-02 suggest a similar episode of contaminant movement may have occurred between 1980 and 1985.

Stoller is continuing to evaluate available data, and will develop recommendations for additional work.

Borehole 30-08-02



30-08-02 RAS vs SGLS (Total Cts)

