

APPENDIX M

**WASTE ISOLATION PILOT PLANT FOCUS GROUP DISCUSSIONS
CONCERNS STATED**



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1 WASTE ISOLATION PILOT PLANT FOCUS GROUP DISCUSSIONS
2 CONCERNS STATED
3
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5 **1.0 INTRODUCTION**
6
7

8 The U.S. Department of Energy Carlsbad Area Office (DOE-CAO) is conducting an Engineered
9 Alternatives (EA) Cost/Benefit Study. In support of that study, focus group discussions were held
10 in Carlsbad, Albuquerque, and Santa Fe, New Mexico. The focus group setting and format were
11 consistent at each location. The purpose of these discussions was to identify public concerns
12 about the ability of the Waste Isolation Pilot Plant (WIPP) to protect the public health and the
13 environment once waste is emplaced and WIPP is closed and sealed.
14

15
16 **2.0 CARLSBAD, NEW MEXICO**
17

18
19 SESSION I, June 26, 1995
20

21 At the focus group discussion held in Carlsbad, New Mexico on June 26, 1995, seven participants
22 were present for the discussion. Mr. Steve Wilkes was the moderator. Other attendees were
23 Maggie Wood and Rebecca Grohler from the S.M. Stoller Corporation; Ann Marshall, Advanced
24 Sciences, Inc.(who served as note takers); and Patty Barratti-Sallani, a DOE-CAO public affairs
25 representative.
26

27 Mr. Wilkes opened the meeting with a brief discussion of the purpose of focus groups in general
28 and how this particular session would be conducted. He addressed the ground rules for the
29 discussions, the desired outcome, the assumptions to be used as a basis for the discussions, and
30 then introduced Maggie Wood.
31

32 Ms. Wood's presentation addressed the purpose and objectives of the focus group discussion,
33 how participants were selected, and how comments would be used.
34

35 Ms. Wood advised the focus group that the Environmental Evaluation Group (EEG) had requested
36 that she give the participants copies of a paper prepared by EEG stating their position on
37 Engineered Barriers at the WIPP site. Copies of the paper were distributed to the participants
38 at the end of the discussion.
39

40 Mr. Wilkes then led the remainder of the session, beginning with a discussion of concerns about
41 the long-term performance of the WIPP disposal system. After all the concerns had been stated,
42 Mr. Wilkes asked each participant to summarize their concerns in the form of a one minute
43 statement to the DOE. The focus group session was then concluded.
44

45 Verbatim notes were not taken. The comments are shown in the order in which they were
46 presented.
47



1 CONCERNS STATED¹

2
3 **Moderator: What are your concerns about the ability of WIPP to protect human health and**
4 **the environment once WIPP is closed, waste is emplaced, and the site is sealed?**

5
6 WIPP should be marked so that any future society knows the site is there to prevent intrusion
7 inadvertently. Adequate records must be maintained. [2.4, 3.1 - Y]

8
9 Concerned about oil exploration or recovery of oil far below the WIPP, but by the time WIPP is
10 closed, it will not be a concern. Oil recovery is only a 25-year concern. [3.1 - Y]

11
12 Concerned about BLM management of drilling programs, but don't want to add huge costs to
13 drilling. [3.1 - Y]

14
15 Concerned about gas generation in the waste after it is buried. [1.2 - Y]

16
17 The formation is adequate, stable, solid, for holding waste. Adding unnecessary engineered
18 alternatives will just add cost and complexity that aren't needed. [2.1 - Y]

19
20 Potash mining has been conducted in same formation [as WIPP] for over 60 years. We have a
21 good understanding of what that formation does, and it is relatively stable, even in blasting.
22 Historical proof is that the underground is dry and stable. [2.1 - Y]

23
24 Strong belief that future generations will be as knowledgeable as we are. The 10,000- year
25 period is a ridiculous requirement. Fairherst said it's like asking the Wright Brothers to develop
26 a plane that can fly 400 people to Europe. Within 100 years we will come up with other solutions.
27 It is impossible to predict what technology will exist at that time. [3.3 - Y]

28
29 Oil and potash reserves can be removed from around the site without penetrating or affecting the
30 site in any way. [2.1 - Y]

31
32 Concerned that EAs will be used that simply have no merit. [7.1 - Y]

33
34 Concerned that DOE is not educating the public enough about WIPP. People wouldn't be
35 concerned if they knew more about the project. [7.2 - N]

36
37 Some people have said that they don't believe DOE is telling the truth. DOE needs to be open
38 and honest about everything that is going on. [7.2 - N]

39
40 As long as EPA requirements are met there shouldn't be any additional EAs. Additional EAs add
41 no value. [7.1 - Y]

42

43 Numbers in brackets at the end of each comment indicate the taxonomic category to which each comment
44 was assigned. In some cases a comment was assigned to more than one category. In other cases
45 separate statements within one comment were assigned different categories and were counted as separate
46 comments. The Y or N letter that follows the category number(s) indicates whether the comment was
47 related to postclosure [Y] or not related to postclosure [N].



1 Our [society's] body of knowledge is constantly changing and improving. In even as few as 25
2 years many of the things that may have been of concern are no longer relevant. [3.3 - Y]

3
4 Some resentment has been expressed that this [WIPP project] didn't go to a local vote. How was
5 the site chosen? [7.2 - N]

6
7 People don't like the perception that it's secretive--they think the government is not telling the
8 truth. [7.2 - N]

9
10 **Moderator: Is there anything about the waste itself which concerns you?**

11
12 Human intrusion isn't a serious concern because the waste being put in there isn't very hazardous
13 now, and hundreds of years from now it will be continually less hazardous. If a breach were to
14 occur from drilling, it may allow some gas to come to the surface, but not the actual waste
15 materials. [1.4 - Y]

16
17 Any gas generated will be under high pressure and, if drilled into, it may be released along with
18 some brine. Once saturation occurs, though, the brine doesn't move. [1.2 - Y]

19
20 **Moderator: If you had one minute to talk to DOE about WIPP and its ability to protect**
21 **human health and the environment once it is closed, what would you say?**

22
23 Keep good records and be open and honest with people. [2.4, 7.2 - Y]

24
25 Keep accurate records and continue to look for solutions like isolation or neutralizing the
26 waste. [1.3, 2.4 - Y]

27
28 Continue to support the [Carlsbad] Environmental Monitoring [and Research] Center.
29 [not counted]

30
31 DOE has done a good job, the public's concerns have been addressed. The markings and
32 records will last forever. WIPP is ready to go and it's safe--open it. [2.4 - Y]

33
34 Don't abandon the project. [97.4 - N]

35
36 Continue keeping good records and monitoring. Keep researching new technologies--not just for
37 this site, but for other sites, too. [2.4 - Y]

38
39 If there is this much trouble getting low-level waste repository open, how will DOE ever handle
40 high-level waste? This level of indecision would not be tolerated in industry. When will you say,
41 "enough is enough." Either do it [open WIPP] or pull out. You will never convince every single
42 person. You have the authority to open WIPP, so use it. [7.4 - N]

43
44 WIPP has undergone all the scrutiny it needs to. It's ready to open tomorrow. [7.4 - N]

45
46 WIPP is technologically and scientifically sound. DOE should proceed and get it open. Move
47 forward. [7.4 - N]



1 SESSION II, July 6, 1995

2
3 An independent interview was held on July 6, 1995, with two participants, in lieu of their
4 attendance at the focus group discussion held June 26, 1995. Both of the participants were
5 knowledgeable about the WIPP site and had been actively involved since about 1980. Ms. Wood,
6 served as the moderator and also prepared summarized notes. Ms. Grohler was also present
7 at this session to take more detailed notes.

8
9 Ms. Wood opened the interview by introducing the purpose and objectives of the focus group
10 session, how participants were selected, and how comments would be used.

11
12 Verbatim notes were not taken. The comments are shown in the order in which they were
13 presented.

14
15 **CONCERNS STATED**

16
17 **Moderator: What are your concerns about the ability of WIPP to protect human health and**
18 **the environment once WIPP is closed, waste is emplaced, and the site is sealed?**

19
20 Don't want the waste to be migrating from room to room. Water may get into a room and could
21 dissolve the salt around the waste, allowing the water to flow from room to room. If inflow isn't
22 kept out of the rooms, it can migrate throughout the site. [3.1 - Y]

23
24 Due to the presence of oil and gas in the area of the site, human intrusion will occur. We know
25 that WIPP will be drilled into someday, and the drill would probably use a water circulation drill
26 which could introduce water into the repository. This is of concern because when the site is
27 breached it could result in massive contamination to the surrounding ecosystem. [3.1 - Y]

28
29 The water flow into and around the site hasn't been studied enough. They don't realize that water
30 flow could eventually become a problem and it could contaminate the water table. If
31 contamination reaches the surface it could be carried into the Pecos River if there were a flood
32 through that area. [2.1, 4.0, - Y]

33
34 Concern that Pecos River could be contaminated. If WIPP were breached, the contamination
35 could migrate to the Rustler Formation and be carried through the Formation to the river. Seals
36 or other engineered barriers sound like a needed safety measure to these concerns. [4.0, - Y]

37
38 Concerned about the adequacy of seals in the underground and shafts. If the site isn't sealed
39 properly, fresh water could get into the site and erode the salt, creating a bigger hole and
40 dissolving the natural barrier. [2.2, 4.0 - Y]

41
42 Primarily concerned about the integrity of the site. When the DOE discovered water at the
43 original proposed site, they just moved the site a half-mile away. WIPP shouldn't have been
44 located where it is. [2.1, 4.0 - Y]

45
46 **Moderator: Is there anything about the waste itself which concerns you?**

47
48 The mixed waste concerns me. They [DOE] don't really know what all is going in it, and mixing
49 it together concerns me. I would feel better if waste were characterized better. But perhaps good



1 engineered barriers would take care of that. If the waste were encased in glass or cement or
2 whatever, that may negate the need for better characterization. [1.1, 1.3 - Y]

3
4 **Moderator: Do you have any other concerns that we haven't addressed?**

5
6 Transportation. The WIPP bypass road is planned for the north side of town [Carlsbad], but the
7 south side won't have a bypass. Even though they could use highway 31, which is a natural
8 bypass for the south, they are going to bring the waste all the way through the south part of
9 town. [7.3 - N]

10
11 The "rich side" of town has a bypass, but the "poor side" not only won't have a bypass, but they
12 won't even use Route 31 even though it is available. All the money is being spent on the north
13 end, and the south end of town is unprotected. [7.3 - N]

14
15 The cost/benefit analysis should also look at the way money is being spent. There is an
16 incredible amount of money wasted right now. Why do they need to fully staff the site when there
17 won't be any waste there for two years? Also, why do DOE managers come all the way into town
18 for lunch when there's a cafeteria right there at the site? They're using government cars and it's
19 the taxpayers who are paying for that. [7.2 - N]

20
21 A cost/benefit study of safety issues is mandatory, but the government will eventually have to do
22 a cost/benefit study of comfort, too, because someday someone is really going to sink their teeth
23 into the way money is being spent. [6.0, 7.2 - N]

24
25 **Moderator: If you had one minute to talk to DOE about WIPP and its ability to protect
26 human health and the environment once it is closed, what would you say?**

27
28 I would say that I hear what you are saying, but what you are doing doesn't match what you are
29 saying. It is supposed to be a new, open DOE, but I would like to see the DOE stop covering up
30 problems and tell people the truth about WIPP. Admit to the people that there is risk, and talk
31 about the risk openly. DOE said that water was no problem. Then the site was moved a half-
32 mile years ago when water was discovered. The whole concept of WIPP was to have dry salt,
33 and now it isn't dry salt--there is water in the area. DOE has promised that there will be no
34 breach of the site. They need to tell the truth. People who live here should be aware of the truth.
35 People can deal with it if they know the facts. [4.0, 7.2 - Y]

36
37
38 SESSION III, July 10, 1995

39
40 An independent interview was held on July 10, 1995 with one participant in lieu of her attendance
41 at the focus group discussion held June 26, 1995 (see Section B.1). The interview was
42 conducted via conference call and included the participant; Maggie Wood, who acted as the
43 moderator; and Rebecca Grohler, who took detailed notes.

44
45 Ms. Wood opened the interview by introducing the purpose and objectives of the focus group
46 session, how participants were selected, and how comments would be used.

47
48 Verbatim notes were not taken. The comments are shown in the order in which they were
49 presented.

1 **CONCERNS STATED**

2
3 **Moderator: What are your concerns about the ability of WIPP to protect human health and**
4 **the environment once WIPP is closed, waste is emplaced, and the site is sealed?**

5
6 It may be naive on my part, but I have no major concerns. We have the best technologies
7 available to any of us in this country, and I feel that the topography of the area and the geological
8 aspect of the site where DOE is looking at storing these wastes provides tremendous safety
9 compared to where the waste is now--at sites, because there is no place to take it. [2.2 - N]

10
11 **Moderator: Is there anything about the waste itself which concerns you?**

12
13 Anyone would have some concerns about radiation. I certainly don't want to see any releases
14 of radiation which could contaminate the region, or cause illnesses or deaths. However, with the
15 technology we have to handle this material, I believe we're more at risk right now, prior to
16 storage, rather than after it is stored. [5.0 - Y]

17
18 **Moderator: Can you tell me the nature of your concerns about the current risks?**

19
20 The current risk is at the site locations where they are creating nuclear waste. It is a fact that
21 human risk factors are involved, and mistakes can be made. It [the waste] is in a temporary
22 holding position at the sites, compared to a long-term position at WIPP. Currently I'm concerned
23 that there could be an event that could result in contamination of the region, soil, water, and air
24 around these site locations. [4.0. 5.0 - N]

25
26 **Moderator: If you were living thousands of years in the future in southeast New Mexico**
27 **and you learned that there was a repository for radioactive materials in the area, what**
28 **would be your concerns?**

29
30 I imagine the biggest concern would be to make sure that it's [WIPP is] sealed properly and is
31 being handled properly. I would want to be sure that there is no movement of the waste to the
32 surrounding soil or movement into water sources in the area. I would want to be sure that there
33 is no migration to places not intended for the waste to migrate to and that the site continues to
34 be handled as it is supposed to be handled. I would want a check system [monitoring system]
35 to ensure it is maintained as it should be. [2.2, 2.4, 4.0 - Y]

36
37 **Moderator: If you had one minute to talk to DOE about WIPP and its ability to protect**
38 **human health and the environment once it is closed, what would you say?**

39
40 I think we have now invested tremendous time, energy, and money in creating a technical
41 environment to properly handle nuclear and radioactive waste, and it is critical that we take
42 advantage of these technological developments and start cleaning the vast areas of this country
43 that we recognize are tremendously contaminated, such as the Rocky Flats area, soils around
44 Pantex and other sites. We need to place these radioactive materials into a safeguarded
45 environment, which WIPP provides. [7.2 - N]



1 **Moderator: Is there anything else you'd like to say?**
2

3 If I have any concern about WIPP at all it's that we seem to have continually delayed, through
4 continuing regulations and requirements, the opening of this facility, which in the long run is
5 jeopardizing other areas of this country, like the sites where this waste is now being kept.
6 [7.2 - N]
7

8 I would like to see WIPP in operation and to start collecting the material it is designed to
9 collect. [7.4 - N]
10

11 I believe WIPP is a great benefit to the State of New Mexico, and our region is fortunate that we
12 have the geologic formations to be the pilot center and to go into operations. It will be a benefit
13 to the entire country. [7.4 - N]
14

15 I have been aware of WIPP since about 1981. The nature of my involvement has primarily been
16 because of the proximity of WIPP's location with regard to economic development of this region
17 (i.e., relocation of companies to the area, and the economic impact of WIPP in this region). I was
18 very active in getting funding for a bypass to take the waste around Roswell rather than going
19 down the main street in Roswell, not because we were concerned about the physical danger, but
20 mainly because of the psychological impact to residents. People are afraid of anything called
21 "radioactive" and the bypass solves an emotional need and will make them [the residents] feel
22 safer. [7.3 - N]
23
24

25 **3.0 ALBUQUERQUE, NEW MEXICO**

26
27
28 June 27, 1995
29

30 A focus group discussion was held in Albuquerque, New Mexico on June 27, 1995. There were
31 eight participants present for the discussion. Mr. Steve Wilkes was the moderator. Other
32 attendees were Maggie Wood and Rebecca Grohler from the S.M. Stoller Corporation; Ann
33 Marshall, Advanced Sciences, Inc.(who served as note takers); and Patty Barratti-Sallani, a DOE-
34 CAO public affairs representative.
35

36 Mr. Wilkes opened the meeting with a brief discussion of the purpose of focus groups in general
37 and how this particular session would be conducted. He addressed the ground rules for the
38 discussions, the desired outcome, the assumptions to be used as a basis for the discussions, and
39 then introduced Maggie Wood.
40

41 Ms. Wood's presentation addressed the purpose and objectives of the focus group discussion,
42 how participants were selected, and how comments would be used. Ms. Wood advised the focus
43 group that the EEG had requested that she give the participants copies of a paper prepared by
44 EEG stating their position on Engineered Barriers at the WIPP site. Copies of the paper were
45 then distributed to the participants at the end of the discussion.
46

47 Mr. Wilkes then led the remainder of the session, beginning with a discussion of concerns about
48 the long-term performance of the WIPP disposal system. After all the concerns had been stated,



1 Mr. Wilkes asked each participant to summarize their concerns in the form of a one minute
2 statement to the DOE. The focus group session was then concluded.

3
4 Verbatim notes were not taken. The major comments or points that were made during the focus
5 group discussion are shown in the order in which they were presented in the following section.
6

7 **CONCERNS STATED²**

8
9 **Moderator: What are your concerns about the ability of WIPP to protect human health and
10 the environment once WIPP is closed, waste is emplaced, and the site is sealed?**

11
12 My confidence levels of the long-term stability of the waste facility shot way up after hearing about
13 vitrification. I have zero confidence in mixed waste stored in salt caverns that will crush and
14 collapse on the waste mixture. Some other concerns are drilling, boreholes, and flooding. I have
15 zero confidence in a system designed like this. Characterizing waste is the first step in improving
16 my confidence [in the facility]. [1.1, 1.3, 2.2, 3.1 - Y]

17
18 My confidence level would be greatly improved if the waste were vitrified. There is no way to
19 evaluate whether waste would drain into gas, brine, or water. If waste is encapsulated, it will be
20 fully characterized in order to be vitrified. [1.1, 1.3, 4.0 - Y]

21
22 Flooding into WIPP from oil operations can't be avoided. [3.1 - Y]

23
24 There are two premises with which I disagree. First, the WIPP is a facility planned to put waste
25 away forever. This is a long time concern. In a recent DOE news release, WIPP is being hailed
26 as a "pilot" plant. Been told for years that this is a "pilot" plant. In reality, all along, WIPP has
27 been geared as a permanent repository. Recently high level delegates from France toured the
28 plant and were quoted as saying that it is a wonderful "pilot research and development" facility.
29 But WIPP is still being planned [by DOE] for permanent disposal. This is the same as using
30 Agent Orange during Operation Harvest. This is another example of the government's propensity
31 to lie. Stop calling WIPP a "pilot" facility and a research and development facility. Just call it
32 what it is--a permanent facility. Don't apologize for the past, but start calling it what it is in the
33 future. Secondly, engineered barriers are not simply frosting on the cake. 40 CFR 191 section
34 141 clearly requires the use of engineered barriers. Again, these are not "extra" or "frosting on
35 the cake," as described by Ms. Wood. [7.1, 7.2 - N]

36
37 Calling WIPP a low-level waste facility is incorrect. Even news releases as recently as a couple
38 of weeks ago still refer to it [WIPP] as a low-level facility, and that is not true. It is a transuranic
39 waste repository. [1.4 - N]

40
41 Engineered barriers are a requirement. DOE will not change the name of WIPP, but will say that
42 using room seals is okay. The facility will be built with inferior engineered barriers incapable of

43
44 Numbers in brackets at the end of each comment indicate the taxonomic category to which each comment
45 was assigned. In some cases a comment was assigned to more than one category. In other cases
46 separate statements within one comment were assigned different categories and were counted as separate
47 comments. The Y or N letter that follows the category number(s) indicates whether the comment was
related to postclosure [Y] or not related to postclosure [N].

1 withstanding natural and man-made intrusion events. WIPP will still be dangerous because future
2 generations cannot deal with it. DOE doesn't understand its job. [3.3, 7.1 - Y]

3
4 Engineered barriers will not prevent human intrusion. Engineered barriers need to withstand
5 future slant drilling. Slant drilling can be done right now. WIPP must protect against intrusion for
6 thousands of years. [3.1, 3.3 - Y]

7
8 Public confidence should be a serious concern. We're looking at future concerns, but we should
9 look at present concerns. Troubled by assuming WIPP "already filled and sealed." Present
10 concerns for safety and health must be met in order to talk about long-term concerns. DOE is
11 so committed to opening WIPP, and will do whatever it takes to open it. It is prepared to cut
12 corners to get it open quickly. Environmental safety and health issues are being deferred. These
13 should be addressed in the present. DOE needs to be candid and frank with these issues, but
14 is being pressured by waste management issues to get WIPP open. Not very many who would
15 be talking about disposal [of radioactive waste] in a salt medium like WIPP. I am concerned with
16 intrusion and barriers and safety and health. There are too many unknowns and uncertainties.
17 No one knows how to deal with high-level or mixed-waste forms. [1.4, 2.1, 3.1, 7.2, 7.4 - Y]

18
19 DOE talks like this is a closed issue. DOE has this dimension of arrogance. [7.2 - N]

20
21 It is not possible to prevent intrusion. Public health and environment cannot be assured. There
22 are too many unknowns and uncertainties. [3.1, 3.3, 4.0, 5.0 - Y]

23
24 What I'm hearing is a distrust of the government and that the WIPP site is unequivocally going
25 to leak radiation--that there are no controls. We are looking at something that is 2,150 feet below
26 ground. We have been dicking around with this since 1972. Where is the stuff being currently
27 produced being stored? In generator warehouses and docks sitting in barrels. 2,150 feet below
28 is more secure than where it is now. A concern is if someone [people] forgets that waste is
29 stored in the WIPP. The buildings will go away, the area will be replanted. Hundreds of years
30 from now, this might possibly still be remembered. Thousands of years from now, drilling may
31 not be necessary, but some exploration might occur. But we need to be sure it is historically
32 remembered. I'm not concerned about radiation leakage. [3.3 - Y]

33
34 I do not support nor discourage the use of nuclear energy. My concern is with high-level waste
35 and mixed-waste storage. My concerns mirror the same concerns expressed here. High-level
36 waste is a valid concern. The salt bins would collapse. [1.4 - Y]

37
38 I have been shocked by DOE presentations about transportation. [7.3 - N]

39
40 A 55-gallon steel barrel is a ridiculous container that won't last. Who decided on the 55-gallon
41 drum as the container of choice ... the janitor at Los Alamos 50 years ago? There is the mindset
42 that everything would be buried. Why not store it in better containers. I am shocked that the
43 TRUPACT was designed around the 55-gallon drum. [2.3 - Y]

44
45 My confidence is shattered after reading the EEG report about active oil wells being around the
46 site and not being addressed by the EIS [Environmental Impact Statement]. Why haven't
47 alternate sites been considered. [2.1 - N]



1 Once WIPP is open all sort of things will go into it. WIPP seems to be it [the site of choice].
2 DOE doesn't seem willing to consider any other sites, containers, methods, etc. Vitrification
3 would greatly improve public confidence. But even with the vitrification there are other concerns
4 with the long-term destructive effects of plutonium on the glass. [1.2, 1.3, 1.4, 2.1, 2.3, 7.2 - Y]

5
6 [A participant gave the following explanation of the characteristics of TRU and high-level waste.]
7 High-level waste, like fuel rods, in 1,000 years becomes like TRU. TRU is not lower level waste.
8 Eighty percent of TRU waste not planned for WIPP will remain above ground and [DOE] is not
9 planning to do anything with it. Waste is not even in drums--its just buried a few feet
10 underground. DOE has to say what they're going to do with it. [not counted]

11
12 Some other concerns include performance assessments and projections. I am humbled by trying
13 to project 10,000 years from now. In 100,000 years the waste will still be radioactive;
14 10,000 years was used randomly by EPA. By using all these modeling tools, we give the
15 impression that we know with certainty what will occur thousands of years from now. For
16 example, if 300 years ago, we had been asked to look at 1995, no one would have predicted that
17 we would be drilling thousands of feet underground for oil or minerals. We don't know and there
18 is no way of knowing what will occur, even hundreds of years into the future. That's where
19 engineered barriers come in--to give an extra assurance that inadvertent human intrusion will not
20 result in a release of radioactivity. Considering drilling scenarios in the future, let's do something
21 to the waste, the drum, and use engineered barriers to make sure the waste stays buried.

22 [3.3, 7.1 - Y]

23
24 Shaft or panel seals are clumsy attempts to undo what we are doing to the environment.
25 Creating panel and shaft seals may be worse than using the rock already there. The rock is more
26 solid; the seals would be a patch and may actually weaken the rock. It would be easier to
27 penetrate a patch than the rock. A rock is much better than a seal. [2.2, 7.1 - Y]

28
29 Also, a canister, like a 55-gallon drum was going to be certified in the Waste Acceptance Criteria
30 Revision 4, for 20 years longevity. However, the 20-year criteria was removed because the
31 drums were already 20 years old and falling apart. [2.3 - Y]

32
33 DOE will not do vitrification and is leaning toward not using backfill.

[1.3, 7.1 - Y]

34
35 Regarding future uncertainties, use engineered and natural barriers to keep waste forms from
36 entering the environment. [3.3, 7.1 - Y]

37
38 DOE has said that they will **not** do vitrification--they **will not** do it.

[1.3 - Y]

39
40 The [WIPP] repository could be reopened by future generations. There could be intentional
41 intrusion to study reopening the repository to store more waste in there. I would feel more
42 comfortable if DOE pre-treats the solid waste stuff, and not just future waste but existing waste.
43 For example, at Rocky Flats Plant, there is a process for looking into barrels with something like
44 x-rays to catch previously undetected liquids in WIPP-bound barrels. Improvements need to be
45 made to the up-front procedures. That is, pre-analyze, assess and characterization. This is a
46 problem--the uncertainty with the barrel contents. There needs to be better engineered barrier
47 systems. There will be a problem with salt migration. I am uncertain if the WIPP site would be
48 permanently closed. [1.1, 1.3, 3.1, 2.2, 7.1 - Y]



1 [DOE] has to admit that we can't predict the future, so we must just do the best we can right now,
2 using the best technologies available. Use engineered barriers as well as natural barriers to get
3 as much confidence as possible. [3.3 - Y]

4
5 Once WIPP is closed it could be opened by future generations because of interest in what was
6 done. [3.1 - Y]

7
8 The government may make a decision to expand from just disposal of military waste to include
9 civilian high-level waste as well. Intrusion may not be unintentional--they may say "let's open it
10 and put more stuff in it." [3.3, 7.2 - Y]

11
12 Would feel more confident if DOE would make decision to go back and pre-treat some of this
13 waste before they ship it. Not just future waste, but some of the waste now existing. [1.3 - Y]

14
15 Characterization is inadequate--it is very impressive, but still needs improvement. Barrels could
16 contain **anything**. May not really know what is inside, so whatever engineered barrier is used,
17 it may not work for that type of waste. [1.1 - Y]

18
19 I am concerned with current waste improprieties. That is, illegal openings [of waste disposal
20 sites] that are politically driven. Recently an old, unsafe landfill was reopened, illegally. What's
21 to stop the government from doing this at WIPP? Can't predict political situation. [3.3, 7.2 - Y]

22
23 WIPP should not be near locations with significant natural resources, such as potash.
24 How do we let future people know that waste is buried? Do we want to let future people know
25 that waste is buried? [2.1, 2.4 - Y]

26
27 In the future, people may actually be looking for radioactive waste or other materials. They may
28 dig up WIPP deliberately--like King Tut's tomb. [3.1 - Y]

29
30 Mixed waste--for example, plutonium--is long-lived, and hazardous chemicals are long-lived. The
31 mixed waste, plutonium, and hazardous chemicals are going to be dangerous for a very long
32 time, and we don't really know how they will interact. [1.2 - Y]

33
34 I have some high-level waste concerns, like putting more high-level waste in. The heat generated
35 by the high-level waste will affect other natural processes such as geologic and hydrologic
36 processes. [1.2, 7.4 - Y]

37
38 WIPP is more than a mixed-waste facility. If another place is used to store waste, WIPP can be
39 use to store other types of waste. [7.4 - N]

40
41 This creates a situation where waste is all around and there are possibilities of additional
42 intrusions by people landfilling around these areas. [3.1 - Y]

43
44 Concerned that WIPP will open and will continue to be used even if it is not safe because nothing
45 else is even close to opening. [7.2 - N]

46
47 People may want to get into WIPP [in the future] for reasons that can't even be imagined at this
48 time. [3.1, 3.3 - Y]



1 Per the Land Withdrawal Act, no high-level waste can be emplaced [into WIPP]. But the DOE
2 is trying to change the Land Withdrawal Act. WIPP as the forerunner, as the showpiece, is
3 actually the bastard child of the nuclear industry. It is a result of the nuclear community, but it
4 doesn't even require an NRC [Nuclear Regulatory Commission] certification license. WIPP will
5 not be certified by the NRC. It was called an R&D facility so that it wouldn't have to be licensed
6 by the NRC--DOE wanted it that way, so they got it. The regional control was given to the EPA
7 because DOE didn't want to reverse its decision [about NRC] but now they say they want NRC
8 regulation instead of EPA. [7.2 - N]

9
10 High-level and low-level waste is certified by the NRC. Why not TRU waste? [1.1 - N]

11
12 WIPP is put in a natural resource rich area. The standard that DOE has to comply with talks
13 about resources being avoided. WIPP was placed in an area of rich resources, so it already
14 violates these requirements. [2.1 - N]

15
16 Other countries are looking at vitrification, containers other than 55-gallon drums, and other
17 methods [of storing waste]. If we [U.S.] really want to do this, we must spend the money to do
18 it right. [1.3, 2.3 - Y]

19
20 The Land Withdrawal Act does allow "remote-handled" [RH] waste that is actually more
21 radioactive than that considered "high-level waste." [1.4 - N]

22
23 Part of the Waste Handling Building [at WIPP] has equipment to handle RH waste. There hasn't
24 been any characterization at all of RH waste. Characterization of RH-TRU waste needs to be
25 done soon, before emplacement. There is no idea of how it will react and affect the long-term
26 performance of the facility. [1.1, 1.2 - Y]

27
28 If we were going to do WIPP right, we'd be talking about doing the very best we can and not
29 looking at engineered alternatives as icing on the cake. DOE is trying to get away with not doing
30 any backfill. [7.1, 7.2 - Y]

31
32 We need to construct the best containers possible and use the best waste form modifications
33 possible. We can do a lot better than 55-gallon drums today, so why isn't DOE going to use
34 more robust containers? If people [in the future] were to encounter these more robust containers,
35 it would give them a reason to stop and consider what they might be getting into. [2.3, 3.1 - Y]

36
37 Let's leave the future the best that we can. DOE is not wanting to improve, for example,
38 containers and salt backfill. DOE has been avoiding doing this. [2.3, 7.2 - Y]

39
40 We [the public] have been saying these same things since the 70s, so this is not an attempt by
41 DOE to get "early public participation." [7.2 - N]

42
43 No transportation cask [for RH TRU] has been built. The first will be ready in 2015.
44 [2.3, 7.3 - N]

45
46 Remote-handled waste leaves a wide open door. It may be much more hazardous, or "hotter"
47 in radioactivity than high-level waste. [1.4 - Y]



1 **Moderator: Suppose you had one minute to talk to DOE about WIPP and its ability to**
2 **protect human health and the environment, what would you say?**

3
4 [DOE] should characterize the waste first, and not just be mixing it and storing it away. I can't
5 believe that this hasn't been done already. DOE should be putting efforts into this now, not
6 waiting until WIPP opens and putting it [the waste] all together. [1.1 - Y]

7
8 Salt is not as thought [ideal storage medium] because it cracks. Clay is proven to limit movement
9 of waste, but it is not even being considered. Existing reports say that use of specific proportions
10 of a soil and clay mixture will work. DOE is backtracking on C&C agreement to use backfill. In
11 official meetings with the EPA and regulators, they [DOE] have said they are not going to use
12 backfill unless it is required by regulations. Just put salt around it. [2.2, 7.2 - Y]

13
14 DOE's got a big problem--they must solve the problem of getting rid of waste, but if they try to
15 appease the general public and all the special interest groups, WIPP will never be opened.

16 [7.2 - N]

17
18 The Land Withdrawal Act requires the DOE to comply with the EPA's 40 CFR 191. They haven't
19 done so yet. Two things are required. The containment requirements include doing computer
20 projections of the future about how the waste might get out [of the repository], and doing
21 engineered barriers. The assurance requirements address engineered and natural barriers,
22 because of the uncertainties of computer projections. [3.3 - Y]

23
24 The DOE is in the process of trashing the standard. DOE should show compliance. Instead of
25 trying to get out of it, just do it. [7.2 - N]

26
27 Give assurances that engineered barriers will be used. Don't use panel seals. A panel seal is
28 not a barrier. [7.1 - Y]

29
30 Get down to using public solutions. I believe that the DOE has generated some solutions. Just
31 use them. Don't gather intelligence and then ignore it. Stop wasting our time. [7.2 - N]

32
33 [DOE needs to] do it right. Do more than just the minimum. DOE is trying to avoid doing the
34 best that it could and doing it right. DOE is spending too much time fighting the Land Withdrawal
35 Act. Become more definitive with getting waste in the ground after showing that the best has
36 been done using robust engineered barriers. DOE needs to move from saying "Our job is to get
37 waste in the ground and we don't care how much contamination there is" to "Our job is to get
38 waste in the ground once we prove that it will remain there." [7.1, 7.2 - Y]

39
40 DOE should obey existing laws and standards rather than trying to water them down. [7.2 - N]

41
42 Characterize waste beforehand. Use the best containers. Engineered and natural barriers must
43 be used. [1.1, 2.3, 7.1 - Y]

44
45 Do the disposition question soundly and well, and show that the environment and human health
46 is protected. The history of WIPP has been pushing through solutions quickly. DOE has made
47 major steps in the right direction to reach out for public support. Continue to gage public
48 confidence, and get public involvement and participation. Use a rigorous scientific approach.
7 Attain the highest standards of safety and environmental protection. [7.2 - Y]

1 The nuclear industry is ignoring disposition issues and is in a mess. They felt it was a technical
2 problem, easily solved. Now it is learning that disposition has given rise to major problems. It
3 needs to approach the question of waste management as a whole and get public involvement and
4 participation. In some ways it [nuclear industry] is still assuming that the solution is somewhere
5 in the future and isn't handling it now. [7.2 - Y]
6

7 Regarding the disposition question, DOE has ignored the concerns expressed over many years.
8 Approach the question of waste management and disposition with the best science possible and
9 winning the support of the public. The public should feel it is not being coerced into accepting
10 currently proposed solutions. [7.2 - Y]
11

12 Since 1993, the DOE has made great strides in trying to involve the public much more than ever
13 before; for example, it abandoned the idea of burying waste for the sake of experimenting with
14 something like gas generation. It went from 200,000 drums to 12 to zero. The new
15 administration feels the public pressure for money spent. The public is questioning the [WIPP]
16 progress. Perhaps DOE has spent too much money in the past, but it now must do the right
17 thing and not bend to pressure to rush this through. Doing the right thing requires time and
18 money. DOE has hard-working, well-intentioned people. Nuclear waste is a universal problem.
19 There are some good public servants at DOE who are feeling the new pressure. [7.2 - Y]
20

21 How about a contingency plan? What will happen if the DOE is abolished? [3.3 - Y]
22
23

24 4.0 SANTA FE, NEW MEXICO

25 26 27 AFTERNOON SESSION, June 28, 1995 28

29 A focus group discussion was held in Santa Fe, New Mexico the afternoon of June 28, 1995. Six
30 participants attended this discussion. Mr. Steve Wilkes was the moderator. Other attendees
31 were Maggie Wood, Rebecca Grohler, and Richard Quintana from the S.M. Stoller Corporation;
32 Ann Marshall, from Advanced Sciences, Inc.(who served as note takers); and Patty Barratti-
33 Sallani, a DOE-CAO public affairs representative
34

35 Mr. Wilkes opened the meeting with a brief discussion of the purpose of focus groups in general
36 and how this particular session would be conducted. He addressed the ground rules for the
37 discussions, the desired outcome, the assumptions to be used as a basis for the discussions, and
38 then introduced Maggie Wood.
39

40 Ms. Wood's presentation addressed the purpose and objectives of the focus group discussion,
41 how participants were selected, and how comments would be used. Ms. Wood advised the focus
42 group that the EEG had requested that she give the participants copies of a paper prepared by
43 EEG stating their position on Engineered Barriers at the WIPP site. Copies of the paper were
44 then distributed to the participants at the end of the discussion.
45

46 Mr. Wilkes then led the remainder of the session, beginning with a discussion of concerns about
47 the long-term performance of the WIPP disposal system. After all the concerns had been stated,
48 Mr. Wilkes asked each participant to summarize their concerns in the form of a one minute
49 statement to the DOE. The focus group session was then concluded.



1 Verbatim notes were not taken. The comments presented during the focus group discussion are
2 shown in the order in which they were expressed.
3

4 CONCERNS STATED³

5
6 **Moderator: What are your concerns about the ability of WIPP to protect human health and
7 the environment once WIPP is closed, waste is emplaced, and the site is sealed?**
8

9 WIPP can't meet all criteria unless engineered and natural barriers are used. Both natural and
10 engineered barriers are required by EPA. If these rules are followed, I would have fewer
11 concerns. [7.1 - Y]
12

13 Even if all the requirements for the integrity of WIPP are met, future climate conditions on the
14 planet could change; weather patterns could be altered globally. Models predict 15 inches of rain,
15 but what if pattern changes to 150 inches per year? What will that do? Will integrity of repository
16 be breached and contamination leaked to aquifers? [3.3 - Y]
17

18 Models used for WIPP show geology unchanged by any climatic or geologic changes, but
19 earthquakes do occur here. Are assumptions upon which WIPP is based (seismic, climate, etc.)
20 valid? I'm concerned about Westinghouse's attitude that the EPA 194 requirements are
21 burdensome, duplicative, and unnecessary, and about their unwillingness to meet the criteria
22 because they interfere with their expectations. [3.2, 3.3, 7.2 - Y]
23

24 I am concerned about the whole premise on which WIPP is based. Assumptions and values are
25 what dictates integrity of facility--DOE/Westinghouse have no values. They lie, look down on
26 [patronize] the public, and cover up; there's no basis for trust. On **whose** values are "criteria"
27 predicated on? On what are they based? The workers, scientists, and engineers believe
28 environmentalists are simply using delay tactics. These are the people who will have to enforce
29 requirements, so how can we trust them to do that if they don't believe requirements are
30 necessary? [7.2 - Y]
31

32 I have a major problem with the assumption that human beings, through questionable science,
33 are trying to make these predictions. Nature cannot be fooled--we're trying to make predictions,
34 but the earth doesn't care. Nature can't be controlled and there is no way to predict the future.
35 The views of the worth of natural resources will change in the future. What will be valuable later?
36 Perhaps the waste itself will be valuable and intrusion will occur to get material; or terrorists may
37 intrude. This [WIPP] is political rather than "natural" need. There is a prevailing problem of
38 politics ruling over science. [3.3, 7.2 - Y]
39

40 The repository's placement in an area rich with natural resources is a mistake. Drill holes
41 [boreholes] and the effect of pressurization underground due to gas generation is a problem. The
42 waste will come out; the loose waste of the waste will facilitate surface releases. The waste

43 Numbers in brackets at the end of each comment indicate the taxonomic category to which each comment
44 was assigned. In some cases a comment was assigned to more than one category. In other cases
45 separate statements within one comment were assigned different categories and were counted as separate
46 comments. The Y or N letter that follows the category number(s) indicates whether the comment was
47 related to postclosure [Y] or not related to postclosure [N].



1 should be treated to minimize the release of pressurized gas. Engineered alternatives should be
2 pursued to prevent waste migration and increase the sheer strength. [2.1, 1.2, 5.2, 1.3, 7.1 - Y]
3

4 In a closed system there is no real disposal; the wastes may be hidden, but they are still down
5 there and will eventually be exposed. Above-ground, accessible waste that could be continually
6 monitored is better solution. [3.3 - Y]
7

8 I am concerned that signs and site markers may be interpreted differently in the future.
9 Monuments themselves may be destroyed, or the materials from which the monuments are made
10 could become valuable and the monuments could be stolen or "harvested." [2.4, 3.3 - Y]
11

12 There is a lot of momentum for the WIPP site being built simply because we have to continue
13 since so much money has been spent on it [WIPP] already. [7.2 - N]
14

15 I'm really concerned that continuous monitoring is not being planned; there are no provisions for
16 monitoring for more than a short time after WIPP is closed. There are also no plans for
17 remediation. What if better technology comes about? Once collapsed, how do you remediate?
18 There is a whole national debate on nuclear issue of waste that hasn't been done. [2.4 - Y]
19

20 There is a need for independent oversight of WIPP. There is no long-range planning and there
21 is a lot of rule breaking. DOE "paperworks" their way around concerns instead of dealing with
22 them. [7.2 - N]
23

24 EPA rules have been weakened by DOE. The standards and requirements are lessened by
25 government pressure. We have no power to change/shape overall policy. There needs to be
26 independent agency to track DOE. Past agreements have been broken. Government violates
27 its own laws. It doesn't matter that public says they don't want it [WIPP], it just continues. DOE
28 can't be trusted. Whistleblowers have said that waste has already been secretly shipped to
29 WIPP, but DOE hasn't done anything about it. If WIPP is so safe, why has such an effort been
30 made to locate it in unpopulated areas? TRUST is the issue. [7.2 - N]
31

32 I am concerned about institutional controls; record keeping control. How do you mark something
33 in perpetuity? We may lose all knowledge that waste is down there, or WIPP may become a
34 "treasure" site. [2.4, 3.3 - Y]
35

36 **Moderator: What about the waste itself concerns you?**
37

38 My concerns include insufficient waste characterization and inadequate sampling. Some of this
39 waste is very old and accurate records haven't been kept of what's in the drums. DOE has said
40 that they'll only sample 10 drums in 1000. That leaves 990 drums that could be a nuclear soup,
41 with no way to control interactions among the waste. Each drum should be sampled. Carbon
42 detectors can't detect most explosive wastes. Waste may mutate over time. [1.1, 1.2 - Y]
43

44 If characterization is not adequately done, then DOE can't meet the criteria because they won't
45 really know what is in the drums. If characterization is properly done, DOE will be able to predict
46 gas generation and other reactions; otherwise they won't. "Legal" methods to ensure accurate
47 characterization is fallible. [1.1 - Y]
48



1 DOE has exempted themselves from having to meet safety considerations such as flammability,
2 gas, moisture, etc. based on assumptions that nothing in the waste will be explosive. If they're
3 wrong about what [waste] is going down there, then how can they control what will happen if there
4 is a spark or fumes or something else from the equipment being used. [1.1, 1.2 - Y]

5
6 Some low-level waste is actually very "hot" thermally and radioactively and could contaminate
7 workers or the water supply. Even without an explosion, the waste could present huge problems
8 if it got to the surface. The fracture structure of the surrounding geology is a problem. Thermal
9 heat from the waste could attract moisture from salt. [1.2, 4.0 - Y]

10
11 DOE has assumed that the waste won't generate heat, but now they're saying that it may very
12 well increase the temperature of the area. How will that affect brine movement or water supplies?
13 [1.2, 4.1 - Y]

14
15 WIPP is not being designed to be monitored, so basically it is an uncontrolled experiment.
16 There's not even any remote monitoring planned. Test wells are the only plan for monitoring.
17 [2.4 - Y]

18
19 What if water is injected into wells near WIPP at instead of below the repository level? If water
20 injection penetrates the site and waste moves into the McNutt Potash Zone, it won't have to
21 migrate all the way to the Culebra, it will get out in the potash. [4.1 - Y]

22
23 Potash resources should be included in Performance Assessments. [2.1 - N]

24
25 Look at changes in the physical form of the waste. Efforts should be made to cement or vitrify
26 the waste to prevent mobility of the waste. [1.3 - Y]

27
28 This is a political issue - you're either for or against the nuclear industry. Even God standing at
29 WIPP's gates saying it was safe couldn't convince some people. This is about educating the
30 public about what is going on. Tests like those conducted at Idaho Falls contributed to my
31 confidence about WIPP. I think WIPP has gone overboard with the protection issue; there are
32 so many safeguards. Gasoline trucks are much more dangerous than the TRUPACT, which
33 poses no danger at all, but people aren't concerned at all about it [the gasoline truck]. [7.2 - Y]

34
35 Technology will change, and there is no way of knowing exactly what will happen, but I have no
36 concerns about WIPP. [3.3 - Y]

37
38 **Moderator: Are there other concerns that we haven't yet addressed?**

39
40 Concerned about systematic, bureaucratic breakdown; war; institutional collapse; changes in
41 society's values, etc. [3.3 - Y]

42
43 If the gold mines of the past were trying to be built today, they'd never make it.
44 Difference between things like gold mines and WIPP is that those [harmful byproducts] don't last
45 as long. It is the longevity of the waste at WIPP that is the problem. We're dealing with the most
46 dangerous product in the world and it will last for hundreds of thousands of years. [1.4, 3.3 - Y]

47
48 DOE has looked at alternatives such as cementation, clay, better containment methods, etc., but
49 DOE won't use these. [1.3, 2.0, 7.1, 7.2 - Y]



1 DOE is a much stronger agency than EPA, so it can run right over them. Also, the EPA has
2 invited the OMB [Office of Management and Budget] into the process, but they are much stronger
3 than EPA as well. The entire process is "non-public." [7.2 - N]
4

5 The future of the EPA will be one of cutbacks, breakdown, and collapse. [3.3 - N]
6

7 DOE may try to change WIPP to store something it is not designed for, such as Yucca Mountain
8 waste if it isn't approved. [3.3, 7.2 - Y]
9

10 There may be no EPA or DOE in the near future, much less 10,000 years from now. What will
11 happen then? [3.3 - Y]
12

13 Showing causality is so difficult, how will it ever be found? For example, 50 years ago a village
14 was using cobalt as jewelry, and even after they all started getting sick they didn't relate it to the
15 cobalt. [3.3 - Y]
16

17 On the other hand, there is no way to know, so why go on at all, with anything? We just have
18 to use the best technology now and go on. [3.3 - Y]
19

20 There are political and economic drivers. Why are there 600 employees at WIPP if there's no
21 waste there? Who's benefitting at the expense of other people's values. [7.2 - N]
22

23 I'm concerned about how actual costs are determined. There is no continuity over these little
24 parts, like this focus group meeting and public confidence study. There are gaps in the way
25 things are done because they're being done in a vacuum. Nobody's "minding the store." People
26 state their feelings and concerns but they seem to drop into a bottomless hole. [7.2 - N]
27

28 WIPP is a symbol of something that people have no control over. Most people realize that they
29 can get much more exposure from other things, but WIPP symbolizes DOE's total unconcern for
30 the individual. That the government really cares about people is a faulty premise. [7.2 - N]
31

32 Concerned that all criteria will not be met because the government can refuse funding in future.
33 If they stop funding, then markers may not get put up even if they are planned now. [3.3, 7.2 - Y]
34
35

36 Oldest written history we have is less than 5,000 years. Governments come and go, as does
37 currency, language, and everything else, so how can we be sure written records will mean
38 anything? [3.3 - Y]
39

40 If we continue with these assumptions [that we can't predict future] then we can't do anything--not
41 just WIPP. [3.3 - Y]
42

43 The 10,000-year expert projections don't fool anyone, so stop faking it. We can't predict that far
44 into the future, so don't try to have experts assume that they can. We need to take the best
45 technologies available now and use them instead of fighting it. [3.3, 7.2 - Y]
46

47 Money and time should be spent on the whole scenario, like shortening the half-lives, reducing
48 volume, characterizing waste, and neutralizing the waste. Things like this should have been done
49 first instead of using all that money to bury the waste. [1.0, 2.0 - N]

1 There isn't an iterative process in the federal government planning process. They never stop to
2 consider what went wrong in the past in order to improve the future. The existing process doesn't
3 allow for goal evaluation and changes. [7.2 - N]
4

5 **Moderator: If you had one minute to talk to DOE about WIPP and its ability to protect**
6 **human health and the environment once it is closed, what would you say?**
7

8 WIPP is a bad idea. A national debate is needed on how to deal with the country's nuclear
9 waste. This needs a more holistic focus. [7.2 - N]
10

11 What is needed is more open public debate and stakeholder involvement in the policy making.
12 Empower stakeholders to solve the problems. [7.2 - N]
13

14 Educate the public, educate the public, educate the public. WIPP won't work forever; it will
15 eventually fail. The issue cannot be swept under the rug; the problems will just be passed on to
16 future generations. [3.3, 7.2 - Y]
17

18 Stop letting the schedule drive the process. It leaves no room for questions or change. The
19 process needs to be more open. The EPA will be making important scientific determinations with
20 a small group of dedicated people evaluating the work of much more experienced scientists. The
21 EPA staff won't have as much experience and qualifications as the DOE. [7.2 - N]
22

23 Stakeholders have very little scientific knowledge. Don't fake the performance assessments with
24 fancy numbers and expert panel projections. These are just devices to fake confidence, and the
25 public won't be fooled. Don't avoid consideration of natural resources like potash. [7.2 - N]
6

27 If the determination that WIPP has met all compliance requirements is totally open to the public,
28 the public may accept it; but they won't if the determination is government-controlled. [7.2 - N]
29
30

31 EVENING SESSION I, June 28, 1995 32

33 A focus group discussion was held in Santa Fe, New Mexico the evening of June 28, 1995.
34 Three participants attended this discussion. Mr. Steve Wilkes was the moderator. Other
35 attendees were Maggie Wood, Rebecca Grohler, and Richard Quintana from the S.M. Stoller
36 Corporation; Ann Marshall, from Advanced Sciences, Inc. (who served as note takers), and Patty
37 Barratti-Sallani, a DOE-CAO public affairs representative.
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39 Mr. Wilkes opened the meeting with a brief discussion of the purpose of focus groups in general
40 and how this particular session would be conducted. He addressed the ground rules for the
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45 how participants were selected, and how comments would be used. Ms. Wood advised the focus
46 group that the EEG had requested that she give the participants copies of a paper prepared by
47 EEG stating their position on Engineered Barriers at the WIPP site. Copies of the paper were
48 then distributed to the participants at the end of the discussion.
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1 Mr. Wilkes led the remainder of the session, beginning with a discussion about participants'
2 concerns about the long-term performance of the WIPP disposal system. After all the concerns
3 had been stated, Mr. Wilkes asked each participant to summarize their concerns in the form of
4 a one minute statement to the DOE. The focus group session was then concluded.

5
6 Verbatim notes were not taken. The major comments or points made during the focus group
7 discussion are presented in the following section. The comments are shown in the order in which
8 they were presented.

9
10 **CONCERNS STATED**

11
12 **Moderator: What are your concerns about the ability of WIPP to protect human health and**
13 **the environment once WIPP is closed, waste is emplaced, and the site is sealed?**

14
15 How can we predict what will happen in the future? We thought we knew in the past and we
16 were wrong. We can surmise, but there is no way of knowing. How do we know the site will
17 work the way it is designed? [3.3 - Y]

18
19 I sat in on a National Academy of Science (NAS) meeting where they told DOE that man-made
20 cavern in salt will not work; it would be better to use a natural cavern in the salt. With movement
21 expected from both the top and the bottom, the capsules can't resist the moisture for thousands
22 of years. They recently found out that water flow from the Rio Grande is not what they thought.
23 Nature will fill the void. [2.1 - Y]

24
25 DOE says that no water goes through or near the site, but the Ogallala Aquifer, one of the main
26 aquifers that feeds the southwest, is in that area. Concerned that the waste containment
27 capsules will not be water resistant and if water were to get into the facility the capsules could
28 break down and allow contamination to enter the aquifer or contaminate the air.

[2.3, 4.1, 5.2 - Y]

29
30
31 What happened to create all the layers above WIPP and how do we know the earth won't revert
32 to those conditions? [3.3 - Y]

33
34 One citizen asked what kind of waste will be put into the WIPP. DOE representative Patty
35 Barratti-Sallani provided a brief description of transuranic waste. [not counted]

36
37 Citizen: Plutonium is plutonium whether it's a lab coat or a fuel rod; DOE can't simply cut a fuel
38 rod in small pieces and call it low-level waste. Should consider it the same material regardless
39 of what kind of item it is. Need to have one standard for all waste. Even if the [contaminated]
40 lab coat disintegrates, the part containing the radionuclides will have an impact for 240,000 years.
41 How can we look at 240,000 years and predict what affect it [plutonium] will have on the genetic
42 makeup of society? We don't know how Mother Earth might react--she might through it out if we
43 stuff her. That's longer than the history of man. The entire gene pool of my tribe could be wiped
44 out if there were an incident. [3.3, 5.2, 7.2 - Y]

45
46 We don't know what kind of effect there will be from burying this waste in the earth. We don't
47 know what the Arabs might do or the Bosnians in 100 years. They might bombard the site.

[3.3 - Y]



1 I sit squarely on the fence, but in 240,000 years we should be able to fix that [the waste
2 problem]. [3.3 - Y]

3
4 A citizen asked "Once waste is emplaced, can it ever be taken out?" The DOE Representative
5 explained that the area could be remined, but it could result in exposure and mining risks to the
6 workers. [not counted]

7
8 A concern was expressed if the salt would act as predicted and collapsed on the waste.
9 [1.2 - Y]

10
11 Concerned that we won't be able to continue to monitor the site in the future to ensure that it is
12 performing as expected. [2.4, 3.3 - Y]

13
14 We've done this to ourselves. All of this [waste] is out there now and poses a danger and great
15 risk to this generation and those in the next few hundred years, so surely we would be better off
16 if the waste were isolated in the WIPP. [7.4 - N]

17
18 I agree. Maybe we get the technology to clean the water if it gets into the water, but we don't
19 know. [7.4 - N]

20
21 The unknown itself is the concern. With not being able to monitor, we need to do the best we
22 can now. Then, in the future, if better technology is developed, it could be used...[2.4, 3.3 - Y]

23
24 Society's tendency is to bury what we don't understand-- "out of sight, out of mind." I hope in 500
25 years we will find ways to mine and neutralize it--with all safety networks. Maybe we'll have
3 submarines to go in and neutralize it. [3.3, 7.2 - Y]

26
27
28 I'm concerned about whether or not we'll be able to get back to the waste and retrieve it if we find
29 a better way. Or, perhaps we will have the technology to clean any contaminated water or air
30 that might result from burying the waste. [2.0, 3.3 - Y]

31
32 No other society has lived over 500 years--who will be in charge? Will the United States even
33 exist then? [3.3 - Y]

34
35 Concerned that enough money isn't being put into finding ways to neutralize the substances
36 produced instead of putting all the money into developing disposal facilities. A proportion of the
37 money spent for these facilities should be used on finding ways to prevent these problems.
38 Similar to forest service--spends 90% on suppression and only 10% on prevention. [7.2 - N]

39
40 **Moderator: Is there anything about the waste itself which concerns you?**

41
42 Concerned about both hazardous and radioactive wastes being placed together in the facility.
43 Perhaps the waste should be more homogeneous. [1.1, 1.2 - Y]

44
45 I'm concerned about the byproducts of hazardous waste degradation. Biodegradation of natural
46 substances may create oils or other liquids as a result of decomposition. These decomposed
47 products may get into the water. [1.2, 4.1 - Y]



1 We get oil and gas from the earth - that doesn't really bother me. Life is precious and we need
2 to protect our water system; maybe we can, maybe we can't, but [the waste] is still safer
3 underground than on top. [7.2 - N]

4
5 **Moderator: Are there additional concerns which have not yet been addressed?**

6
7 DOE has a real public relations problem. Past errors, blunders, blatant deceit have created
8 considerable distrust of DOE. DOE is an amorphous body; there's not an "individual" that the
9 public can look to and learn to trust. Some of its blunders are just from ignorance, but DOE lies
10 and tries to cover up and tell the public that everything's fine; later we discover it wasn't fine--look
11 at Agent Orange. How can they [DOE] assure us that everything's fine when there is no way to
12 predict what will happen? God help us if we say in 50 years that this salt experiment didn't
13 work. [3.3, 7.2 - Y]

14
15 What if WIPP doesn't work? What prevents area from becoming prone to earthquakes or
16 floods? [3.2 - Y]

17
18 Participant question: When they detonate underground explosions, is this worse than that?
19 [not counted]

20
21 WIPP may not be as bad as other sites that do underground detonation, but it's like comparing
22 two bad apples. My concern is that we don't just bury it and forget it. We need to know that the
23 government is doing its very best to protect the southeast corner of our state. We need to
24 continue to monitor for as long as the waste is hazardous, no matter what agency or government
25 is in charge. [2.4, 7.2 - Y]

26
27 We were told that Los Alamos [National Laboratory] wouldn't contaminate our aquifer because
28 it was 2,500 feet underneath Los Alamos; then two years later they [DOE] admitted that there is
29 contamination, but tried to say it came from the Chernobyl incident. [7.2 - N]

30
31 What good is open, honest communication by DOE? When PR people start talking, it's a scam.
32 DOE is a con artist. We need to be able to look up information ourselves. Everything should be
33 public record. There is public involvement and willingness to listen. An ongoing dialog is
34 important to maintain. [7.2 - N]

35
36 **Moderator: If you had one minute to talk to DOE about WIPP and its ability to protect**
37 **human health and the environment once it is closed, what would you say?**

38
39 I need more information based on what we discussed. I don't know enough about the site. From
40 a humanitarian point of view we have, because of a hunger for exploration of new and different
41 elements and a thirst for knowledge and going forward, created a problem for ourselves and
42 future generations; now how do we best serve future generations. How can we neutralize the
43 waste and resolve this problem? [7.2 - N]

44
45 With information we have, I would have to do the "ostrich thing" and bury my head in the ground
46 until we can divert our attention from burying/generating waste to actually finding an antidote.
47 [7.2 - N]



1 I would like to know what's wrong with the existing storage situation. Just because we've spent
2 two billion dollars on [WIPP], we must be able to pull back from it--not just do it because we've
3 gone too far. We need to be cautious. If some other technology can be developed in next ten
4 years or so, then they [DOE] should walk away from it [WIPP]. Don't succumb to pressure--if we
5 need WIPP that badly, explain what is the situation in other areas. [7.2 - N]
6

7 OTHER DISCUSSIONS

8
9 Can we cause the salt to collapse instead of letting it happen naturally? Can we encapsulate the
10 waste by deliberately collapsing the salt around it, and then let the natural occurrence we expect
11 to happen naturally. My understanding is that it will generate so much heat it will melt the salt
12 and encapsulate everything. NAS is very creative. Now they're trying to encase it in glass at
13 Hanford. [1.2, 1.3, 2.2 - Y]
14

15 Concerned about transportation risks with regard to tourism in Santa Fe and New Mexico. An
16 accident, no matter how minor, would affect tourism for the whole state because it would be
17 exaggerated by the media and the public. [6.1, 7.3 - N]
18

19 We've spent billions on everything else so don't scrimp on the transportation--not just on
20 equipment, but with escorts or whatever it takes to ensure safety. Block the roadways so no one
21 can overtake the TRUPACTs, have police escorts surrounding it, or whatever is necessary. What
22 kind of qualifications do drivers need--airline pilots have to go through years of training, will these
23 drivers have special training? Will they be under time constraints or can they take two days
24 instead of one day to get to WIPP? [7.3 - N]
25

26 A citizen asked if shipments would be escorted or if drivers were on their own. The DOE
27 representative said drivers would be on their own. The citizen then asked how DOE could keep
28 track of the shipments. The DOE representative said that there would be a satellite tracking
29 system that would verify the vehicle's location every 15 minutes and that communication via
30 computer would be made, if no answer, emergency vehicles will be sent to investigate [7.3 - N]
31

32 One citizen said that measures should not be reactive, but proactive, to prevent any mishaps,
33 such as terrorists. [7.4 - Y]
34

35 The tribes are not being kept informed. Recently there was an incident in the State of
36 New Mexico. They couldn't handle it and had to bring responders in from Oklahoma. In every
37 exercise we have participated in, our people died because of a lack of communication. We need
38 one common frequency with police, fire department, WIPP, and all other emergency participants.
39 Also expressed concern that if pueblo emergency personnel are first on the scene, that they have
40 the same equipment (such as protective suits) that police and fire department have.
41 [5.0, 7.3 - N]
42

43 Also expressed some concern about the emergency response system. Who responds? Who
44 coordinates? How do we know that it will work? [7.3 - N]
45
46



1 EVENING SESSION II, June 28, 1995

2
3 An independent interview was conducted on the evening of June 28, 1995, with one individual
4 who was invited to participate in the focus group discussions but was unable to participate in the
5 Albuquerque focus group due to a misunderstanding about the location where the focus group
6 discussion was held. The participant was invited to attend other focus group discussions in Santa
7 Fe but was unable to attend these sessions. This interview was therefore conducted subsequent
8 to the evening session of the Santa Fe focus group discussion. Maggie Wood of the S.M. Stoller
9 Corporation lead the interview using the same questions that were used in other focus group
10 discussions. She started the interview with a presentation on the objectives and purpose of the
11 interview and focus group discussions. This presentation was also given at all the other focus
12 group discussions and is attached to this report as Exhibit A. Ms. Ann Marshall, Advanced
13 Sciences, Inc. took notes and Patty Barratti-Sallani, a DOE-CAO public affairs representative was
14 also present.

15
16 Verbatim notes were not taken. The major comments or points made during the interview are
17 presented in the following section. The comments are shown in the order in which they were
18 expressed.

19
20 **CONCERNS PRESENTED**

21
22 **Moderator: What are your concerns about WIPP's ability to protect human health and the**
23 **environment once waste has been emplaced, it is closed, and sealed?**

24
25 I am concerned that WIPP relies too much on passive measures rather using than active
26 measures to protect the waste. DOE expects the waste to stay where it is emplaced. I am
27 concerned because this is not a 10,000 year problem, which is an arbitrarily number, but rather
28 a 100,000 to 200,000 year problem. [2.0, 3.3 - Y]

29
30 I believe that the containers which are used to store the waste [55-gallon drums] are inadequate.
31 We heard that the geologic containment was deemed sufficient because they couldn't come up
32 with a container that would last. There was a failure of common sense at the beginning with the
33 use of this premise which may lead to a failure of common sense latter. It would be common
34 sense to design a waste container that would last the entire period of time that the waste is
35 radioactive or 200,000 years. [2.3, Y]

36
37 Monitoring. I think that the current plans for monitoring are totally inadequate. It is ethically
38 repugnant to emplace the waste and then just walk away from it. [2.4 - Y]

39
40 **Moderator: If you were going to monitor what would you monitor for?**

41
42 I would keep people on the site for the 200,000 year period of risk to identify any problems that
43 might come up and materials that might sneak out. The biggest thing is water intrusion into the
44 site. You need to monitor for water intrusion into the site. If water intrusion occurred you would
45 need to detect it so that you could remediate the site. You need to figure out what should be
46 done if water intrusion occurs. Salt will move, and there will be a mobility of the elements [e.g.,
47 hazardous and radioactive constituents].. There are no real barriers to contain the radioactive
48 and hazardous elements and with the inadequate containers what will indicate movement of the



1 elements? Monitoring of heat was ruled out decades ago because they know that there will be
2 heat. Will there be an expanding bubble of elements and will they be monitored?

3 [2.0, 2.3, 2.4, 3.2, 4.1 - Y]
4

5 How will we know if WIPP has failed? There really isn't any way to make a plug (seal), and
6 there is no way to prevent a borehole from releasing pressurized brine. DOE initially predicted
7 a 2 percent to 70 percent chance of an inadvertent intrusion into the site. Then finally the
8 prediction moved to 2 percent to 48 percent over a 100,000 to 200,000 year period. I believe that
9 human intrusion is highly probable with a probability of 1.0. Even if you were monitoring the site
10 for human intrusion, how would you detect intrusion from the side, like in slant drilling? Or what
11 would you do? [2.4, 3.1 - Y]
12

13 Brine pockets which reside in the site itself could create a shaft. How do you monitor for
14 pressurized gas? [1.2, 2.1, 2.4 - Y]
15

16 My preference is retrievable waste which will be monitored outside each container, which is
17 imbedded in a steel matrix - so you could pull it out. That should be specified. [2.2, 2.3 - Y]
18

19 There are a variety of ways that could be used to get the containers out of the salt beds once
20 they are emplaced such as a cable system with computer codes. [2.2, 2.3 - Y]
21

22 Once the stuff [waste] is out of the bottle [container], it just doesn't make any sense at all. The
23 waste should be put in a stable container so that it can't get out. Then you could mine out the
24 containers in the future. [2.3 - Y]
25

26 I am also concerned about the current methods that are used to perform risk assessments which
27 are woefully inadequate. Do we know how to predict thousands of years in the future? If we
28 used comparable techniques in medicine, they would be considered primitive. Current risk
29 analysis only uses single element analysis. In medical science we know that there is a synergy
30 of multiple factors like birth defects or lead poisoning. Those factors that are in the ground and
31 all other potential factors should be used in performing risk assessments. [3.3, 5.1 - Y]
32

33 WIPP is symbolic of society's attitude toward waste and how we produce, handle, and store toxic
34 materials. [7.2 - N]
35

36 I am concerned about the opportunity costs associated with WIPP. If we allow waste to be
37 emplaced too quickly, society will not take the effort to solve the problems that occur from
38 exposure to radioactive materials like plutonium and other exposures. [7.2 - N]
39

40 WIPP fits in with other vectors of illness and disease. WIPP has a function to serve as it gives
41 us the opportunity to perform research and development on toxins and improve global health.
42 If waste is emplaced in WIPP and it is closed and you walk away from it, you will lose the impetus
43 for research and development. [7.2 - N]
44

45 Geo-satellite monitoring could be used to monitor the facility. You could monitor activity in the
46 vicinity by implanting sensor devices and monitoring geological data for the introduction of water
47 into the site. [2.4 - Y]
48



1 I am also concerned about treatment, pretreatment, and stabilization of the waste. Is the waste
2 in the best form for storage? [1.3 - Y]

3
4 I also believe that waste characterization should be performed on a barrel-by-barrel basis and that
5 an analysis of the waste should be performed so that we will know what we are putting in there.
6 Without knowing the exact composition of the waste we lose the ability to know what you're
7 protecting the public from and a particular isotope could become a key factor. [1.1 - Y]

8
9 We should be building a system that will allow improvements over time, not degrade over
10 time. [7.2 - N]

11
12 Another concern is future generations mining the site out of curiosity and the potential health
13 impacts from such activities. The use of markers will be as likely to attract as repel efforts of this
14 nature. What should we do if someone decides what is in WIPP is valuable and wants it?
15 [2.4, 3.1 - Y]

16
17 **Moderator: If you were living thousands of years in the future in southeastern New**
18 **Mexico, and you knew that radioactive waste was buried in WIPP, what do you wish people**
19 **had thought of?**

20
21 I would want people to tell the whole story of nuclear weapons. Why we made them, and why
22 we made so many of them. If future generations knew about the production of nuclear waste and
23 the waste by-products it would reduce the potential of people messing around with the waste in
24 the future. [7.2 - Y]

25
26 I am concerned that in the future people might want to mine the waste for the materials which
27 could be used for the production of weapons. I am concerned that uranium and plutonium could
28 be mined. If this mining were to occur these materials could get into the food chain.
29 [3.1, 5.0 - Y]

30
31 Looking at 1 ppm - biological organisms could concentrate these elements [plutonium and
32 uranium] and move them into the food chain. We are now finding micro-organisms way
33 underground. The radioactive elements in the waste might become a medium for these micro-
34 organisms and a microbial bridge could be formed and mutate the organisms. [4.3, 5.0 - Y]

35
36 I am truly concerned about adequate monitoring of the site in the future and container
37 retrievability. DOE currently has no real plan for retrievability. We want to see more modern
38 materials considered for the waste containers. We would like studies of what materials can be
39 used to achieve a longer container life. [2.3, 2.4 - Y]

40
41 We need specific sensors that can track specific elements. Invitro stabilization techniques, ways
42 to pretreat and separate the waste should be explored and then decide what's the best way to
43 store these wastes. A variety of stabilization techniques should be explored. I am concerned
44 about mobility of the waste in the salt, gas pressure build up, and the lack of boundaries and
45 barriers to prevent the waste from getting out and affecting human health and the total ecological
46 environment. There could be indirect health effects on other species, like coyotes, deer mice, it
47 could be like the hanta virus. [1.1, 1.3, 2.4, 4.0, 4.3, 5.0 - Y]



1 **Moderator: If you had one minute to talk to DOE what would you want to say?**

2
3 The plan of putting the waste into containers and walking away from it does not use the best
4 available technology. Its not even using the best technology that we have gained over the last
5 30 years. We should prepare waste containment strategies so we can improve containment in
6 the future. Something that will give assurance of an ability to improve rather than degrade - Go
7 for 10,000 year or 100,000 year improvements. We currently don't know the right balance
8 between concentration and dispersal - or somewhere in-between. That is the problem for the
9 stuff in WIPP and other stuff too. [2.3, 7.2 - Y]

10



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