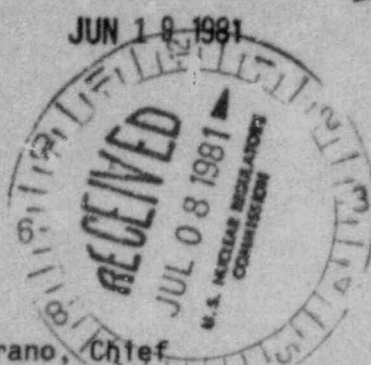


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MEMORANDUM TO: Ross A. Scarano, Chief
Uranium Recovery Licensing Branch
Waste Management Division

BPFisher

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FROM: William M. Shaffer III, Project Manager
Uranium Recovery Licensing Branch
Waste Management Division

SUBJECT: TRIP REPORT (MAY 4-8, 1981) - UMTRAP EIS SCOPING MEETINGS AND
SITE VISITS - SALT LAKE CITY, UT; TOOELE, UT; TOOELE COUNTY, UT

Background. The purposes of this trip were as listed below, all related to the DOE Uranium Mill Tailings Remedial Action Program's (UMTRAP) specific project to stabilize and dispose of the uranium mill tailings at the abandoned Vitro site in Salt Lake City, UT.

1. To provide NRC staff representation on the panel named to receive public input regarding the appropriate scope of the planned EIS identifying and evaluating alternatives for disposition of the Vitro site tailings.
2. To visit the Vitro site itself as well as the three candidate alternate tailings disposal areas currently recommended by the state of Utah to DOE.
3. To visit selected Salt Lake City vicinity properties contaminated with Vitro site tailings.
4. To provide informal NRC staff input to DOE and DOE contractor staffs over a range of UMTRAP program activities.

As described in Attachment I (April 14, 1981 DOE press release), the panel, including myself as the NRC staff representative, conducted public EIS scoping meetings on May 5 and 6, 1981 in Salt Lake City, UT and Tooele, UT respectively. On May 5, 1981, with Mr. Dane Finerfrock of the Utah Department of Health, I also visited the Vitro site and certain of the Salt Lake City vicinity properties including Fire Station No. 1 and the Central Valley Water Reclamation Facilities Board sewage treatment plant. Mr. Finerfrock then also conducted a visit to the three candidate alternate disposal areas approximately 50-75 air miles west of Salt Lake City on May 7, 1981. This latter visiting contingent included the principal representatives of Sandia National Laboratories-Albuquerque (SNLA) and Dames & Moore (D&M) who are, respectively, currently responsible for overall management of all UMTRAP planning, environmental, and technical assistance matters (SNLA), and for the preparation of the UMTRAP Salt Lake City Vitro Site EIS (D&M). The meetings and site visits also provided the vehicle

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for numerous related discussions with UMTRAP DOE and DOE contractor staffs with a view to providing informal NRC staff input to programmatic directions affecting the currently proposed Vitro site tailings disposal remedial action plan. This input is reflected throughout the remainder of this report at appropriate points.

Because of the interrelated nature of the two public meetings, site visits, and associated discussions, the remainder of this report is sectionalized on a topical basis as follows:

- A. Conduct of the Public EIS Scoping Meetings
- B. NRC Staff Input to Conduct of Future Meetings
- C. Summary of Public Input from Scoping Meetings
- D. Vitro Site Status (Including Vicinity Properties)
- E. Candidate Alternate Disposal Areas Comparison
- F. NRC Staff Input to EIS Scope (Recommendations)

Attachment I - EIS Scoping Meeting DOE Press Release

Attachment II - Map Locators

- II-1 Vitro site relation to overall metropolitan area
- II-2 Vitro site relation to local metropolitan area
- II-3 Disposal areas relation to Northern Utah
- II-4 Disposal areas relation to Salt Lake City and Tooele, UT

Attachment III - NRC Staff Summary of Individual Speaker's Statements at Scoping Meetings

Attachment IV - Writer Material Submitted by Speakers at Scoping Meetings

Attachment V - Final Draft Vitro Site RACP (April 1981)

- A. Conduct of the Public EIS Scoping Meetings

Both public meetings were lightly attended, in my opinion, considering the presumed relatively strong contradictory views of those in Salt Lake City desiring to have the Vitro site tailings removed from the Salt Lake City metropolitan area and those in Tooele County desiring to prevent the tailings from being relocated to their county. At each of the two meetings, out of a total maximum audience of approximately 25-30, only about 15-20 represented concerned citizens and groups. The remainder of those present were DOE/DOE contractor/state staff representatives. At the meeting in Salt Lake City on May 5, 1981, 7 statements were made to the panel, and in Tooele, UT on May 6, 1981, 15 statements were presented. Some of these oral statements were supported and supplemented in written form. The oral and written statements

are summarized collectively in Section C., and individually in Attachments III and IV.

The Salt Lake City meeting was conducted from 9:00 a.m. to about 1:30 p.m. At Tooele, the duration was from 9:00 a.m. to about 4:00 p.m. It is uncertain whether the response would have been heavier had the meeting times been different from the announced 9:00 a.m.-5:00 p.m. on weekdays. Several strong views were expressed by concerned citizens in both Salt Lake City and Tooele, however, that the meetings should have been scheduled at times more conducive to public participation during normal after-work hours. Both the DOE NEPA Affairs Division (NAD) and I had expressed the view to the DOE UMTRAP Project Office (PO), prior to the meetings, that later scheduling would be preferable. I reiterated this view to the panel moderator during the meetings and currently have recommended that all future UMTRAP public EIS scoping meetings be scheduled for at least the 1:00 p.m. - 9:00 p.m. time frame to encourage the fullest public participation practicable.

In addition to myself, the panel at the meetings, as described in Attachment I, consisted of:

1. Ernest C. Hardin (Panel Moderator, USAF Lt. Gen., retired)
Deputy Manager, Office for Project and Energy Programs
DOE-Albuquerque
2. Richard H. Campbell
Project Manager, UMTRAP Project Office
DOE - Albuquerque
3. Dane Finerfrock
Department of Health
State of Utah

The same format as listed below was followed at both meetings which appeared, overall, to be a logical and successful approach:

1. Introduction and background--presentation by Mr. Hardin.
2. Overview of UMTRCA/UMTRAP--presentation by Mr. Campbell.
3. Description of Remedial Action Options as defined by the Final Draft Remedial Action Concept Paper (RACP)--presentation by Mr. Mark Matthews, Lead Project Engineer, UMTRAP PO, DOE-Albuquerque.
4. Overview of NEPA process and purpose of an EIS--presentation by Mr. Melvin L. Meritt, Supervisor, Environmental Assessment Division (EAD)-SNLA.
5. Presentation of statements to panel by public.
6. Written submittal of questions to panel by public.

The content of the presentations by the panel and associated staff may be summarized as follows:

1. Introduction and Background--Mr. Hardin introduced the panel, whom they represented, and stated the purpose of the meeting, stressing that the panel was there to solicit and listen to public input regarding their concerns over the proposed Vitro site remedial action. In this context, it was noted that copies of the April 14, 1981 DOE press release and the Final Draft RACP were available at the meeting for those wishing them, and that their purpose was not only to disclose currently proposed plans, but to help stimulate a better definition of concerns and questions on the part of the public. Mr. Hardin placed particular emphasis on the point that no plans had been finalized and that in fact the meetings were being held such that the public would have an impact on formulating these plans through the EIS process as required by the NEPA.
2. Overview of UMTRCA/UMTRAP--Mr. Campbell reiterated and reemphasized that the meeting was the first step in open process leading, through eventual finalization of an EIS, to a decision on the optimum course of action to be pursued regarding the Vitro site tailings. He explained that the DOE is required by Public Law 95-604, the UMTRCA of 1978, to take remedial action at a number of abandoned uranium mill sites around the country, including the Vitro site in Salt Lake City, and that the UMTRAP is the program the agency has initiated to conduct these remedial actions. In this regard, he went on to emphasize that the program was an integrated action on the part of DOE, state governments, the EPA, and the NRC. The major roles of states (preliminary disposal site recommendations), EPA (standards setting), and NRC (concurrence and licensing) were described, including the federal/state 90/10 cost-sharing feature of UMTRCA. Regarding the type of actions that would be considered, these were described briefly and characterized as no action, stabilize and dispose of the tailings in place, and move the tailings and dispose of them elsewhere within certain limitations as delineated in P.L.-95-604. In this context it was noted that the cleanup of a designated UMTRAP processing site would also include cleanup of any offsite or vicinity properties found contaminated with tailings from the original processing site. Mr. Campbell reemphasized that no option was foreclosed at this time.
3. Description of Remedial Action Options--Utilizing the April 1981 Final Draft Vitro Site RACP (Attachment V) as the vehicle for presentation, Mr. Matthews discussed each of the remedial action alternatives under consideration for the Vitro site tailings. Each alternative was described in terms of the individual steps that would be required to implement it, both from an administrative standpoint and from a remedial action performance standpoint. The following points were highlighted:
 - a. The "no-action" alternative is a baseline reference. It must be included and evaluated in the NEPA Process even though the UMTRCA prohibits it from being implemented simply by requiring that remedial action of some type be executed to protect the public from a potential health hazard.

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- b. Based on economics and health effects on remedial action workers, stabilization in place is always considered the alternative of first choice. However, consideration of all aspects may not lead to it being considered as the preferred course of action, even in the preliminary planning stage, nor to it being ultimately chosen as the course of action to implement.
 - c. Stabilization in place is not considered to be the preferred course of action at this time for the Vitro site tailings.
 - d. The preferred course of action for the Vitro site tailings is currently considered to be relocation of the tailings to a new final disposal site and stabilize them there.
 - e. The state of Utah recommended three candidate final disposal areas to DOE in 1980. (These three areas are noted as the Prime, 1st Alternate, and 2nd Alternate Areas on Attachment II-4.) Each of the three was considered by DOE to have equal status as of the time of the meetings.
 - f. As a basic principle impacting cleanup of the Vitro site, it was considered logical and desirable to concentrate contaminated materials from the Salt Lake City vicinity properties temporarily on the Vitro site and dispose of them ultimately with the Vitro site tailings.
 - g. As required by UMTRCA, tailings reprocessing prior to disposal would be considered but the appropriate feasibility/economic studies were not yet completed. It was thus not considered to be part of the preferred or alternative courses of action at this time. Vitro site tailings assay data would be available in June 1981 however, and the evaluation of reprocessing completed in time for incorporation in the Draft Vitro Site EIS in late CY-1981.
4. Overview of NEPA Process and Purpose of an EIS--Mr. Merritt discussed the NEPA of 1969 from a generic standpoint and the appropriate CEQ guidelines for form and content of EISs that are designed to guide an individual agency's execution of their NEPA responsibilities. The planning and preparation steps were described leading to finalization of an EIS evaluating a proposed course of action in comparison to alternatives from a total environmental standpoint. Each environmental consideration was also briefly described and the roles of scoping meetings, Draft EISs, and public and interagency comments were also noted.

B. NRC Staff Input to Conduct of Future UMTRAP EIS Scoping Meetings

Based upon public reaction to the meetings and the way they were conducted, I have the following recommendations regarding form and content of future meetings that I believe would improve the understanding of the public regarding the UMTRAP and eliminate some avoidable misunderstandings that I felt existed. These recommendations will be provided to the UMTRAP PO informally and also by copy of this memorandum.

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- (1) The meetings should be held from about 1:00 p.m. to at least 9:00 p.m. to allow for afterwork participation by those not able to conveniently schedule daytime attendance. At Tooele, for example, much of the working population is concentrated at two locations, a mine and Tooele Army Depot. Neither is very practically located to consider even a lunch time appearance at such meetings. The staff and students of local school systems also frequently are among the most concerned and interested of groups in a community and would be better served by evening sessions. An accurate and clear understanding of both sides of any issue on the part of a teacher can have a profound effect on community attitudes because of the multiplying effect his or her personal attitude has on a much larger number of students and subsequently their parents.
- (2) The Salt Lake City news media, both newspaper and television, were present in Salt Lake City and appeared to be actively and sincerely interested. In Tooele, however, both they and whatever Tooele-based media may exist were not in evidence. A small article appeared, however, in the Tooele newspaper announcing the meeting. My understanding is that DOE public affairs staff actively promoted media dissemination of information on the meetings. While media coverage is important (and it should be only that which the media judges the occasion to warrant), in a small community such as Tooele, many times the knowledge of a communitywide activity or issue is promoted by less obvious routes. Local school systems (or local community service organizations) can be utilized to assist in this area. It is suggested that a brief premeeting with representatives of these organizations, arranged perhaps through local government auspices, may be useful in assuring that as large a segment of the populace is as informed as possible. Something like this may have been done, though I am not aware of it.
- (3) It was apparent that almost all speakers had an image in their minds of a "garbage dump" as representative of the sort of operation associated with uranium mill tailings disposal. Mr. Hardin explained the correct concept of what an engineered tailings impoundment repository actually might consist of. That, however, is difficult to do in words alone, particularly to a public who, one must assume, is not highly trained technically or aware of jargon such as "rip-rap," "tailings cover," "liner," etc. I recommended to him that a single visual aid showing a simplified cross-section of features of such a conceptual repository would be valuable in reinforcing the correct perception as well as helping to eliminate the "garbage dump" image.
- (4) If it is to be available at such a meeting, I believe that a stronger emphasis should be placed on the RACP and its role as the program's basic pre-NEPA process planning document. It was discussed, but I didn't feel the message was conveyed that it is the single most important site-specific document prior to issuance of the Draft EIS itself.
- (5) No running transcript of the meeting was recorded. I feel this is an error that should be corrected even though these are not evidentiary

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hearings. For all practical purposes it is impossible to thoughtfully listen to a person's statement and take notes at the same time. This would appear all the more important because DOE has stated it will provide a written summary of the meetings. Since the meetings, conversations with SNLA staff have confirmed that they, too, were having a difficult time preparing a consensus summary because of this omission.

- (6) While none were given, I do not feel that separate background presentations on NRC and state roles and responsibilities under UMTRCA are warranted at such meetings. To do so would serve only to confuse and detract from the correct perception that UMTRAP is a DOE program. But I believe more could have been said regarding the involvement of NRC and state staff throughout the remedial action process and am planning on working with the UMTRAP PO on this matter with regard to future meetings. It is not a significant problem in my judgment, but may be the reason why only one question was addressed specifically to the state of Utah and none to the NRC staff throughout the meetings.
- (7) These meetings are not intended to be an open debate nor cross-examination hearings. They are for the purpose of having a panel sit and listen to the public air their views. However, an easy and open response to questions people may have is appropriate. My experience is that most people feel more comfortable if they can simply ask a question in an orderly manner. Writing a question down is more difficult and makes the assumption that we are all writers of a sort. This is not the case, particularly on an impromptu basis while a meeting is going on that those present wish to keep abreast of. I believe this may be one reason why few questions were asked at these meetings. Consequently, I recommend that the procedure for written questions be discarded and that questions be identified orally through the panel moderator to whichever panel member the questioner wishes to address. As can be seen from Attachment IV, the people who attended also put a significant effort into the written material submitted. I believe that is sufficient writing.
- (8) I believe the overview of the NEPA process should be given by either the UMTRAP PO or the DOE-HQ NEPA Affairs Division (NAD). There may be an impression conveyed, which I feel should be avoided, that a laboratory (DOE contractor or not) in New Mexico is determining too significantly what happens regarding disposal of these particular nuclear materials in other locales. In my opinion, the public finds it hard to understand the support roles of DOE contractors in relationship to the management roles of the DOE staff they report to for guidance and decisions.

C. Summary of Input from Public Scoping Meetings

After consideration of the oral and written statements received at both meetings, I believe the following represents the significant views and concerns of the public, their local elected and appointed officials, and other interested groups regarding remedial action at the Vitro site:

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- (1) The local governmental entities in the Salt Lake City area consider stabilization in place to be unacceptable and want the tailings relocated and disposed of elsewhere. The primary reasons are - health effects risks; inhibiting influence of the current situation on industrial and community development; negative psychological impacts on metropolitan area residents; and the reduced tax base caused by depressed contaminated property value assessments. This view has been carried to the extent that the Salt Lake County Commissioners passed a resolution specifically opposing stabilization in place.
- (2) Careful consideration should be given to the possibility that those areas in Tooele County currently considered as candidate disposal areas may be overlying economically recoverable oil and gas resources. A premature decision on disposal site selection should be avoided, which would foreclose exploitation of these potential resources.
- (3) Tooele County government officials, and an undetermined but possibly significant fraction of their constituency, just as strongly oppose relocating the tailings to their county as Salt Lake County and City officials oppose leaving them at the Vitro site. The primary reasons are - the strong negative social "stigma" already presumed to exist regarding Tooele County caused by: the current presence or proximity of military biochemical and conventional warfare facilities, test ranges and activities, and by fallout from nuclear weapons tests in Nevada having been deposited in southern and western Utah; the inhibiting influence on county development and tourism potential due to the "stigma"; concern over transportation accidents during tailings relocation; concern over windblown environmental contamination of air and land due to high local wind velocities at proposed disposal areas; concern over potential groundwater contamination occurring and spreading from disposal sites; concern over a perceived locally high cancer incidence rate; and concern that UMTRAP tailings disposal in the county is only a first step towards establishing Tooele County as a "national nuclear waste dump" potentially including accepting wastes from other areas such as TMI.
- (4) While opposing movement of the tailings to Tooele County from many viewpoints, including health effects risks as a paramount concern, some of those in Tooele County taking that view seriously question whether the case has been proven that the tailings are causing any health hazard where they currently are.
- (5) Based on tailings relocation, the currently estimated Vitro site remedial action cost of approximately \$90 million (constant FY81\$) appears to be excessive and a potential gross waste of federal and state tax revenues. Consideration should be given to a more cost effective approach. Examples of these could include proposals submitted to consider reprocessing and stabilization in place, utilization for tailings transport of the 100 coal trucks that return empty each day from Salt Lake City to the Green River-Moab region of southeast Utah after delivering coal to Kennecott Copper Corporation facilities west of the city, or regionalization of tailings disposal sites serving both active and inactive mills.

- (6) The Vitro site property, if restored to an uncontaminated state, is extremely valuable if for no other reason than on which to base a regionalized sewage treatment complex serving many communities in the Salt Lake City metropolitan area.
- (7) Adequate long-term surveillance and monitoring of disposal sites may be of particular concern considering the changing nature of government policy and funding fluctuations. A related concern is whether adequate funding will be firmly committed to allow for completion of the remedial action considering the magnitude of the current Vitro site project cost estimate.
- (8) There appears to be an inconsistency in reasoning associated with the federal government's justification for taking remedial action if the remedial action involves tailings relocation. This may be summarized as follows: The people where the tailings are at present are told the tailings should be moved because of potential health hazard risks but the people in the area to which they are planned to be relocated are told not to worry because their disposal will result in no harm.
- (9) A high level of emotional opposition to government projects possessing negative health and social connotations may be in the process of solidifying in Utah. The Vitro site remedial action is placed locally, in this context, on the same list with the MX Missile, proposed stationing of "Weteyes" nerve gas bombs in Tooele county, biochemical warfare testing, and nuclear weapons testing.
- (10) Based on the view that the Vitro tailings were not previously thought of as a health hazard in the past, the final disposal of them may not prove "final" at all. In this connection, is enough known about engineering such disposal sites to assure their safety over extremely long time periods?

Of necessity, these views as stated are somewhat inconsistent and contradictory because the purpose of the meetings was to listen to all views and not to ascertain a consensus.

D. Vitro Site Status (Including Vicinity Properties)

Attachment II-1 illustrates clearly that the Vitro site is in the heart of the Salt Lake City metropolitan area. The aerial view shown in Attachment II-2 shows its close proximity to two Interstate Highways (I-15 and I-80), areas of high building density and residential housing developments. In that view the site is characterized by an unusual shape because the sewage plant and industrial complex are considered to be UMTRAP vicinity properties and are built on tailings. Extending outward from the site boundaries, many properties have been contaminated with windblown tailings and others have utilized tailings as landfill. These include, directly across 33rd South from the site, a large automobile junk yard, private homes, and a large open field where horses were grazing the afternoon I visited the site. The northernmost part of the industrial complex strip is occupied by the now apparently vacant Won-Door Corporation

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who, past and present, filed several lawsuits against DOE and the state of Utah based partially on alleged lack of disclosure of the conditions at the property where they were located.

The sewage plant is a major operating facility of the Central Valley Water Reclamation Facilities Board, a quasi-governmental public service entity, current owners of the Vitro site, and the organization planning to convert the Vitro site into a regional sewage treatment complex. Due to the need to resolve the Vitro site remedial action questions, delay in their planned expansion has caused the cost estimate for this expansion to escalate over the years from \$40 million to \$89 million. In addition, as a high priority UMTRAP vicinity property, the sewage plant as shown on Attachment II-2 presents its own set of remedial action problems requiring resolution. Some of the large (estimated at 40 ft. diameter) concrete clarifying tanks, which show as eight black circles on Attachment II-2, are built on tailings. The DOE is not yet ready to present its position to the NRC on these tanks, but it is felt that the cost to cleanup completely around and under the tanks to EPA Proposed Standards (40 CFR 192) while preserving their integrity and operability, may be excessive, if in fact it is technically feasible, and may approach \$10 million. Mr. Finerfrock indicated that his understanding was that NRC would be requested to grant an exception to DOE from meeting the full EPA standards at the sewage plant site. I advised him that discussions had proceeded thus far only to the point that the NRC staff had informally advised DOE that we would consider such an exception, but that no conclusion could be reached at this time as to the outcome of that consideration.

With regard to the Vitro site itself, the following were noted during the course of the visit:

- (1) The site is currently an unproductive aesthetic eyesore occupying clearly valuable property in a potentially high development area close to rail services and interstate highways.
- (2) The current remains of the original mill consist almost entirely of the broken rubble of the former 300 ft. mill stack dropped by explosives approximately 6 months ago.
- (3) While the site is fenced in an exterior sense (though not all in good condition), access is for all practical purposes unrestricted. We gained access by driving north on the sewage plant access road from 33rd South, a public road through the site to the sewage plant site. This road is unfenced on either side and, in fact, we drove off the road and onto the tailings piles to park the car.
- (4) In a north central location on the site, a DOE contractor drill rig was in place and operating on top of a tailings pile. This was owned by Mountain States Mineral Enterprises, Inc. of Tucson, the contractor drilling the UMTRAP tailings piles to obtain assay data. I had been advised by SNLA staff previously that they were encountering tailings-contaminated soil continuing down to the 35-45 foot depth level along with groundwater.

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- (5) In the southeast site corner, at the former mill site location, a private enterprise operation was evident. This consisted of a motor home, several trucks, and a conveyor from several small (20-30 ft. approx.) piles of soil, arranged to dump into several large pieces of equipment. I asked Mr. Finerfrock the nature of this operation. He said that it was a small operation with an agreement with the site owners allowing them to process material from the former immediate millsite building area. Apparently this material has enough residual uranium value that it could be processed and sold to active uranium mills elsewhere in Utah as feedstock. Central Valley has advised the owner of this operation that activity will have to cease, however, once remedial action plans are finalized. When I was at the site, no activity could be observed at the location and no employees seemed to be present.
- (6) From one of the speakers at the Salt Lake City public meeting earlier in the day, I had the impression the tailings were covered with a definite crust which tended to minimize windblown tailings. This may in fact be the case, though vegetation is relatively sparse or nonexistent in many areas on the site and the surface possessed a relatively loose sandy feel underfoot in many places.
- (7) Much of the tailings "piles" area does not give one the feeling of a pile at all, but rather is of a widespread gently rolling sand dune nature.
- (8) Riverside Ditch is an open earth canal running east-west across much of the site and emptying into the Jordan River to the west. This flow is clean processed sewage plant effluent. Because it runs directly through the tailings, I asked Mr. Finerfrock if there was evidence of leaching of contamination from the tailings into the ditch. He said there was none.
- (9) Attachment II-2 shows the Denver and Rio Grande Western Railroad (D&RGW) switchyard just north of the site. Tracks extend south in close proximity to the site eastern boundary. I asked Mr. Finerfrock if consideration has been given to using those tracks for tailings transport trains. He indicated this had been discussed with the railroad very preliminarily and they had advised that the tracks would require strengthening for the anticipated frequency loadings and duration involved.

A second key vicinity property is Fire Station No. 1, within a short drive from the Vitro site. It is the first UMTRAP site scheduled for remedial action and a groundbreaking to initiate the project was held May 26, 1981. The NRC provided its formal concurrence to DOE on the Remedial Action Plan for this site on April 23, 1981. When I visited the property, it apparently was still being used as a vehicle maintenance facility. Its use as a fire station and fire response communications center was discontinued in 1980. In my judgment, it will not prove to be an easy project because the station is very close to the county low income housing project directly north and separated from the station by only a redwood fence with narrow spaces of grass on either side of the fence. The housing project is partially built on tailings though not to the 4-9 foot depth that the fire station is. This housing project consists of a short line of individual contemporary multifamily low-rise

buildings that appear to be relatively new. I was advised that perhaps 50 people live there. The south and west boundaries of the fire station are also two of the boundaries of Harmony Park, a local public recreational area partially underlain by shallow tailings depths. The park is a flat open area containing grassy areas, benches and game fields, and picnic facilities.

E. Candidate Alternate Disposal Areas Comparison

Three candidate alternate disposal Areas for the Vitro site tailings have been formally recommended by the state of Utah to DOE. These are located on Attachments II-3 and II-4 and are designated as the Prime Area, 1st. Alternate Area, and 2nd. Alternate Area. Attachment II-3 shows their general relation to the major features of northern Utah: Salt Lake City, the Wasatch Range of mountains, the Great Salt Lake, and the western desert of Utah. Attachment II-4 shows their relationship to each other, to Tooele and Salt Lake City, to local smaller mountain ranges, and to I-80 and rail services. At the time of the state's recommendation to DOE, on January 6, 1981, the Prime Area (eight miles north of "Clive") was favored by the state over the 1st. Alternate Area (one mile south of "Clive") or the 2nd. Alternate Area (three miles west of Delle). It should be noted that Delle is a very small but nonetheless inhabited location whereas "Clive" is a railroad designator specifying only the location of signaling and switching equipment.

To arrive at the recommendation of these three areas, the state studied 11 potential areas. Each of the areas is large enough to contain at least two or three 200-300 acre disposal sites within its boundaries. While it was noted by DOE that a prime area had been designated by the state, the position taken by DOE at the public meetings was that these three areas were of equal status and would be evaluated further with any others that may warrant consideration. As a result of the visits to the three candidate areas on May 7, 1981, I personally favor the 1st. Alternate Area as the current best overall compromise of the three and have informally so advised the state of Utah, DOE UMTRAP PO, DOE NEPA Affairs Division, and SNLA. They also all favor the 1st. Alternate Area at this time. This view is of course contingent upon future geologic/hydrologic field studies producing favorable undersurface characteristics. The individual areas are discussed below.

Prime Area

This area, on federal land and approximately eight miles north of both I-80 and the railroad at "Clive," is the so-called "great depression." The farthest of the three (73 air miles) from Salt Lake City, the Prime Area is a crater-like internal drainage depression possessing a well-defined sandy continuous rim approximately 15-20 ft. high. The banks of the rim are relatively steep sloped and exhibit clear signs of water-eroded gullying. Of very large surface area (approximately 6 miles x 1 mile), the floor of this finger-shaped area appears continuously smooth and flat when viewed from the banks and is composed of relatively impermeable silts and clays. Potentially the floor could contain a very large number of disposal sites. Sparse vegetation is growing on the banks while none is growing on the floor.

While the air was calm on the clear day I visited the area, input from the local population, received the day before in Tooele, described the area as subject to high winds blowing in a generally easterly direction at velocities up to 60-70 miles per hour. A group who visited the area the day before did, in fact, report extremely gusty conditions on an overcast afternoon when light sporadic snow was falling in Tooele. While in an area of low precipitation (approx. 5-6 inches/year), the area is also known locally for standing water and mud following storms. However, the floor of the area was essentially dry, though soft in spots, when I visited. The floor is apparently formed and reformed by waterborne deposits. As such, there is some concern on the part of local groups that heavy equipment could be supported on it on a regular construction schedule. I did observe obviously recent tracks of a relatively heavy rubber-tired vehicle on the floor, however, and assume that at least drill rigs could operate to more definitively characterize the local geology and hydrology.

Because this region of Utah has received little in-depth geologic and hydrologic exploration, the lack of knowledge in both areas is the major weak point preventing a preliminary technical conclusion that it would be a suitable tailings disposal site. The nearest bedrock outcroppings occur several miles east at Gray Back Mountains, but their directions and subsurface angles are not currently reported. With regard to groundwater at the Prime Area, there appear to be two distinct schools of thought. One is that an aquifer, which communicates directly with the Great Salt Lake, is present. However, with the Prime Area floor only 40 ft. higher than the Great Salt Lake and three mountain ranges interposed between the Area and the lake, this seems unlikely. The other is that the near surface water table is perched water. Reports vary widely regarding area visitors hand digging a small hole a few feet deep and observing the hole fill with water in a few minutes. Others dig and encounter no water at all. The surface, though smooth appearing from a distance, has a mottled varied nature when walking across it. I walked from one side to the other and encountered at least three distinct surface characteristics: a brown, soft smooth texture that would have been mud had it been more moist; a dry, randomly cracked light-toned soft crust; and spots of similar nature though with a radial crack pattern.

Once on the western rim, one can see that there is a somewhat similar depression on the western edge of the Prime Area though it is smaller and is sparsely vegetated throughout. How many other depressions may exist in the same general area is unknown to me. But the Prime Area is known to be the low point with regard to local water drainage.

That the area is desolate and isolated is not in doubt. There are no dwellings of any kind that are present or that can be seen with the naked eye nor can any sign of I-80 or the railroad be discerned. To reach the area by car one has to proceed west to the next I-80 interchange past the area, return about five miles on the gravel frontage road, then north on a hard sand road, about 8 miles. Most of this road is an unmaintained double track and a short stretch of it is abandoned, cracked, eroded asphalt (an abandoned air mail runway from the 1930s). Compared to the 73-mile air distance from Salt Lake City, the road mileage is approximately 90. The only signs of civilization were:

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(1) an abandoned rusted car hulk, (2) an abandoned bus that may have been a dwelling at one time, (3) a manmade aerie for migrating eagles, and (4) the aforementioned single set of tire tracks. The only vehicles encountered on this road were two U.S. Air Force flat-bed tractor trailers traveling south and loaded with what appeared to be compressed gas cylinders and sampling apparatus of some sort.

This same isolation, however, makes the practical aspects of using this area for a tailings repository the most difficult of the three to accomplish. For any of these three areas, I am opposed to utilizing truck tailings transport on I-80. It is the direct route between Salt Lake City and the Reno-Lake Tahoe area, continuing on to San Francisco. I do not believe it would be good socially conscious judgment to impact this highway with a frequency of up to 100 trucks a day loaded with tailings over a continuous several-year period in the mid 1980s. In addition, from an economic standpoint, the remedial action cost estimate for the Vitro site is already the highest of all the UMRAP sites at \$90 million (constant FY-81\$). This estimate is based on rail transport that may account for \$20-40 million of the cost. The cost for truck transport would be roughly double the \$20-40 million figure. Therefore, tailings transport by rail seems the only reasonable mode to the Prime Area, as well as the 1st. Alternate and 2nd. Alternate Areas.

At "Clive" however, the railroad is south of I-80 while the Prime Area is north. Thus, to complete transport by rail, it would be necessary to either: (1) tunnel under I-80 at "Clive" and run a spur 8 miles north to the area, (2) construct a railroad overpass at "Clive" and run a spur 8 miles north to the area, or (3) run a spur 20 miles from a point east of the Prime Area where the railroad is north of I-80. I was advised that rail line construction costs are currently in the range of \$1 million/mile for a simple single purpose line. The cost would therefore appear prohibitive. The most practical approaches would appear to be to build a covered conveyer from the railroad, over I-80, and continue it to the Prime Area or offload and utilize trucks for the final distance. I believe multiple loadings/unloadings should be minimized, however, to control dusting and windblown tailings, and therefore would favor a conveyer directly to the Prime Area.

If any site in Tooele County is chosen, however, I believe the high degree of public sensitivity expressed there to the "social stigma" aspect of this remedial action should be carefully considered when evaluating the consequences of decisions. A technically feasible safe and reliable contained conveyer across I-80 could be accomplished with little doubt. But the social consequences are a readily visible rail unloading facility and large bridgelike structure across the highway that may add to the "dumping ground" image that the populace of Tooele County clearly feel they already possess. In addition, I feel it will be difficult to convince all interested parties that a high enough safety/ reliability factor can be built into such a conveyer to prohibit a malfunction serious enough to dump tailings onto the surface of I-80. Media coverage warranted by such an accident could only add to the perceived "stigma."

1st Alternate Area

This Area is on state land approximately one mile south of the railroad at "Clive" and two miles south of I-80. As shown on Attachment II-4, at 66 air miles it is approximately the same distance from Salt Lake City as the Prime Area. It should also be noted that the 1st Alternate Area is about twice as far from Tooele as Tooele is from the Vitro site (46 vs. 24 air miles). Thus, as in the case of the Prime Area, the residents of Tooele would gain isolation distance from the tailings by a factor of two if this area were chosen as opposed to stabilization in place at the Vitro Site. This would, however, as is the case with any of these three areas, also place the final disposal site within the boundaries of Tooele County.

The 1st Alternate Area is contained in a wide even expanse of similar terrain extending many miles in a southerly direction from the railroad, relatively sparsely vegetated, and very gently and evenly sloping. The slope is so gradual towards a distant low outcropping of bedrock that it is barely perceptible to the naked eye. Vegetation is not as sparse as at the Prime Area and currently includes some state test seedings. There is little or no evidence of water or wind erosion and the area is reportedly not nearly as prone to high winds as the Prime Area by a significant margin. This however would require verification as the reports are sporadic.

While the state-owned segment of this general area is only one Section, the 1st Alternate Area, if considered as a portion of a much larger geographical entity may contain as many potential disposal sites as the Prime Area. Though confirmation by field studies is required, the entire Area is currently assumed to be covered with up to 20 ft. of heavy clay, with sand and gravel sublayers, and possessing very low permeability. Unlike the Prime Area, however, the 1st Alternate Area is not characterized by standing water. This is no doubt due to the continuous gentle slope of the terrain. The surface thus feels more firm and capable of heavy equipment support than the Prime Area.

Also, as in the case of the Prime Area, in-depth geologic/hydrologic studies are not currently available. The previously mentioned bedrock outcroppings border the entire Area in general on its eastern boundary which in turn is about one mile from its western boundary. Their undersurface characteristics are uncertain at this time. There does, however, appear to be little likelihood that any undersurface formation could communicate with the Great Salt Lake, an apparently seriously considered question in the minds of some local residents with regard to the Prime Area.

The 1st Alternate Area is at the same time isolated and desolate, and yet only 1-1½ miles from the railroad. The railroad in turn is about one mile from I-80 at this point which also adds to the feel of isolation. Farther west and east, the railroad is in much closer proximity to I-80. Yet a gravel access road runs directly south from the railroad and bordering the area on the western side. The railroad can be seen from the area, but I-80 is not clearly discernible.

Because the railroad is south of I-80 and the area still further south, some of the objections to the Prime Area are automatically eliminated. No overhighway conveyor from the railroad, or railroad over or underpass, would be required. In addition, if a rail spur to the 1st Alternate Area were chosen for final transport, it would be only a short distance to the area and may therefore prove to be of reasonable cost when considered against the advantage of offloading directly from the rail cars to the disposal site. If, however, conveyor or truck were chosen for the final transport leg, again only a short distance would be involved and only over unpopulated areas. In this regard, no vehicles of any kind were encountered nor could any dwellings or other signs of population encroachment be seen at the 1st Alternate Area.

Because the basic rail distance is the same as to the Prime Area, I would not expect any cost savings to be realized over the previously noted \$20-40 million transportation estimate. However, the final transportation cost and operational health risks should be significantly less and the "social stigma" impact nonexistent for all practical purposes because construction of the disposal site would not be forced visibly on anyone passing through the area. In my judgment, a rail unloading facility could in fact pass essentially unnoticed when viewed from I-80.

2nd Alternate Area

The 2nd Alternate Area is also on a Section of state land, as is the 1st Alternate Area. Delle is, however, a small inhabited location with access to I-80 and consisting of a truck stop, motel, garage, and perhaps four or five residences. It is not large enough to be considered a small town, in my opinion, and I observed little readily apparent reason why it should grow further.

This candidate area is approximately three miles west of Delle itself and is very close to I-80. The access road to it is a gravel road which leads essentially directly from the intersection at which Delle is located. I would estimate the distance from I-80 to the beginning of the 2nd Alternate Area to be conveniently measured in hundreds of feet rather than in thousands of feet or in miles.

This Area is the closest of the three state recommended areas to Salt Lake City at 50 air miles (see Attachment II-4). The air distance to Tooele is thus also less and I would estimate it to be about 35 air miles. The residents of Tooele would still gain isolation distance from the Vitro site tailings, but only by 50% rather than by 100% at the other two areas. While the Prime and 1st Alternate Areas may also be thought of as being generally located about 30 air miles from the edge of the Great Salt Lake, the 2nd Alternate Area is about 10 air miles in the same regard.

General impressions may be deceiving, and should not preclude further investigation of this area, but from my visit, this area did not in overall aspects compare favorably with either the Prime or 1st Alternate Areas. As in the case of the Prime Area, the railroad is on the opposite side of I-80 from the Area, yet close to I-80. Thus, any operations at Delle would be readily apparent at all times.

The distance from Salt Lake City is still relatively large, leading to high basic transportation costs, yet the local isolation is not nearly as great as the other two Areas exhibit while they offer 25% greater isolation distance from the Vitro site. In this sense, the commercial/residential facilities at Delle are also an obvious focal point for people either living there or making use of the services provided. Otherwise this is a desolate area, either east or west from Delle, on I-80. While our cars were parked at the area's edge and we were walking a portion of the area, a pickup truck driver was attracted to stop for a short time, presumably naturally curious as to our purpose. The area just south of the access road is obviously also subject to vandalism and being utilized as an impromptu recreation area. This is evidenced by the readily noticeable quantities of bottles, small junk items, old tires (some fashioned into what appeared to be a makeshift motorcycle motocross course), tire tracks, and general litter. Access could be controlled by appropriate means, but the general area is also openly convenient for whatever purpose one desires.

The part of the area close to the access road is formed by an abandoned gravel pit approximately 10 ft. deep and of multiacre size. Beyond the gravel pit, however, is an expanse which resembles the 1st Alternate Area though here there are signs of active water erosion. Further south though, the terrain appears to stabilize into a gentle even slope. Thus, there may in fact be a number of technically suitable sites at greater distances from the access road than the short distance we walked. For this reason, I believe this general area should in fact receive indepth study, as a backup to the other two, and because good geology/hydrology data is also lacking here. I do not believe, however, that one could ever approach the utter isolation of the Prime Area or the practical cost/engineering/ social impact advantages of the 1st Alternate Area at the 2nd Alternate Area. I therefore recommend that the 2nd Alternate Area remain what it appears best suited for; as a second backup should either of the first two not prove adequate geologically or hydrologically, or until an area significantly closer to Salt Lake City, if any suitable ones exist, is found to replace it. Such a close-in area may possess a significant cost advantage. But the 2nd Alternate Area is far enough from Salt Lake City and located such that it does not appear to possess that advantage.

F. NRC Staff Input to EIS Scope (Recommendations)

Each of the 2' UMTRAP abandoned uranium mill tailings sites represents its unique set of specific environmental issues that must be addressed. However, the characteristics of the Vitro site in Salt Lake City, taken together with its currently proposed remedial action plan, and the extent of vicinity site properties involved, represents an unusually significant case among the UMTRAP sites, in my judgment. The bases that I feel warrant this view are as follows:

- (1) The Vitro site is the only UMTRAP site located in the heart of a major metropolitan area (the 7-mile radius of 480,000 current population shown on Attachment II-1) projected to have a population of over 1,000,000 by the year 2000.

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- (2) As a consequence of (1), of the total predicted health effects from all UMTRAP sites, if no remedial action were taken (approximately 200-300 by the year 2000), about 40% would be due to the Vitro site alone.
- (3) Of all the UMTRAP sites' conceptual remedial action plans, only in the case of the Vitro site has it been seriously considered to relocate the tailings to a far distant disposal site, 50-75 air miles (60-90 road miles) from their present location.
- (4) As a consequence primarily of the tailings transportation cost associated with the distances noted in (3), remedial action at the Vitro site currently has a disproportionately high cost estimate associated with it, even when less costly railroad vs. truck transport is assumed. This is both in an absolute dollar sense and as a % of total UMTRAP program costs as shown below.

	UMTRAP program cost (\$million)	Vitro site (cost \$million)
Constant FY-1981	474	90*
Escalated (10%) \$	694	127*

* 18-19% of total program cost.

- (5) As a consequence of the proposed distant relocation noted in (3), the Vitro site is the only UMTRAP site where the concentrations of population whose past activities generated the tailings would not have to absorb the impacts (both perceived and real) of their relocation. In the case of the other sites, the tailings would be disposed of in their same general area either due to relocating only a small distance (10 miles or less) or stabilizing them in place.
- (6) Because of the large number of Salt Lake City vicinity properties (80 identified so far, 26 designated), the tailings from these properties may represent a significant impact on the total of tailings to be disposed of permanently. Informal estimates vary from 20,000 tons to 800,000 tons from Salt Lake City vicinity properties compared to approximately 2,000,000 tons at the Vitro site itself. A rough planning number of 200,000 tons (i.e., 10% of the main processing site piles) is probably more accurate. Remedial actions at the Fire Station alone should produce ~8000 tons.

As a consequence of the above six points, I believe that the scoping and depth of the Vitro site remedial action EIS warrants the most careful consideration to assure that the significant concerns of all parties are considered and

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addressed. My own opinion is that the aspects listed and briefly discussed below must be thoroughly addressed in the EIS, and I recommend that the NRC staff formally advise the DOE of any of these views that may subsequently evolve into consensus NRC staff conclusions by the end of July 1981. In so doing, I believe we would be fully assisting DOE in our role as a cooperating agency under NEPA for the UMTRAP, which includes assisting in the scoping of this EIS, and would allow six months subsequent preparation time for the Draft EIS by the end of CY-1981.

- (1) The Draft EIS should contain a thorough, though not necessarily lengthy, discussion of why there is a potential health hazard due to the tailings as they exist in their current state. It became apparent to me that many are not able to draw a connection between the tailings and health risk because the sites have been in their locale and causing no perceived harm for what most people consider to be a long period of time (i.e., a generation span or 20-25 years). It is true, and was emphasized by DOE in Utah, that P.L. 95-604 requires remedial action because of a potential significant health hazard but many will need more technical assurance that it is likely that a real hazard exists. This is particularly so in view of the \$90 million in tax revenues proposed to be expended in eliminating it and the extensive multiyear project it will take to do so. Once a solid and generally understandable technical basis for remedial action is established in the EIS, then the no-action alternative may be eliminated.
- (2) Stabilization in place should be fully evaluated and treated in extensive depth to assess and document the degree of its practicality and environmental acceptability. The high cost of the proposed relocation project is only one aspect having a bearing on the need for this evaluation. Another is the currently perceived lack of health risk justification for moving the tailings as discussed in (1), particularly in Tooele County. In Utah at least, the DOE has conveyed the impression that stabilization in place is always the first choice, but the RACP, as presented there, indicated relocation to Tooele County as preferred. The obvious question will be that, if a safe repository can be designed for Tooele County or any other location, then why cannot one be designed for Salt Lake City?
- (3) If stabilization in place is shown to be undesirable, than an equally extensive evaluation should be performed and documented regarding more cost effective close in disposal sites compared to the three far distant sites proposed currently. Examination of Attachment II-3 assists in considering this question in general. It is noted that the Salt Lake Valley is heavily developed along I-15 in a north-south orientation from Provo to Brigham City. If stabilization in place is undesirable for Salt Lake City, it should prove as undesirable over most if not all of this population corridor. To the east is the Wasatch Mountain Range bordering the I-15 corridor over the same distance. While a geologically suitable site in that area could possibly be found, it is likely that truck transport would be required over the mountains that would entail significantly greater per-ton-mile costs and increased winter accident risks as well as

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the normally higher truck vs. rail accident per-ton-mile frequency. That area is also of high recreational value and, in my understanding, is developing rapidly to increase its recreational value further. This leaves a quadrant west-southwest of Salt Lake City as the most feasible from general social and environmental considerations, as the west-northwest quadrant is extensively occupied by the Great Salt Lake itself, at least over any distance out to the Prime Area. I believe, however, that the west-southwest quadrant should be further studied by DOE with a view to identifying close-in sites to compare with the three distant sites recommended by the state of Utah.

- (4) Technically feasible non-DOE/State proposals must be considered equally in the EIS to any depth required. I am inclined to believe, for example, that an analysis of costs and truck decontamination and recycling problems will show that the proposal to utilize coal trucks servicing Kennecott facilities for tailings transport will prove undesirable because of the high proposed distances involved (200-250 miles) on dual purpose schedules and over the Wasatch Mountains. Nonetheless, such an analysis should be performed and results presented in the Draft EIS.
- (5) Of prime technical environmental concern, whether close-in or distant sites are considered, should be analyses evaluating windblown tailings (from transport, onsite remedial action operations, and from the completed repository) and groundwater contamination potential (to the Great Salt Lake and aquifers communicating with it and Salt Lake City).

Both in Salt Lake City and Tooele there was general concern to avoid groundwater contamination. The geologic/hydrologic studies that DOE has planned for the summer/fall of CY-1981 should therefore proceed as rapidly as feasible to close the current gap in these basic data areas such that a meaningful evaluation and comparison of these impacts can be presented in the Draft EIS. I feel these studies should encompass all three Areas proposed by the state of Utah as well as any others identified as a result of close-in study.

Regarding meteorology data, I indicated to Mr. Finerfrock and Mr. Merritt while enroute to the candidate areas that I agreed with their view that DOE should be establishing 3 meter met-stations at the candidate areas this summer. These could support any analyses presented in the Draft EIS regarding windblown tailings that will have to largely be based on the long-term met-data from Wendover, UT, 30-40 miles west of the candidate areas.

- (6) The social environmental concern of significance is the "stigma" associated with Tooele County. Whether perceived or real in fact, the public in Tooele County believes it is real. I believe it must be dealt with in the EIS. However, doing so without in fact calling undue attention to it and overemphasizing it will be difficult. Our society, and therefore our government's actions, are based on the principle of "the greatest good for the greatest number" and this view was articulated by Mr. Hardin at the public meetings. Should relocation prove to be the ultimate preferred

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course of action for the Vitro site tailings, then movement to the western desert of Utah isolates them in a beneficial way from both the populace of Salt Lake City and the majority in Tooele County. This is in accordance with a major thrust of the current NRC active uranium mill regulations' Technical Criteria (10 CFR 40, Appendix A), which documents our own view that a prime objective should be to site tailings impoundments as remote from populated areas as practicable. If sited in the west-southwest quadrant and beyond 15 air miles from Salt Lake City however, the repository ultimately is located in Tooele County. If sited close in but directly west of Salt Lake City it would be in Salt Lake County and, if directly southwest, in Utah County. I do not personally favor western Salt Lake County because it is a natural high development area bounded by the Wasatch Range and the Oquirrh Mountains with Salt Lake City in the east central region (see Attachment II-4). Utah County is dominated by the presence of Utah Lake which could present serious groundwater contamination avoidance problems as well as a developing industrial/recreational area. At this time, I therefore believe that Tooele County is the general area of technical choice for a Vitro site tailings repository and that would result in the least overall technical and social environmental impact, should it first be determined that the Vitro site tailings require relocation. But at the same time I acknowledge that the "social stigma" of Tooele County to the residents of that county is real, and should not be added to in their minds or in the minds of others not living there.

Original Signed By:

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