

OCT 02 1985

SHEFFIELD TRIP REPORT

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 JShaffner
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WM Project
 Docket No. 27-39
 PDR
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MEMORANDUM FOR: Malcolm Knapp, Chief
 Geotechnical Branch
 Division of Waste Management

FROM: Richard Lee, Project Manager
 Geology/Geophysics Section
 Geotechnical Branch

Distribution:

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SUBJECT: TRIP REPORT: SHEFFIELD LLW FACILITY, SEPTEMBER 18-19, 1985

The purpose of this trip was to visit the LLW disposal facility at Sheffield, IL, to observe features of the facility, and to observe groundwater monitoring activities being conducted by Oak Ridge National Laboratory staff. NRC trip participants include Jim Shaffner, Dan Goode, and Richard Lee. Persons contacted at the site include: Mark Bowen, Patrick Seger, and Doug Long from U.S. Ecology, Melanie Hamel and Bob Williamson from Illinois Department of Nuclear Safety, Dick Ketelle, Keith Brown, and Kenny Edwards from Oak Ridge National Laboratory, and Dayne Brown from North Carolina Department of Radiation Safety.

Jim Shaffner and I arrived at the Sheffield site about noon on September 18. We first visited the Illinois State Geological Survey (ISGS) prototype trench study location south of the site. We were met there by a ISGS staff member who was monitoring and servicing the various tensiometers and neutron probes inserted into each of the four trench prototypes that comprise the study. Only background data is being obtained at this time due to the dry weather conditions of the last few months, but infiltration data is expected to be obtained when the fall rains begin.

Next, we walked the western shore of the strip mine spoil lake to the east of the site. The purpose was to have a look at reported outcrops of the "pebbly sand" of the Toulon Member of the Glasford Formation which is suspected to be the principle unit through which tritium is migrating from the site. We found nothing that resembled the written descriptions of that unit or that could be considered to resemble the "pebbly sand". It appears to me that all of that material has been disturbed and displaced during past strip mining activities. There appears, at this time, to be little regulatory importance in not seeing the "pebbly sand", despite some disappointment in not seeing it.

Later that afternoon, we toured the facility with the U.S. Ecology site manager, Mark Bowen, and Dayne Brown of the state of North Carolina. The site was largely well-vegetated and mowed. Isolated areas of non-vegetation are present on some trenches where, we were told, areas of recent subsidence had

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been filled. Although seeded, those areas have not yet developed a vegetative cover. Some minor rill erosion is evidenced, especially on the north face of Trench 14A (see NUREG/CR-1759, Vol. 1, for location of Trench 14A). Animal burrows were seen in isolated areas on the trench tops and sides. There may be a correlation between burrow locations and locations of minor surface cracking, but at this time this does not appear to be a matter of great regulatory importance.

Throughout that day and portions of the following morning, we observed the monitoring well sampling process being conducted by Oak Ridge National Laboratory under the direction of Dan Goode. Although the physical process of sampling appeared tedious and exhaustive, it appeared that satisfactory samples were being obtained.

On the morning of the 19th, Mark Bowen took us through the USGS tunnel on the south end of the site. The tunnel is a corrugated metal pipe with a large number of sampling instruments positioned in various places throughout its length. Since the tunnel is completely contained, there is no possible access to the material surrounding it beneath the site and, subsequently, no observational information was obtained about that material. Information obtained from the tunnel is, thus, constrained by the resolution of the instrumentation.

As with my trip to the Beatty, NV site, the U.S. Ecology staff at the Sheffield site were courteous, helpful, and professional. They appear to be sincere in their efforts to run a tight ship.

Richard Lee, Project Manager
Geology/Geophysics Section
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