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SANDIA NATIONAL LABORATORIES
Albuquerque, NM 87185
Environmental Restoration Project Fax Sheet

Date: 2/20/98

To: Will Moats **Pages to Follow** ____

Org: NMED **Fax Nr:** 8849254 **Verification Nr:** ____

From: Mike Young **Org:** 6134 **Mail Stop:** ____

Fax Nr: 505-284-2617 **Verification Nr:** 505-284-2595

Message: Attached is the revised SAP for 28-2 that addresses your comments on sampling.

02/20/98 16:03 ☎

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Message: Attached is the revised SAP for 28-2 that addresses your comments on sampling.

date: February 20, 1998

to: Don Schofield, MS-1126 (6131)
Ray Patteson, MS-1126 (6131)

from: Mike Young, MS-1148 (6134)

subject: ERFO Tech Support for: Perform Assessment Sampling at Mine 28-2

Sampling of the inside of the 28-2 mine has been requested by NMED. The site background and scope of the sampling are presented below.

Site History Presented in NFA Proposal:

ER Site 28-2 is located approximately 3000 feet to the southeast of 28-1, in the USFS Withdrawn Lands near the S.E. portion of KAFB. There are two horizontal adits at this site, a lower and an upper . The lower adit is described in detail in other reports and was previously posted with a radiation warning sign. It is easily accessed by a high-clearance vehicle via an unmaintained gravel road. The portal of the upper adit is located approximately 60 vertical feet above the lower adit.

NMED, KAFB, and SNL/NM personnel have entered and inspected both the lower and upper adits comprising ER Site 28-2. According to site background interviews conducted by SNL/NM ER personnel, SNL/NM staff detonated waste explosives in the lower mine adit at 28-2. This has been confirmed based on the presence of the "concrete wall and detonation cord" inside the mine as described below, as well as a follow up visit to the site with a former SNL/NM staff member who participated in these activities. The explosives were loaded into the drift (back of the mine) and detonated so that rock debris would not be thrown out the front of the mine. There have been no reports of disposal or explosive activity in the upper adit. There has been some collapse in the drift and part of the main adit, probably as a result of these detonations. The main entrance is nearly closed off with rock and soil debris, and is currently unsafe to enter.

The lower adit extends to the south-southwest to a point 50 feet from the opening before turning to the southeast for 20 feet. See Figure 1 for a detailed sketch map of the lower adit. At the turn in the adit, a drift (side tunnel or horizontal shaft) extends to the west for 30 feet and then turns to the south for a distance of 60 feet. There is a large concrete plug located 20 feet from the face of the drift. This plug nearly blocks the drift and appears to have been moved after it was placed.

There are piles of brown soil located at the entrance to the first drift, at the turn in the drift, and in front of the concrete plug. The soil behind the plug at the very back of the drift is black. It appears the soil was brought into the mine in burlap or canvas bags that have since rotted away. The yellow tape used to seal

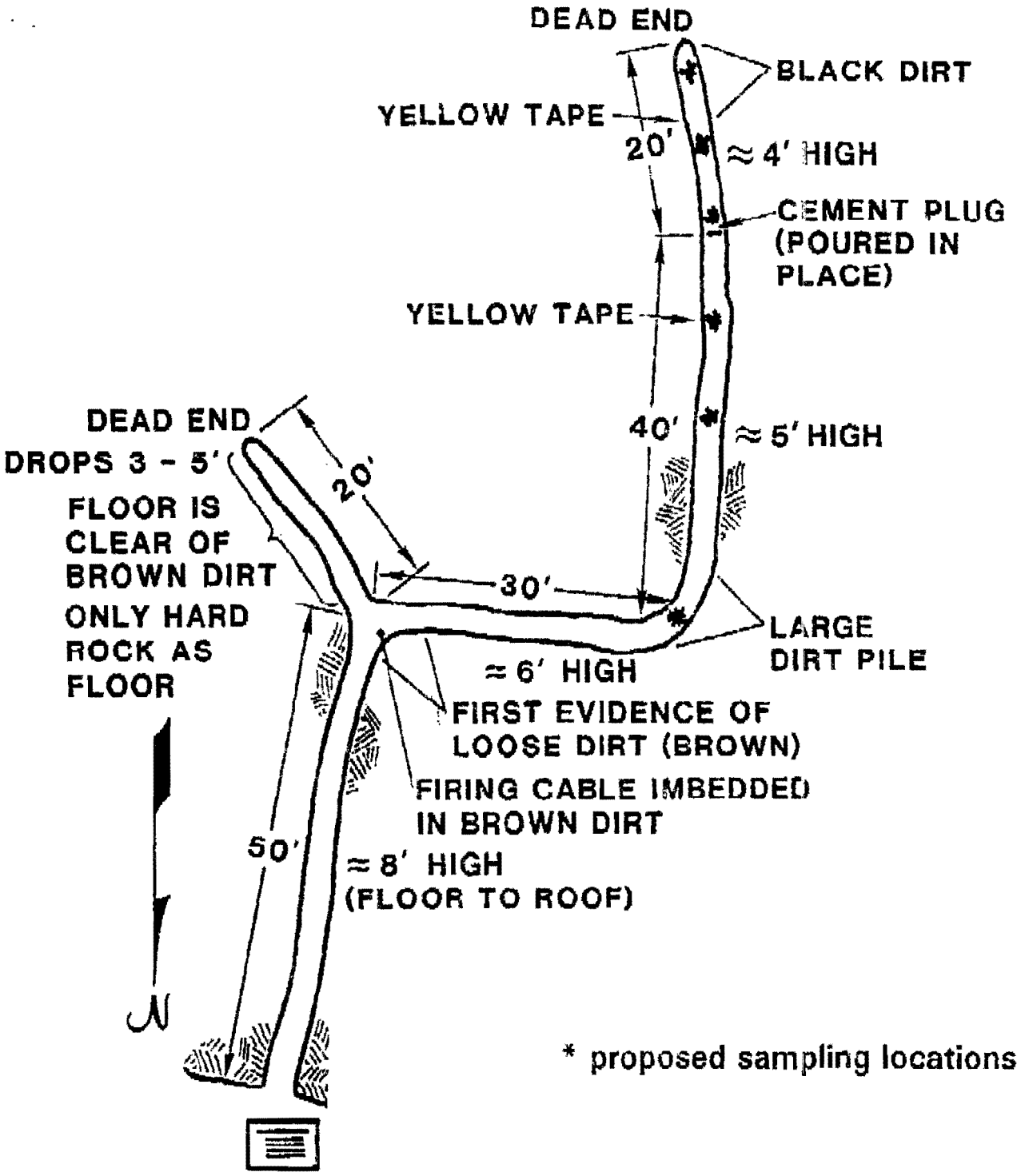

Figure 1 - Lower Adit of Mine 28-2, Proposed Sampling Locations

the bags is all that remains. It is possible, however, that the bags were cut and the soil was dumped onto the piles.

Visual evidence suggests that some type of explosive ordnance test(s) was conducted in this mine. The concrete plug probably acted as a Klotz device to attenuate the gas pressure and shock waves from detonations, as did the piles of soil. Two-conductor black detonation cable is visible protruding from the first soil pile. The radiation hazard sign previously posted at the portal has been removed since radiation surveys in the mine indicate no radiation levels above background.

This upper adit extends to the south for 15 feet and then turns to the southeast for 15 feet. A short (< two ft.) drift extends to the south four feet from the adit face. Another short drift extends to the southwest from just beyond the portal. There is a 1.5-inch-diameter pipe protruding from the portal that was apparently used for draining water. Mud and green vegetation in the adit opening indicate that water is sometimes present, apparently from surface water running into the opening. Although a section of two-conductor black detonation wire was observed on the slope below this adit, there is no indication of any post-mining activity. What remains of an abandoned road continues up the south side of the canyon to the east for a distance of approximately 1,800 feet, where it crosses to the north side, continuing up-slope for 400 feet. The road dead ends at a leveled pad of unknown origin or use.

Current Sampling Requirements:

Assessment sampling of the residue/soil in the lower adit of the 28-2 mine is scheduled to take place on April 7th or 8th, 1998. The entry team will consist of Ed Mignardot, Mike Young and Dick Fate. The space has been deemed a non-permit required confined space based on :

1. The atmosphere will be monitored by the MSHA inspector before sampling team entry.
2. There appears to be air flow through the mine based on smoke tubes.
3. Regulatory agency personnel have been in the mine 4 times in recent history.
4. The MSHA inspector will determine that there is no danger of engulfment or no entry will be allowed.

Thus, there is no hazard remaining that would make this a permit required confined space. This interpretation was first proposed by SNL IH/Safety personnel and later concurred with by IT health and safety personnel. The work will be done following IT confined space entry protocols but will not be under permit. Dave Biswell (IT) will be the confined space entry attendant/supervisor. He will supervise the entry. FRFO will provide one tech to handle setting up the exclusion zone and area, sample labeling, equipment preparation, chain of custody and sample transport.

Six residue/soil samples will be collected from residue/soil on the floor of the mine and possibly one sample from the brown cement-like material adhering to the walls and ceiling. The latter sample will only be taken if the material can be easily removed. Although the sampling locations will be determined by the entry team; conceptually, samples will be taken at: the material from the large dirt pile at the second right angle turn, the 20 feet in-front of the concrete block, the material on the wall/ceiling that had the yellow tape imbedded in it, and the residue/soil at three locations behind the block (if access is deemed safe) (see Figure 1). Samples will be taken of the residue on the surface only (if present), not the underlying soil. All samples will be collected at the first depth where sufficient material exists to sample (see Table 1 associated analytes and QA samples).

Table 1. Summary of Sample Numbers, QA Samples, and Analytes Required for Soil Sampling at, ER Site 28-2

Site 28-2 Feature	Sample No./QA Sample		Environmental Restoration Field Office/COC No.[1]	Analyte
Residue/Soil	1	Offsite (GEL) analysis		TAL Metals, HE, gross alpha and gross beta, and Gamma Spec[2]
	2			
	3			
	4			
	5			
	6			
	7 excavation verification			
	8 excavation verification			
	9 excavation verification			
	10 excavation verification			
	11 equipment rinsate			
	12 duplicate of sample # 4			

[1]Chain-of Custody/SMO number to be filled out by ERFO personnel while collecting the sample.
[2]Gamma Spec samples will be analyzed on-site.

Post-Sampling Investigation

A metal detector will be used to survey the area from the large dirt pile to the south end of the mine. Shallow excavations will also be attempted by the sampling team to address the potential for burial under the "fill" material. Rock hammer/shovel excavation will be attempted to bedrock under the fill. Actual excavation areas and extent will be determined by the sampling team during entry. Conceptualiv:

1. a trench will be excavated perpendicular to the center of the cement block, starting at the base of the block (north side) and extending out 1 foot

2. two holes will be excavated behind the block
3. a trench will be excavated at the end of the mine (south end) to document that the fill does not continue further.

Figure 2 shows the conceptual locations of the excavations.

In each case, the minimum excavation required to document the lack of burial and the depth to bedrock will be conducted. After bedrock is reached in each excavation, excess soil/fill will be removed, then the excavation photographed and videotaped. A verification sample will be taken at the bottom of each excavation

Residue/soil samples will be analyzed for TAL metals, HE, gross alpha and gross beta, and on-site gamma spec. In addition, if an individual sample has elevated radiation (i.e., equal to or greater than 1.3 times background level) based on field screening using a beta/gamma pancake probe, the sample will also be analyzed for isotopic uranium, thorium and Cesium. Chemical samples will be analyzed 100 percent offsite (see Table 1).

One set of QA samples shall be taken under this sampling plan, and will include an equipment rinsate and duplicate. Sample containers have been ordered through D. Salmi (SMO).

Because ER Site 28-2 is within an RMMA (although the designation is erroneous), SNL/NM RPO support will be required to screen samples, PPE and equipment for radioactivity prior to release offsite. Meters will be carried into the mine by sampling personnel. RP will determine the type(s) of meter(s) to be used. Radiological equipment shall be calibrated in accordance with SNL/NM ER FOPS, and background measurements for radioactivity shall be taken prior to sample collection.

Waste Management

Based on the results from laboratory analysis, residue/soils will be managed in accordance with the SNL/NM draft internal memorandum titled "ER Project Policy on the Management of Contaminated or Potentially Contaminated Soils within a Solid Waste Management Unit (SWMU)", dated February 12, 1997. Residue/soils will be returned to the opening of the mine without entry into the mine. Gamma spec results for will be used to release samples offsite.

Decontamination Activities

Decontamination water shall be discharged onsite (within the SWMU) as long as discharges are less than 5 gallons per day and up to a maximum of 50 gallons per week.

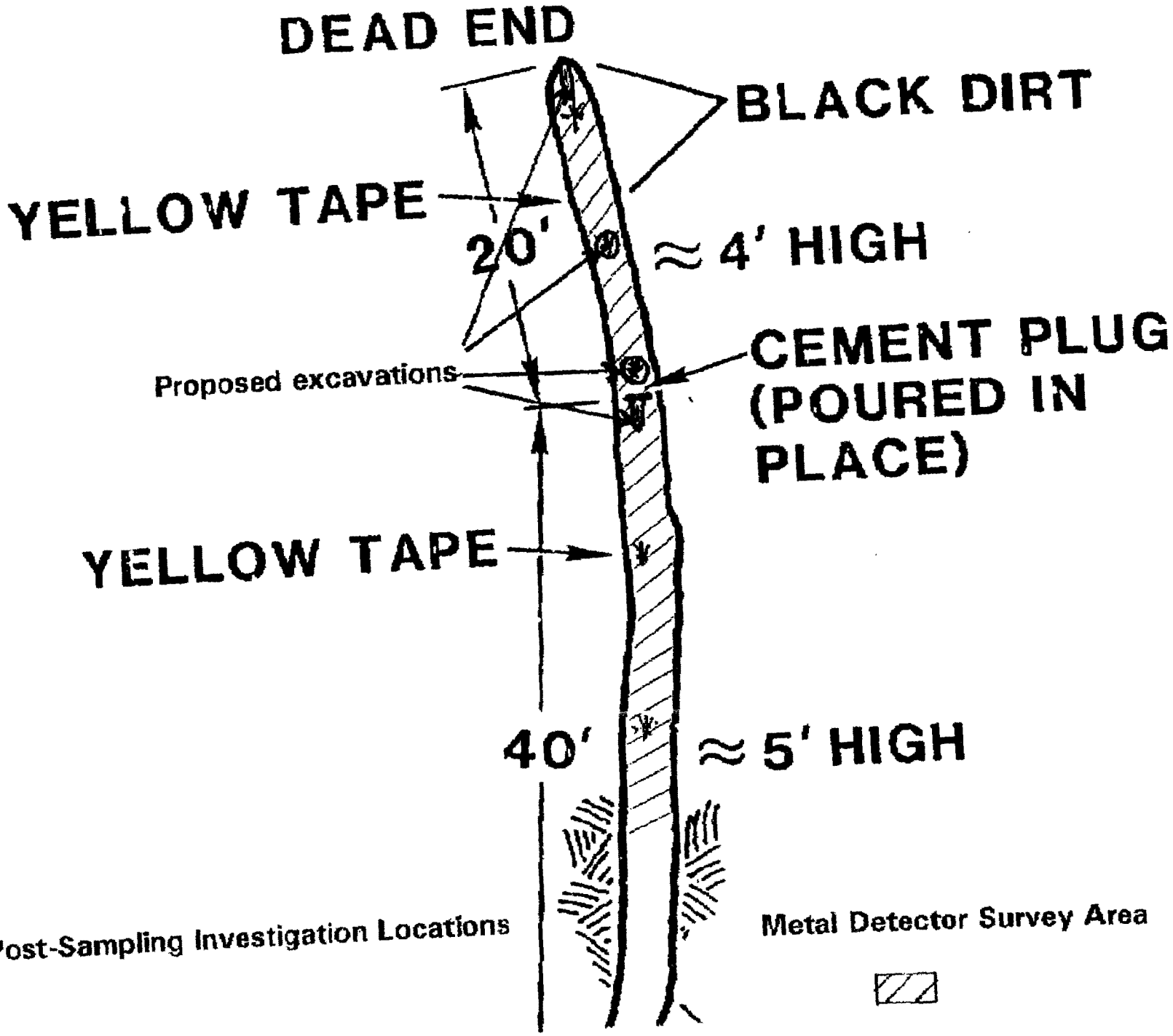

Figure 2 - Post-Sampling Investigation Locations

RMMA Requirements

Site 28-2 is situated within an RMMA; therefore, screening of samples and equipment for radioactivity prior to release offsite shall be performed. An RCT shall screen out equipment and PPE from the site. Personnel involved in intrusive activities at the site shall possess RAD Worker II training and shall screen themselves out from the exclusion zone of the site.

cc: E. Mignardot (6134)
C. Byrd (6134)
ER Records Center (ER/1332/28-2/COR)