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CONSOLIDATED TOPICS FOR DISCUSSION
 ROCKY FLATS ENVIRONMENTAL MONITORING COUNCIL
 June 1988

The topics below are consolidated from the citizen questions that have been asked during the May 3 and 31, 1988 meetings of the Rocky Flats Environmental Monitoring Council. They are presented to assist the Council in determining the next topics to address in its study process.

1. **Health effects:** What follow-up studies have been done on worker health and on students who reportedly worked at Rocky Flats to help clean up after a severe incident? Has the "healthy worker effect" been factored into worker studies? Rockwell says that the high incidence of Rocky Flats workers who have brain cancers was typical of the Denver metro area generally, as indicated in a CDH paper on residents of Jefferson and Boulder counties. Can this study be generalized; is further study needed?

An English study shows increased leukemia among children and young people in the vicinity of all atomic energy installations. Does this study have applicability for Rocky Flats?

Why was the health risk assessment for incineration revised dramatically to project a much greater risk estimate?

How can patients who have been exposed to radioactivity and who move be monitored at their next place of residence? Can useful health information be collected through health fairs and class reunions? Could a cohort study of downwind residents living near the plant at the time of the 1957 fire be conducted?

Would highway workers and residents living east of the new highway W-470 be subject to increased health risks? What are the risks that highly contaminated soils between the 903 pad at Rocky Flats and the W-470 highway will drift to the highway, then get blown downwind on residents to the east? What are the potential effects of building the highway in the vicinity of three major water supplies? In the early 70s, residential building in the Walnut Creek development was halted; yet industrial and commercial property is being considered in conjunction with the construction of W-470. What are the potential problems posed by such plans? Who will be responsible for control and monitoring of soil tests? At what depth will the tests be taken, and will it be comparable to the depth that bulldozers will dig?

Has there been any follow-up of health effects from the 1957 explosion at Rocky Flats? High levels of plutonium and uranium soil contamination were reported at two elementary schools six and twelve miles away.

How was the state standard for plutonium developed? Does any amount of radiation create added health risk?

Are schools buying milk from farms near Rocky Flats?

ADMIN RECORD

SW-A-003474

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 [Signature]

Is spray irrigation concentrating the radioactive contaminants and increasing hazards to human health through resuspension of contaminated particles?

2. **Environmental effects:** Are radioactive wastes affecting the ozone layer?
3. **The sampling program:** who conducts sampling, where is it done, what is sampled, what are the results? What was the 1957 fire effluent?
4. **Oversight:** Who monitors to assure that records are not changed and that double sets of records are not kept?

What is the status of Missing and Unaccounted For (MUFed) plutonium that was a continuing concern to Gov. Lamm's Rocky Flats Monitoring Committee?

How many inspections have EPA and CDH conducted of the Plant? Are the reports available for review? Citizens say that these reports are labeled "environmentally sensitive;" what does this mean?

Jefferson County trucks have been seen carrying gravel from Rocky Flats property; what is this gravel used for? Has it been tested for contaminants. Has any of the contaminated soil been moved off Rocky Flats property?

6. **Monitoring:** Is the monitoring equipment at Rocky Flats adequate?

Citizens would like more detail on specific aspects of the monitoring program: from the April monthly CDH water surveillance report; and from Rockwell's monitoring report (date unspecified), for which raw data are requested.

One recommendation is to install a continuous working level monitor at the point where unexplained elevated levels of beta emissions have been recorded.

What is causing the high BOD readings at pond B-5?

According to CFR 61, Subpart H, DOE is required to report air emissions from their facilities and calculate a dose to the population. What radionuclides and gases does DOE monitor and report, and which are not reported? Is DOE complying with regulations?

What does Rocky Flats pay for the monitoring program and studies? Is their contribution equitable?

Are the stack monitors linked directly to a computer? Does CDH routinely review these printouts for anomalies before any shutdown? Why are stack emissions not included in the monthly monitoring data?

CITIZEN QUESTIONS PRESENTED DURING THE MAY 31, 1988 MEETING
ROCKY FLATS ENVIRONMENTAL MONITORING COUNCIL

The questions presented below were posed by members of the public during the May 31, 1988 meeting of the Rocky Flats Environmental Monitoring Council. As indicated below, some questions were presented and answered during the meeting; others were deferred to a later meeting.

I. Citizen questions presented and answered during the meeting

Name: Dr. Harvey Nichols

Question: What are Mr. Hazel's academic qualifications in the field of radiation and radiation biology?

Question: Why has Mr. Hazel altered his health risk assessment for the incineration from 1 in 64 quadrillion to a much greater risk estimate?

Name: Lynn Segal

Question: To Ellen: With regard to following patients who move--which is likely in a latency phase of 10+ years to move--would this not be taken care of by following their type of disease at the new hospital where they are diagnosed, and inquiring as to where they lived and making this information national on computer?

Name: Susan Hurst

Question: Considering all the budget cuts that CDH is anticipating, we feel that simplistic health questionnaires be distributed at local high school reunions and the nine Health Fairs. This would be very inexpensive but effective.

Name: Jan Pilcher

Question: To Ms. Mangione: Please comment on the "appropriateness" of study design

- 1) for Dr. Carl Johnson's epidemiological study using 1969-71 census data showing higher cancer rates for areas closer to plant;
- 2) for proposed cohort study of "downwind residents" living near plant in 1957 (at time of fire) and still residing here--which could be identified through phone books--to study health effects of living near plant, which would cover latency period of 20-30 years. This could also include offspring of exposed population;

3) re: DOE worker studies, including Wilkinson study:
How do they factor in "healthy worker effect"--or do they?

Name: Jonathan Gordon

Question: In terms of health effects (long-term), has there been any follow-up of the 1957 explosion at Rocky Flats? Apparently, high levels of plutonium and uranium soil contamination were found at two elementary schools six and twelve miles away.

Name: Concerned Health Technicians for Cleaner Colorado

Question: Worker Follow-up

We want to have available follow-up information or at least information in the form of lists of workers of a transient nature so an independent organization can move forward to do the necessary studies.

Name: Bini Abbott

Question: To Al Hazel: Do you agree with Dr. Ed Martell that both highway construction workers and residents living east of W470 would have an increased health risk if W470 is built east of Rocky Flats?

Even if the 300-foot strip of the W470 right-of-way tests below the state standard of 2 dpm, wouldn't there be an increased health risk as the highly contaminated soil between the 903 pad at Rocky Flats and the W470 highway gets resuspended in the air, lands on the highway, and then gets blown downwind on residents to the east?

II. Citizen questions deferred to a future meeting

Name: A. Das (278-7777)

Question: In response to Chuck Stevenson's question ref. transcript of earlier video program:

Childhood <u>Leukemia</u>	U.S. Rate <u>per 100,000</u>	U.S. <u>Expected</u>	Jeffco <u>Actual</u>
1947-51	3.1	2.3	
1952-56		4.7	5
after fire & explosion: 1957-61		7.2	14

(another table shown on next page)

<u>Infant Death in First Year</u>	<u>U.S. Rate per 100,000</u>	<u>Jeffco Rate per 100,000</u>
1952	28.7	28
1953		24
1954		29.2
1955		30.2
1956		28.8
1957	V	30
1958	12.7	28

U.S. rate steadily dropped due to better nutrition and medical care.
Jeffco climbed after fires [and] remained high.

Name: Jackie Feulner 12055 W. 107th Ave.
Broomfield, CO 80020

Question: To Al Hazel:

- 1) How was "state standard" for plutonium, etc. arrived at? Especially if we do not know enough about the effects of any amount? Can those standards be changed? Will they be?
- 2) Why doesn't Rocky Flats (or DOE, etc.) have to help pay for air monitoring around Denver and areas closer to Rocky Flats? Also to help pay for these expensive studies? They are responsible for making these items a necessity!
- 3) How can the state allow a highway to be built in an area of contamination--when you don't even know the effects it will have on the health of the residents and their descendants and the workers and their descendants?

Name: Lucile Pearce

- Question:
- 1) Why risk the health of thousands of people by placing a major highway in the immediate vicinity of three major water supplies?
 - 2) In approximately 1972 all residential building in the Walnut Creek development was halted because of plutonium contamination, resulting in bankruptcy of a

highly advertised residential community. How is it possible that industrial and commercial property is now being considered in conjunction with the construction of Highway W470?

- 3) Economic advantage is desirable, but should it be allowed to take precedence over a safe and healthful environment? Do you agree that the standards were set with economic reasons in mind?

Name: Alan Kleeman

Question: Who is going to be responsible for the control and monitoring of the soil test?

I have little faith in the system as it now stands when I cannot get phone calls answered concerning another industrial radiological question.

Name: Barbara Eakley-Kleeman

Question: Are these soil samples taken from the same depth as would be exposed by bulldozing during the construction of W470? It is my understanding that the samples are of topsoil and may be newly deposited by winds, rather than contaminated lower levels.

I find 1 chance of cancer in 1,000,000 population to be unacceptable, especially if that 1 could have been prevented.

I am adamantly against an eastern alignment of W470.

Name: [none given]

Question: Why do we need a state standard for airborne radionuclides when any amount of ionizing radiation creates an added health risk?

Name: Paula Elofson-Gardine
Concerned Health Technicians for a Cleaner Colorado

Question: Please explain what exactly is causing the high BOD readings at Pond B-5, ecological import of land application, the spray irrigating this mixed waste. Also the beta emitters involved high readings the last two months--please identify them.

Name: Dr. Harvey Nichols

Question: For Dr. Ellen Mangione: Why is Dr. Tom Vernon able to assure Governor Romer and the public (March 22, 1988) that Rocky Flats operates monitoring equipment that is "the finest in the world" when the "Boulder scientists" presented evidence to the Health Department that the equipment was inadequate (June 1987), and Janet Day had just reported (March 19, 1988) on the DOE investigation (February 1988) of monitoring problems inside the plant?

Name: Susan Hurst

Question: I have seen Jefferson County trucks carrying gravel from Rocky Flats property. What is this gravel used for? Has it been tested for contaminants (the gravel). There are three gravel pits on Rocky Flats property, and the streams do go by them.

Name: Walt Hessler Sr. P.O. Box 28200 #16
Lakewood, CO 80228
369-1124

Question: Has any of the contaminated soil been transported off the Rocky Flats site? There is some evidence of the AERR Co. site (one mile south) having contaminated soils brought in for structural fill from the Rocky Flats Plant. Would this soil be Pu, etc. contaminated?

Name: Paula Elofson-Gardine
Concerned Health Technicians for a Cleaner Colorado

Question: DOE/Rockwell should be accountable for a full assessment of broad-range substances emitted from Rocky Flats. The off-site contamination is going to have to be addressed. Rocky Flats generated the waste. If (sub)contractors such as Rockwell don't want to be held liable, DOE needs to pick up the tab.

Likewise, DOE must take responsibility for the complete assessment of health of residents (long-term, even those moved out of area; this can be done via Social Security numbers). CDH can devise and accumulate appropriate information with help from internship students at nine Health Fairs and high school reunions.

Name: Kim R. Grice

Question: 1) Are the stack monitors directly linked to a computer?

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- 2) Does CDH routinely review these printouts for anomalies [anomalies or abnormalities] before any shutdown?
- 3) Is the focus of this committee to find cause to demand the decommissioning of Rocky Flats. If not, why not?

Name: Committee Against Radiotoxic Pollution (Kim Grice)

Question: Realizing the importance of monitoring stack emissions, why isn't this data included with the monthly monitoring data?

CITIZEN QUESTIONS PRESENTED DURING THE MAY 3, 1988 MEETING
ROCKY FLATS ENVIRONMENTAL MONITORING COUNCIL

The questions presented below were posed by members of the public during the May 3, 1988 meeting of the Rocky Flats Environmental Monitoring Council. As indicated below, some questions were presented and answered during the meeting; others were deferred to a later meeting.

I. Citizen questions presented and answered during the meeting

Name: Susan Hurst
Networking Colorado

Question: Is there a permit required for the spray irrigation (land application/compliance) being currently done with the B series ponds? At the meeting last week with the CDH et al., Rockwell acknowledged that this current practice is routine. This practice, similar to solar evaporation ponds, is a concentrating mechanism for radioactive waste streams, and is a threat to Public Health, Welfare, and Environment. This, coupled with the "Chinook wind factor," makes the impact of spray irrigation even more hazardous due to the concentrated resuspended particles being spread to the community and environment.

Name: James Boyle

Question: What has happened to follow-up studies and epidemiological studies on plant personnel, firemen, and non-Rockwell workers hired to assist in clean-up after Rocky Flats' worst fires? We're aware of (especially significant) a period of time when local high school students were hired to help clean up after a severe incident (such as Rep. Dorothy Rupert's son). This was done to keep regular workers from exceeding their allowable exposure. What follow-up has been undertaken for these people?

Name: Stacy (age 11)

Question: 1) For Dr. Martell: If radioactive wastes are going up into the air, what's happening to the ozone layer?
2) For Mike Sattler, CDH, or Sam Williams: Why are you allowing schools to buy milk from farms that are right by Rocky Flats?

Comment by Stacy -- I wish you would stop contaminating the community because I among many others don't want something to happen to us like it has to many other people.

Name: Daryl Hornbacher

- Question: 1) What soil sampling is done by Rocky Flats south and other directions from the plant?
- 2) To Al Hazel: What does Colorado Department of Health sample in their program?
- 3) What are the results?

Name: David T. Snow

Question: To Dr. Martell or any other: Percolating rainwater must transport radioactive particulates and solutes downward into the soil. Are there any estimates of the natural rates of such surface decontamination?

If this is the prime mechanism that may protect our progeny, since decay of plutonium is not, why has it been neglected?

Name: Bini Abbott

Question: For Dr. Martell and Dr. Lichtenstein: What is your opinion on the advisability of constructing W-470 one-half mile east of Indiana along with two interchanges east and southeast of Rocky Flats?

II. Citizen questions deferred to a future meeting

Name: Jim Morris

Question: Bill Lawless, manager of the "burial ground of wastes" at the Savannah River Plant, states that the DOE and duPont kept two sets of books for analyzing the rate at which toxic and radioactive wastes travel through the soil into the ground water. Figures were manipulated by flushing the wells with water or pumping them out and then drawing a sample. The true data was unpublished or buried in reports labeled as "draft" and thus protected from public inquiry through Freedom of Information requests. Have DOE and Rockwell any knowledge of double sets of books, of flushing or pumping out wells, or of keeping "draft" or unpublished internal figures? (Source: p. 15, Greenpeace, May 1988.)

Name: Gregory K. Marsh

Question: During Governor Lamm's Rocky Flats Monitoring Committee, the concept of plutonium that was Missing and Unaccounted For (MUFed) was a regularly discussed issue that clearly quantified Rockwell and DOE's level of competency. At that time, MUFed plutonium amounted to at least 10 Kg according to Rockwell's estimates. Independent estimates were very much higher. Why isn't this issue ever mentioned?

Name: Dr. Harvey Nichols

Question: Point of information: Last week in Washington I learned that the Senator Glenn bill (with House amendment) will shortly be presented again, with a good chance of passage. It will establish an independent oversight committee, over 100 strong, to police the U.S. weapons plants.

Name: Paula Elofson-Gardine
Concerned Health Technicians for a Cleaner Colorado

- Question:
- 1) We would like to bring your attention to the monthly CDH water surveillance report for April, especially page 6: Please identify the incidents and the beta emitters involved with the highest readings in the B-5 pond.
 - 2) Rockwell's monitoring report, page 20, reflected a sudden increase in sampling (19) at the Walnut Creek/Indiana location, when the normal sampling size is 1-4. Pond B-5 increased from normal sampling size of 9 samples. This indicates that this is being drained directly to water sources that flow directly to community water supplies. The statistics show an extremely high variance of readings that appear to be minimized somewhat by averaging raw data. This subsequently absorbs high readings into a statistical mean, minimizing the actual figures or incidents. We would like to request the raw data to be available for review with Unusual Occurrence Reports to document the cause.

Name: Gregory K. Marsh

Question: Since occasional samples analyzed for beta emission come up too high for explanation, why isn't a continuous working level monitor installed at this location?

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Name: Paula Elofson-Gardine
Concerned Health Technicians for a Cleaner Colorado

Question: The EPA/CDH have conducted numerous inspections of the plant. Why are these "unavailable" for review? We need (want) to know if/why these are considered "environmentally sensitive." We have been told that they are not for public review, possibly because of this. What makes them so?

Name: Joan Seeman

Question: For EPA:

- 1) According to 40 CFR 61, Subpart H, DOE is required to report air emissions from their facilities and calculate a dose to the population. Several facilities measure "all" radionuclides being discharged, including gases; Rocky Flats measures "three" radionuclides and 1 gas. Rocky Flats releases "many" radionuclides and gases, and they are not included in their reporting. How can they determine radiation exposure to the public with minimal measuring?
- 2) Rockwell (at Sam Williams' ad hoc meeting) stated the reason Rocky Flats workers had a large number of brain cancers at the plant was due to the Denver metro area experiencing a large number--they referenced their findings from a CDH paper. I reviewed this report to find it was Jefferson County and Boulder. Could EPA follow up?

Name: Joe Goldfield

- Question:
- 1) To Dr. Lichtenstein: Wouldn't ratios of Rocky Flats cancer incidence to general population be much higher if compared to other unexposed, healthy worker populations?
 - 2) To Dr. Lichtenstein: No reference has been made to an English study that shows increased leukemia among children and young people in the vicinity of all atomic energy installations.
 - 3) To Dr. Martell: 1957 fire effluent estimate.