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September 16, 2008 VIA HAND DELIVERY

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Dear Ms. Castañuela,

The Sierra Club is submitting comments on the draft low-level radioactive materials license (R04100) and Draft Environmental Analysis prepared for Waste Control Specialists for disposal of low-level radioactive waste. On behalf of our nearly 24,000 members living in Texas as part of the Lone Star Chapter of the Sierra Club, as well as our nearly 8,000 members in New Mexico through the Rio Grande Chapter, we believe this application should have never received a draft license because of failures, among others, to:

1. accurately characterize the surface and underground geology and hydrology of the proposed site, including the precise location of the dry line of the OAG, the saturated zones and water table heights of the OAG and the Dockum red bed, the level of wind and water erosion, and the extent to which fissures and salt dissolution could pose a problem;
2. take into account severe weather events and their impacts – including both high winds, tornadoes and high rain events;
3. take into account future climactic conditions that might change the amount and timing of evaporation, high wind and high precipitation events;
4. consider the full range and impacts of traffic accidents;

5. look at the potential and cumulative impacts of the nearby RCRA hazardous waste landfill, the byproduct materials license and waste from the uranium enrichment facility;
6. submit a more finalized design of the site, particularly with the new boundaries of the federal facility required by TCEQ
7. submit final plans and descriptions of its leachate collection system;
8. design a finalized radioactive safety program for its workers, which given WCS's history of work-place safety incidents, including with radioactive waste, is paramount;
9. consider all alternatives to the proposed burial of low-level radioactive waste, including an assessment of above-ground isolation, as required by Chapter 401 of the Health and Safety Code;
10. consider alternative site locations to the existing hazardous and mixed use waste site in Andrews, including other counties in Texas;
11. obtain final title to all mineral and surface ownership on lands associated with the federal and state compact low level waste facilities.

As indicated by these and other failures, the Sierra Club believes that the TCEQ should not have prepared a draft license for WCS because the applicant did not meet the requirements spelled out in Title 30 TAC, Chapter 336 and Chapter 401 of the Health and Safety Code. More specifically, we will detail those parts of the requirements that have not been met by the applicant, which therefore means the application should not have been declared technically reviewed and complete nor the draft license prepared. Thus, because of oversights in the application process, we believe that the TCEQ and applicant can't guarantee that the health, safety and public welfare of the communities surrounding the site, as well as the natural resources of the area, will not be adversely affected. We are therefore requesting that the application either be rejected or be remanded to the applicant. Only after the applicant has met the basic requirements of the existing rules should a draft license be prepared and released, at which time Sierra Club and others would have the opportunity to once again review the application and draft license and provide additional comments, including the right to request a contested case hearing should we ascertain that the application still contains uncertainties and the potential to physically or economically damage our members.

Instead, what TCEQ has insisted on doing in this draft license is placing a large number of additional preconstruction conditions that the applicant would have to complete, supposedly before construction can begin (see Conditions 51 through 64). These include such basic studies as additional borings and analysis to determine saturation levels, a hydrogeologic properties report, tracer studies to determine where to place monitor wells, verification of the top of Dockum Groups "to support any modeling relying upon these elevations," measuring matric potential of the Dockum formation to locate the top of the zone of saturation, verifying the adequacy of the leachate collection system, basic fracture analysis and a study of the potential for erosional salt dissolution in the area, all of which

should have been done prior to granting a license to determine if the geologic conditions warrant a granting of the license. Chapter 401 is clear on the types of information that must be submitted for a proper review by TCEQ, and is also clear that TCEQ must determine that this basic information allows it to make a judgment that the site is protective of human health and the environment. The majority of the additional preconstruction license conditions would suggest that TCEQ lacks information about the suitability of the site as well as the design and operation to the facility that would allow it to determine it met these standards. These conditions are not protective of human health and the environment because with the license already granted there will be little potential for preventing construction even if the studies reveal problems with the proposed site. In short, the public would have to rely on the Executive Director to stand up to a company with significant political and economic standing in Texas.

While we believe the license should not be granted based on not meeting Title 30 TAC Chapter 336, and Health and Safety Code Chapter 401, if TCEQ insists on proceeding with the draft license as prepared, then Sierra Club requests a contested case hearing on behalf of approximately a dozen members of Sierra Club who reside in Lea County, New Mexico as well as one member living in Andrews County, Texas and members living in other nearby counties such as Ector. Because several of these individuals have indicated their belief – and ours – that the granting of the license and opening of the facility will injure their health, livelihood and cause economic damage, Sierra Club requests a contested case hearing on their behalf as "affected persons," as defined under Chapter 401 of the Health and Safety Code.[1] The individuals, their addresses and a description of how they would be impacted is found further on in these comments. But again, we take the position that the application does not meet the requirements under Texas law, and that no draft license should have been prepared in the first place.

Background and Analysis: The Application Does Not Meet Statutory Requirements

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[1] Health and Safety Code, Sec. 401.003. DEFINITIONS. (15) "Person affected" means a person who demonstrates that the person has suffered or will suffer actual injury or economic damage and, if the person is not a local government:

(A) is a resident of a county, or a county adjacent to that county, in which nuclear or radioactive material is or will be located; or

(B) is doing business or has a legal interest in land in the county or adjacent county.

Waste Control Specialists turned in its application on August 4th, 2004. After three notices of administrative deficiency, the Texas Commission on Environmental Quality declared the application administratively complete on February 18, 2005. After a public meeting and submittal of comments, TCEQ then issued two separate notices of technical deficiencies and a separate letter with a "List of Concerns" on June 30th, 2006, "regarding unresolved license application issues." Finally, WCS requested an extension of time to respond to the technical notice of deficiencies, and the list of concerns, and submitted additional information, which was officially accepted on May 1, 2007 by TCEQ as meeting its concerns. Then, on August 13, 2008, TCEQ issued the notice of technical summary, the final draft license and the draft environmental analysis. Nonetheless, despite responding to three notices of administrative deficiency, two notices of technical deficiency, a list of concerns, and a request for additional time to meet those concerns, the August 13th Draft Environmental Analysis[2] and the Final Draft License make clear that the applicant was unable to convince TCEQ that the application was administratively complete or technically complete enough to meet all of the Commission's concerns or even basic regulatory requirements. In short, the applicant has failed to convince the regulatory agency overseeing the application process that there is sufficient information on which to make a decision. Otherwise, the TCEQ would not be forced to add so many additional – basic -- preconstruction criteria to make up for the shortcomings of the application and review of the application.

By the submittal of these comments, Sierra Club is asking the agency to follow the law and remand the application until such basic data – such as those required by the preconstruction criteria -- is provided and the site characterization required is verified. If, following these requirements, the TCEQ has determined that the application then meets statutory requirements, it can issue a draft license.

As an example of the circular logic of the agency, the Environmental Analysis claims that all the information needed to determine the sites safety has been reviewed and meets the requirements of TAC Chapter 336. However, when speaking about the extra license conditions, the EA states "The Executive Director recommends that additional site information be provided to verify the characterization provided in the application to *address data gaps and areas of uncertainty* (emphasis added).[3]" Again, the public can not be assured of the site's safety if data gaps and areas of uncertainty about – in this case – basic modeling of the characteristics of the proposed disposal site exist.

Similarly, while the EA makes the case that application provided sufficient information such that no groundwater will intrude into the waste because of the

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[2] TCEQ, Draft Environmental and Safety Analysis of a Proposed Low-Level Radioactive Waste Disposal Faility in Andrews County, Texas, August 2008.
[3] TCEQ

depth of the water table, in fact, the TCEQ changed the boundaries of the federal facility because of concern about the depth of the water table and asks the applicant to model future locations of the water table because of ongoing concern about its precise depth. In other words, the application does not meet the requirements of 30 TAC 336.728 (f). Moreover, because of this change required by TCEQ, the applicant must submit new designs, drawings, specifications and calculations related to the new engineering designs. This means that the public will have no opportunity to review or comment on these designs.

Another separate license order accompanies the draft final license stating that the license application is conditional until WCS acquires free and clear title to all interests – surface and mineral – of the proposed disposal site. However, TCEQ can not issue a license until the applicant meets Texas Health and Safety Code 401.204 (a), or alternatively 401.204 (b) or (c). Again, TCEQ can not even grant the license until WCS acquires – or has condemned through action by the Attorney General's Office – the surface and mineral estates and should not be placing a license order on a license.

Moreover, the EA has asked as a preconstruction license condition the development of a comprehensive radiation safety program. Clearly, however, under 30 TAC 336.207, the applicant should have already developed such a plan and program, and no license should be granted before basic safety procedures are established for its operations and workforce.

Our message is relatively simple. WCS should not be granted a license until such time as TCEQ can make a complete determination that the site is suitable to dispose of low-level radioactive waste, including Class A, B and C, or not.

Indeed, the proposed license is not a final agency action --- it lacks finality – because it requires new information to be submitted that is much greater than trivial details; the new information requested is actually the very meat of the application – engineering designs, radiation safety programs, modeling of hydrology, water depth and saturation levels. But we – the public – will not be able to participate in the review of that information or seek a contested case hearing on that information because the license will have already been granted. We not only think the TCEQ should not grant this license, we think to do would be a violation of our rights and of the public in general. TCEQ can not issue the license because it lacks finality.

Specific Comments: A Problematic Site and Application

Stability and Safety of Site is An Issue

Because TCEQ was concerned about sufficient depth to groundwater, as required by 30 TAC 336.728(f), they have changed the location of the boundaries of the proposed disposal units for the federal site. However, what that means is

that the application and Environmental Analysis have not actually reviewed – and the public has not had access to – any of the design features and dimensions of the newly designed federal waste site. Thus, the structural stability of the proposed reconfigured units must still be demonstrated, meaning the applicant has not met the regulatory requirements of 30 TAC 336.362 (b) (2), (b) (2) (A) and (b) (2) (C).

Because the change in boundaries may affect the total space available to bury the canisters of federal waste, this could result in changes in the void spaces, which is an integral part of the application to determine the stability of the waste and the facility itself. Even without the change in boundaries and size in the Federal Waste Site, the EA questions some of the assumptions made about the structural stability of the federal site. The federal site is actually divided into two components – one accepting only containerized waste – called the CDU -- and another containing bulk, or non-containerized waste (NCDU). On page 42, the EA points out that there was no simulation model of the structural stability of the non-containerized waste, and instead assumed that results for the containerized waste could be extended to cover the NCDU, which the agency rightly sees as problematic. Still, despite this lack of analysis on basic stability of the waste stream, TCEQ is choosing to grant a license.

The Environmental Analysis also points out that the application lacks specific information proving the strength and degradation of the shotcrete used as part of the liner as the applicant has chosen to utilize a fiber reinforced shotcrete (FRS) rather than reinforced concrete to provide a barrier between the waste and the environment for the NCDU. The EA points out "demonstrations, other then FLAC simulations, of how FRS might be shown to be comparable to conventional reinforced concrete, were not included in the application." Thus, the applicant is choosing to put non-containerized waste using a liner material that lacks sufficient proof of its safety.

In addition, the application fails to assess what impacts seismic activity could have on canisters during the actual operation of the land disposal units, and the potential for tipping or releases of radiation due to seismic activity. Predictably, TCEQ has added a license condition to analyze this potential. The failure to conduct this analysis during the administrative and technical review of the application means that the applicant has failed to show that the site will be operated in compliance with radiation protection set out in 30 TAC 336.726. Again, the applicant – by failing to look at the impacts of seismic activity during operations on the stability of the canisters, waste and liners – has failed to show it can protect its workers during operation, a key performance requirement under 30 TAC 336.726.

Furthermore, the TCEQ has added a license condition to require "the determination and sensitivity analyses of the lower boundary conditions used in the infiltration modeling to evaluate the effect of the lower boundary condition on

percolation of water through the proposed cover system." In addition, another condition would have the applicant verify site conditions to better input more realistic parameters into their infiltration analyses and thus determine the suitability of their cover layers. In other words, TCEQ was not convinced that the models of infiltration and percolation of water through the cover design were sufficient to prove their structural capabilities.

Similarly, the EA points out that the applicant has failed to address potential hydrologic interaction between potentially saturated OAG materials and the cover materials, especially given future wetter conditions that could lead to saturated soils in the OAG formations which interact the top of the performance cover. While the Executive Director has recommended a license condition to demonstrate that flow to the lateral drainage layer of the final cover would not impact the cover and land disposal facilities, clearly this type of analysis should be done before a license is issued.

Finally, the EA found that there were inconsistencies in different parts of the application related to disposal unit cover designs and recommends that final engineering designs, specifications and calculations be submitted prior to commencement. Again this is unacceptable to take a final action – issuing the license – that is not really final and not allowing the public to assess the safety and suitability of the engineering design.

Surface Geology and Hydrology

The Environmental Assessment rightly points out that the application "may not account for variation in future weather patterns or eventual degradation of the soil" when assessing surface wind and water erosion. In other words, the applicant was not conservative enough in their methodology used to prove that surface geologic processes – wind and water – would not call into question the integrity of the cover and other features designed to keep the waste isolated from the environment. (Environmental Analysis, Page 50).

But not only does the application lack a true analysis of future climate conditions needed to assess its safety, it also lacks actual on-site data on erosion to verify their claims of limited erosional forces. Thus, erosion monitoring only began in late 2006 according to the EA (Page 51) and "site data on erosion Is not yet available to provide a measured erosion rate in the vicinity of the proposed disposal units."

Because of these failures, the Executive Director has recommended additional erosion sampling as well as a more flexible and sophisticated erosion model. Simply stated, the erosion rates utilized in the application may not be conservative enough to assure that erosion will not encroach upon the site and make the facility vulnerable to these forces.

In addition, the EA points out that while looking at surface water drainage issues during a 100-year precipitation event, the applicant failed to model run-off from the existing RCRA hazardous waste site, which would increase local run-off in the area. To account for this failure, the TCEQ has added a condition requiring an integrated stormwater management plan and construction of a sedimentation pond. Quite obviously, the applicant should have designed such a plan before any license could be issued, so that the site would not be impacted by stormwater flows, made worse by impervious covers and local construction related to the RCRA hazardous waste site, as well as the Byproduct Materials Facility, storage facility as well as the proposed federal and state compact low-level radioactive waste facility.

Even perhaps of greater concern – as accurately portrayed by TCEQ in its EA – is the use of a five-year, seven-day storm in coming up with the design parameters for the facility's required leachate collection system, even though the federal facility will be open for 35 years, and the state facility could be open for 15, 30 or even longer depending on whether its initial license is expanded. Thus, again the applicant – while meeting RCRA requirements for a five-year, seven-day storm event– did not meet appropriate radioactive waste requirements when designing and assessing its leachate system. Again, the TCEQ just tells the applicant in its proposed draft license to go ahead and assess the system against a 24-hour 100-year rain event, and then presumably hope for the best. That's not very reassuring to the public or Sierra Club's members.

Future Climate Model is Limited and Applied Sparingly

While the average rate of precipitation from the nearest meteorological station is 16 inches per year recorded over the last 30 years – below the statutory prohibition of choosing any site with 20 or more inches per year – it is interesting that recent years have been considerably wetter. Thus, at the site itself, WCS reports receiving over 30 inches of rain per year in 2004, while Midland reports some 21 inches in 2007. In fact, the applicant also suggests that the future will become wetter in this region, perhaps more on the order of 30 inches per year, albeit thousands of years in the future (EA, page 176). Despite these predictive models, the TCEQ has added further conditions to the license to utilize future climatic conditions as parameters in predictive modeling, again suggesting that while predicting wetter future conditions the applicant did little to take that information and apply it to operation or assessments of its site.

The application assumes that precipitation will increase in Andrews County, and might be equal to Wichita, Kansas, which receives an average of 29.4 inches of rain. This assumption that Andrews will become like Wichita, Kansas is based on analysis and a fairly traditional analysis of future, natural climate change. It does not appear that it makes any consideration of human-induced climate change, or the impacts of the continued rise in global warming gases in the atmosphere.

However, even assuming this traditional model is accurate, when assessing the impacts of this water, WCS fails to also take into account that the cloudier skies and generally lower temperatures will decrease evaporation, thus affecting its assumptions about water run-off, ponding and other surface water issues. Again, however, these failures did not prevent TCEQ from recommending issuance of a draft license.

Waste Streams: Limited Information

According to WCS, there will be an estimated 2.8 million cubic feet of low-level radioactive waste generated by Texas's two nuclear facilities, the nuclear plant in Vermont and its decommissioning and various medical, research and industrial facilities. The great majority of the volume is from the nuclear industry – about 2.3 million cubic feet. Thus, the types and amounts of waste that would be received by the Compact site is fairly well documented and understood.

In terms of federal low-level waste, however, there is much greater uncertainty. While WCS documents about 57 million cubic feet of potential federal waste from a variety of labs, clean-up sites, and leaking federal facilities, the exact nature of the waste that would be received is decidedly unclear. One statement is of concern to Sierra Club. Because the Federal Facility is designed to receive both containerized and noncontainerized waste, there is much greater potential for environmental contamination from the noncontainerized waste. WCS's analysis of the Federal Facility Inventory states:
"The majority of the waste volume (about 60 percent) is expected to be in the form of soil, rubble, or debris from environmental restoration activities and will be disposed in the FWF-NCDU. The actual inventory will be limited to ensure that the disposed waste inventory does not exceed the inventory that was modeled in the performance assessment. This will be accomplished by tracking the total inventories of all radionuclides to ensure that the total activity of each radionuclide does not exceed the inventory that was evaluated in the performance assessment." (Appendix 8.0-2: Federal Facility Inventory)

The soil, rubble and debris is of great concern because handling this waste is more problematic and requires greater care and training. Yet as the EA states "the application lacks specificity on the handling of commonly expected waste streams" (EA, page 81) and "more specific description and overview of the waste receipt, inspection methodology and operations are needed in Section 5.1 of the application." (EA, page 81). Instead, again, TCEQ adds conditions and recommendations to add specific off-loading and waste emplacement criteria based upon the type of waste.

To deal with the problems presented by the bulk waste intended for the federal site, the draft license and EA talk about the need to conduct a "particulate air emissions study ....to demonstrate that wind dispersal of the bulk waste placement will not affect the general public and individuals during operations,

particularly in high-wind events that are known to occur in the area (EA, page 93)" as well as an evaluation of the effectiveness of water spraying to prevent radioactive dust off-site under normal and high wind conditions (EA, page 94).

THIS IS COMPLETELY UNACCEPTABLE. TCEQ can not even issue a draft license not knowing whether the general public might be exposed to radioactive and toxic wastes during high wind events, including the potential for tornadoes.

While the Executive Director has recommended a license condition that requires that all debris and rubble be containerized, it appears that some waste will still remain noncontainerized, despite what the Environmental Analysis states is unclear in the application (EA, page 99). More specifically, the EA states that the applicant is prohibited from putting waste with half-lives greater than 35 years and waste with transuranic radionuclides in concentrations less than 10 nanocuries per gram into the non-containerized federal unit, but not those below these levels. Thus, rather than a general prohibition, the Executive Director could continue to consider the licensee's request for an alternative from the canister requirement on a case-by-case basis. In other words, the potential danger to the public from these wastes could be increased by a decision of the EA to allow waste to be spread in the NC unit at any time in the future. Again, the Sierra Club believes that the license should not be granted and only containerized waste should be allowed at the site.

The Sierra Club is particularly concerned that this type of disposal during high-wind and in freezing temperatures, which may change the physical properties of the disposal material, leading to a potential for releases.

Wastewater and Water Management Lacks Detail

The EA is correct in stating that WCS's descriptions about its plans to manage wastewater, stormwater and laboratory water waste lack detail. Thus, while WCS references design specifications and detailed information on its water/leachate transfer system, the TCEQ found a lack of detail and no specific design, particularly for the FWF-NCDU, which as mentioned, is of utmost concern because the waste could be in direct contact with rainwater, runoff or stormwater (EA, page 105). Again, rather than rejecting the application, or at least requesting additional information before granting the license, the EA instead recommends a license condition to conduct a water management study that involves a pilot study of the leachate/stormwater collection and management system and documentation of that system, as well as "a detailed study with projected short-term and long-term impact of rainwater/stormwater on the FWF-NCDU disposal unit." Sierra Club believes the potential for off-site contamination from these wastes is one of the main dangers of the proposed LLRW facilities.

Compliance History: Security Lapses, Septic Tank "Mystery" and Contaminated Workers

Waste Control Specialists has had problems with security of dangerous materials, according to press and enforcement documents. Thus, one of the main concerns for the public – including Sierra Club members living in Eunice, New Mexico – is the potential for these wastes to be transported off-site and released to the general public, either by accident or by design. Apparently, a worker unknowingly brought materials off-site because of a lapse in security.

In addition, as made evident in reviews of its enforcement problems related to a 2005 incident that had led to contamination of workers, the applicant had a radiation safety program that did not meet basic NRC requirements (see Dr. John Poston, 2008 Report, Appendix C of EA). The incident was only revealed because an injured worker was tested for exposure, and later 43 individuals tested exhibited measurable levels of transuranic radionuclides. These dangerous levels of radionuclides led directly to the need for WCS – because of an enforcement agreement -- to completely revamp its ventilation system in its Mixed Waste Treatment Facility. According to that review, a heavy reliance on respirators, rather than effective engineering controls, as well as the lack of routine and preventative maintenance, led to the problems.

Furthermore, the discovery of high levels of plutonium and americium in samples in 2005 from a septic tank and further analysis revealing high levels between 2002 and 2006 confirm that company claims of no possibility of off-site contamination are not well-founded. In fact, the contamination was found throughout all three septic tanks and also within the drainfield. While the septic tanks and drainfield has since been cleaned up according to TCEQ, of great concern is that there has never been a complete understanding of how plutonium left either the laboratory and/or the mixed waste site and entered the septic tanks.

Thus, TCEQ has alleged that WCS illegally injected radioactive wastes without authorization at least one-quarter of a mile from an underground water source and well – the referenced septic tank contamination – and also appeared to have had high levels of metal contamination in an area of railcar unloading.

According to the Environmental Assessment, these contaminants were related to processing of "low-level radioactive waste from the United States Department of Energy facility in Rocky Flats, Colorado." Thus, it appears that WCS's track record of safely disposing of LLRW is already – quite literally – tainted.

Despite all of these well-documented problems, and after cleaning out the septic systems, WCS reported another incidence of radioactive contamination of their septic system in July of 2007.

TCEQ's response to these breaches in security, dangerous exposure of radiation to workers, and releases into the environment of radiation is to require additional license conditions, including a bioassay program and an annual report. Apparently, the fact that WCS contaminated its septic tank with plutonium, contaminated its workers and let dangerous materials off-site is not enough of a bad track record for TCEQ to delay giving the company its proposed license.

Unfortunately, the applicant appears not to have submitted a comprehensive and clear radiation safety program as part of the application. Instead, again TCEQ proposes a license condition to force the applicant to come up with a "clear plan to establish a site-wide safety and high-performance culture." While the applicant details how they will meet ALARA – "as low as reasonably achievable" – radiation exposures, given their poor history, such assurances are not well placed. In fact, TCEQ found that the applicant did not meet requirements spelled out in 30 TAC 336.321, including the requirements related to procedures for supervision of respirator uses (EA, Page 120).

Application Lacks a Detailed One-Year Monitoring Study

The applicant has failed to establish baseline radioactive natural levels, in part because their efforts have been impacted by the presence of the existing RCRA waste site, which includes some materials containing radioactivity. Because the present RCRA permit does not require sampling for radiological constituents, reliance on the sampling around the RCRA site for contaminants is not useful in establishing background radioactive levels. Again, since no baseline monitoring study for radioactivity was performed, TCEQ proposes implementing a modified natural radiation monitoring program after granting the license.

In addition to establishing natural background levels of radioactivity, 30 TAC 336.731 requires a 12-month pre—operational monitoring program. However, this appears to have never been conducted and instead, TCEQ proposes a pre-operational study and the installation of 11 new monitoring well clusters (EA, page 134). WCS only discussed establishing such a program in June of 2007.

Public Opinion: Leaders are supportive, general public unsure

After WCS conducted an initial survey – heavily tilted toward "community leaders" that found there was overwhelming support for their plans – TCEQ forced the applicant to conduct a more scientific survey consisting of over 600 respondents. When told of WCS's plans and asked their opinion, about half of the respondents were in support, but a full 35 percent opposed. There was much higher opposition outside of Andrews County, in both Gaines and Lea County and in fact less than half supported the license for disposal (EA, Page 153).

Interestingly, the survey was still heavily titled toward white-Anglo respondents – some 82 percent – even though the population in the county is approximately 40 percent Hispanic (EA, page 151). The Environmental Analysis suggests that even with so few Hispanic respondents surveyed, there was a statistically significant difference between Hispanic and Anglo respondents with Hispanics having much greater concerns. A statement made by WCS suggests that support "is also strong among the potentially vulnerable minority and low-income groups in the ROI community." (EA, page 154), which is in fact not reflected in the survey. Similarly, while support for the disposal site was high among men, it was very mixed among women, again indicating a gender difference.

Thus, while overall support for the site does exist, there is considerable less support among Hispanics, outside of Andrews County and among women. Because Texas law requires a showing of public support for any compact low-level radioactive waste license, the results of the survey suggest at least the need for a more conclusive survey. It is clear to Sierra Club members that there is considerably more concern about the project in Eunice, given its close proximity to the disposal of waste, as compared to the City of Andrews, which is much farther away from the disposal site.

Traffic Impacts

The WCS application – while short on detail – does note that the facilities will lead to an additional 3,973 trucks per year on SH 176 – resulting in an estimated 123 additional accidents over the 35-year life of the facility. However, there is no analysis of the cumulative impacts of the traffic to and from the byproduct materials site, the RCRA and mixed use facilities and the LLRW facilities. Thus, Sierra Club members are very concerned about the potential for traffic accidents both near the site, as well as on nearby roads to the site, including in both Lea and Andrews Counties.

In addition, the future construction of the National Enrichment Facility by LES will also lead to greater traffic impacts, with trucks carrying depleted uranium waste, enriched uranium and uranium to be enriched to and from the facility. All of these have the potential to intersect with wastes traveling to the LLRW facility, particularly on New Mexico Highway 18, New Mexico Highway 234 and Texas State Highway 176.

Economic Impacts

WCS's analysis of the cumulative impacts of the facility on the local area does point out some potential economic costs, including the potential for some drawdown of local aquifers, possible decrease in real estate values, and increased costs to local governments, particularly in Eunice, New Mexico, and the increased traffic among other factors. The EA rightly points out that "the sub-region that is very likely to benefit the most is Andrews County, while the sub-

region that is likely to bear the greatest amount of costs is Lea County (in particular the City of Eunice) (EA, page 168)." The Sierra Club agrees with this comment, and believes that the socioeconomic costs to Eunice makes the impact much greater, particularly for members with businesses that could be affected by decreased sales, perception of potential for radioactive exposures, as well as traffic and utility impacts.

The City of Eunice will not gain any tax benefits, but will suffer from noise and pollution from increased truck traffic. They will also suffer any potential radioactive leaks to the groundwater, or air-borne particulates from noncontainerized wastes, or surface water runoff.

Endangered Species and Ecological Impacts

While the applicant does list nine potential species of endangered or threatened animal or plant species found in the area, they did not bother to obtain any kind of confirmation with TPWD or USFWS personnel. In addition, the EA noted that no aquatic surveys were conducted even though there is a semi-ephemeral stream called Baker Spring found less than a mile northwest of the site. Instead of forcing the applicant to conduct such a survey, the TCEQ has instead added a license condition to establish baseline monitoring at Baker Spring and periodic monitoring (EA, page 170). This is again in violation of Texas Law, since Texas law under Texas Health and Safety Code 401.231 requires information on the ecology of the area surrounding the proposed site. The fact that the applicant never consulted directly with TPWD or USFW and failed to conduct even a basic aquatic survey suggests this condition was not met.

In addition, even though the applicant stated there are no wetlands in the area, there are in fact several playa lakes in the region, including two just adjacent to the proposed disposal facility. Again, the TCEQ adds a condition to obtain a site-specific determination from the US Army Corps of Engineers, and also suggests physically adjusting one of the playas to prevent water from getting near the site.

Water Supply Impacts

While the amount of water used by the facility – both the potable water from the City of Eunice as well as the non-potable water from the Dockum Aquifer – is small and will not be significant, the potential for groundwater contamination of the Dockum Aquifer – currently used by both WCS and nearby ranches – which is also expected to be a future water source for the City of Andrews – creates a conflict over water that merits further examination.

Seismology

While seismic activity has been minor in recent geologic time, there has been recent seismic activity in the area, most notably the 1992 earthquake beneath

Rattlesnake Ridge, some 7 to 19 miles to the southwest. Additionally, as discussed in the EA, the TCEQ and Bureau of Economic Geology found a reverse fault in one of the walls in the RCRA unit, a neighbor of the proposed site, indicating some "post Cretaceous disturbance." (EA, page 180). Thus, seismic activity is present at the site, and further studies should have been required before considering granting a license.

In fact, the Executive Director recommends a license condition to require the verification of the location of faulting near the land disposal facility (EA, 187). Thus, despite the requirement of 30 TAC 336.708 (a) that the application include site-specific environmental information related to geology and seismology, yet the TCEQ found the application did not discuss "Quanternary faulting associated with the dissolution of underlying evaporative deposits. (EA, 186)."

In a related issue, TCEQ notes that the application has conflicting information about whether salt dissolution and subsidence may be present within the study area, and therefore requires the boring and collection of core samples from salt-bearing zones to "provide additional information and verification that salt dissolution will not impact the land disposal facilities." The TCEQ also requests additional information about the related antitaxial gypsum veins observed in the study area.

Thus, the applicant has failed to present sufficient information to prove that there are no potential problems from seismic, faulting, folding or salt dissolution processes, and should be rejected, or at least remanded for additional information.

Surface hydrology

Despite the claim often cited that the site is dry and flat, in fact there is considerable geologic features including the drainage feature known as Monument Draw to the east and flows into the Pecos River, and to the north a similar draw, which flows east into the Colorado River. There are a number of shallow depressions around the proposed disposal facility, including one some 2,500 to the northeast and another 2,000 feet to the west.

An analysis of the surface water conditions by TCEQ notes that the development of the disposal units themselves will likely increase stormwater run-off rates and produce higher peaks (EA, 284), and has led the Executive Director to require further modeling of different climatic conditions and account for any alteration in drainage patterns.

The caliche present on-site also makes clean up in the event of a spill or in the event of stormwater carrying contaminants into the ground problematic. As pointed out by the TCEQ, the recent contamination of the septic system spread easily through the caliche drainfield (EA, 290). We already know how difficult of a

radioactive release at the site is because of its soil and surface hydrology characteristics.

Erosion: Wind and Water are of concern

While the EA makes it clear that TCEQ believes there is no interconnection between the study site and these drainage basins, the flood level and discharge models present in the application apparently are based on current precipitation rates "and apparently do not consider the potential for higher precipitation rates in the future (EA, page 192)." In fact, if future erosion affects Monument Draw by lowering its base level, "headward erosion along Ranch House Draw – at the site itself – may threaten the proposed disposal facility."

To address this concern about future erosion impacting the surface hydrology, the ED adds a license condition of performance assessment modeling based on different erosion conditions and evaluate site adequacy in meeting the performance objectives.(EA, 192)." In other words, the TCEQ can not assure the site will meet these objectives without futher evaluation. They note that the site has been the subject of massive amounts of wind-blown and water-born erosion, followed by deposits of sand and loess and that it is reasonable to assess the potential for vast amounts of erosion. That being said, they still granted a draft license.

The ED did make the applicant put six erosion monitoring sites in 2006 and 2007, but the results from these monitoring sites did not influence the modeling used in the application. There is considerable discussion within the EA about the different erosion rates used by the applicant which are not based upon any site-specific analysis. So again, the ED adds erosion monitoring stations to the application, monitoring which of course should have been done before an application was even able to be technically reviewed.

Underground Water

As TCEQ rightly points out in the EA, "an application for low-level radioactive waste disposal must demonstrate compliance with a series of regulations regarding subsurface water conditions at the site (TCEQ, EA, pge 203)."

There is water under the site. Thus, WCS relies upon water from the Santa Rosa formation of the Dockum group for its nonpotable water, but drills deep, down to some 2,500 feet. Above the Santa Rosa formation, the Tecovas, Trujillo and Cooper Canyon all contain sources of groundwater, if of poor quality. The Cooper Canyon is above the Dockum formation and consists of four sandstone/siltstone units, including the 225-foot, 180-foot, 125-foot and 80-foot zones. These zones are thus the most likely conduits of groundwater into or out of the proposed disposal units. Perhaps of most concern is the 225-foot zone because it is continuous under the site and is some 25 to 30 feet thick, but water can rise

some 125 feet above the top of the unit according to a hydrogeologic conceptual model, and is thus much nearer to the boundaries of the compact and federal waste, as compared with the deeper formations of the Dockum Aquifer.

The analysis of the hydrogeology of the site makes it clear that TCEQ has not determined that the site is safe for the near-surface burial of radioactive waste, but rather than rejecting the application or requiring additional study before considering a license, they have preferred to require additional studies while issuing the license. This is clearly in violation of the law.

First of all, the reviews by TCEQ and BEG found significant correlation errors on the cross-sections provided in the application. Thus, the applicant found differences of up to 55 feet of elevation between wells A-22 and TP-04 in the 225 foot-zone, a finding that TCEQ reported "would be unusual .....over a horizontal separation of only 2000 to 4,500 feet (EA, 182)."

In the much nearer 125-foot zone, which actually intersects the bottom of the proposed disposal site, the TCEQ reports it "is ***probably*** [emphasis added] not saturated in the proposed facility area." *The public would want to know it was* **definitely** *not saturated.*

Here is what TCEQ stated about the data concerning the sandstone water-bearing formations: "The distribution of data presented in the application is not consistent; hydraulic conductivity, moisture content, porosity, and saturation are provided in varying combinations, or not all parameters are provided, making validation and interpretation of data difficult. These data comprise critical input parameters for both the conceptual model and mathematical modeling, and should have been provided in a clear and unambiguous format." (EA, Page 183).

Again, rather than reject the application or require additional information for assessment, TCEQ is adding license conditions to require "additional site characterization of the subsurface to verify elevations of the top of the Cooper Canyon formation, verify saturated conditions and verify the matric potential (EA, page 183)."

This would indicate that the applicant failed to characterize the geology and hydrology of the site, as required by statute and rule.

The TCEQ also points out problems with the use of the term caliche and caprock caliche, as the applicant uses the terms when they are not always appropriate or do not correctly describe a particular geologic subsurface feature (EA, 184-185). Similarly, the applicant appears to have inconsistently represented the extent of exposed caprock in the application and three-dimensional groundwater flow model compared to data provided as part of the surface geology map, even as

the isopach maps presents another reality about the presence of caprock (EA, 185). All of this "leads to uncertainty... of the location of the dry line (EA, 185)."

Essentially, TCEQ and the applicant must be assured that there is no potential for waste to be at or below the saturated zone. Not only must this be demonstrated for current conditions, but must be assured that there is sufficient depth to groundwater for 1,000 years after closure or even longer, if peak radioactivity levels are past that point (EA, 203). Nonetheless, the EA is clear that such a demonstration has not occurred, and in fact, the ED adds a condition "to predict hydrogeological conditions ensuring future unsaturated conditions of the buffer zone, including sensitivity and uncertainty analysis of the OAG and Dockum water tables (EA, 204)."

There appear to be uncertainties in the TCEQ's review of the hydrogeological conceptual model and other application materials about: the precise current lateral extension of the OAG water table, located above the disposal units; and over the precise depth of the lower Dockum water table across the extent of the site, especially in areas "near the boundaries of the facility where characterization data becomes relatively sparse (EA, page 206)."

The Conceptual model also indicates that the upper water table found in the OAG will increase and intersect the lateral boundaries of the proposed federal disposal site. Therefore, the application proposes filling playas with clay and grading the surfaces of the filled playas. *Still, even while recommending these physical modifications, the BEG and TCEQ analysis of the Hydrological Conceptual Models and TOUGH 2 Models suggest significant uncertainty, and the ED requires predictive modeling of the future location of the Dockum water table, as well as characterization and verification of unsaturated conditions.*

In other words, the TCEQ is not sure of the hydrological underground conditions now, and can not predict safety in the future.

One of the key components of the agency's assessments is its review of the hydrogeologic conceptual model. The agency notes that even small deviations in assumptions about such issues as porosity, conductivity and of course groundwater velocity can affect the outcome of such models. An independent assessment using the Residual Radiation Risk Assessment Computer Code confirmed that "small deviations in the values...may result in peak doses in excess of regulatory limits during the period of analysis." (EA, page 210). The TCEQ notes that there were no site-specific values determined for some values, such as the distribution coefficient, and some simple linear relationships were assumed in the model between the concentrations of dissolved radionuclides radionuclides and the concentration of the contaminant adsorbed onto the porous medium. These assumptions and non-site specific values make the study itself suspect, because it could lead to underestimates of the potential for radionuclides to arrive at water wells at levels above those considered safe (EA,

page 210).

In terms of conductivity, the EA points out that use of a more conservative maximum value rather than an arithmetic mean would lead to the potential that contaminanted groundwater could travel some 30,000 feet over the 50,000 years of study, as opposed to the applicant's conclusion of only 200 feet in 50,000 years. Furthermore, the applicant's figures were based on 22 slug test locations which were characterized by clustering of tests, meaning that the test locations were not ideal for determining the potential for contamination of area wells. In fact, the EA notes that "...the slug tests were conducted in materials upgradient of the proposed disposal units...or in materials laterally distant from likely pathways to the receptor of interest," in this case a water well. In other words, the applicant chose Slug Test locations which would not be terribly useful in determining likely pathways of contaminated water to the underlying groundwater. Furthermore, because the slug test locations were also used for groundwater monitoring, the agency states that with the exception of two wells "the application does not contain sufficient data for an independent analysis of the slug tests. (EA, 214)."

TCEQ also notes that a separate study of 39 measured vertical hydraulic conductivities had means that were an order of magnitude higher than those utilized in the slug tests, suggesting again that the applicant's analysis underestimated the potential for radioactive contamination of the underlying groundwater (EA, page 216).

Similarly, while measuring porosity levels in the 225-foot zone, the applicant took an average – 0.15 percent – to calculate groundwater velocities, rather than reporting a range of porosities. Thus, if the applicant had instead chosen the lower value of 0.08 percent on its five readings, velocity would have in effect doubled (EA, page 218). Indeed, the ED faults the application for failing to estimate total porosity in each of the geographic layers underlying the proposed sites (EA, 218).

Because of the failure of the applicant to meet the requirements of the law, TCEQ again recommends adding conditions to the license to require grain size analysis and determination of porosity values, while also recommending additional in-situ and laboratory measurements of hydraulic conductivity in the Dockum materials.

One of the reasons for the TCEQ recommendation is the need for a better understanding of the impacts of faults and fractures on the hydraulic conductivity – a key factor in how fast groundwater travels – to test the performance of the proposed units. The TCEQ notes that the studies of potential radioactive pathways did not take into account the existence of faults and fractures in the subsurface Dockum materials.

Again, the TCEQ is proposing to license two large radioactive waste disposal units, including one where some materials will not be in containers, without sufficient knowledge about how fast groundwater could travel from the site into the underground water.

Water Table: Where is it?

If there is uncertainty about movement of water below the site, there is also uncertainty about water table issues above the site. The TCEQ rightly concludes that given saturated conditions near the boundaries of the proposed federal site, that any increases in precipitation – such as that predicted by the independent climate models prepared as part of the application – could force the so-called OAG dry line to move and encroach upon the boundaries of either or both of the disposal units (EA, page 221). TCEQ was in particular concerned that the application might have misrepresented the exact location of the dry line because the top of the Dockum red bed ridge might obscure some details. Therefore, because they are uncomfortable with the information as presented in the application, they recommend verifications of the elevations of the top of the Dockum Group so that the location of the dry line can be confirmed. TCEQ also notes that more recent revisions of the application acknowledge that wetter conditions cause the OAG dry line to migrate south toward the proposed facilities. Thus, TCEQ notes "relative to...earlier characterizations, the OAG dry line appears to have moved several thousands of feet toward the proposed disposal units." (EA, 222).

Thus, if one wet year of 30 inches cause the dry line to move several thousand feet, what would an even wetter year do? Could it lead to significant water and saturated conditions within the disposal unit through the walls as waste was being emplaced? Apparently, no one knows.

Or perhaps we already do. According to the TCEQ analysis, OAG wells, shown in recent data to contain significant amounts of water, are outside of the current and predicted OAG dry lines contained in the application. ***In other words, on-the-ground data directly contradicts what is contained in WCS's application***. TCEQ thus comes up with the notion that the OAG dry line could actually be approaching the proposed CWF disposal unit, but a lack of monitoring wells prevents confirmation and "uncertainty remains about the current location of the OAG dry line (EA, page 224) ... The OAG dry line may intersect the boundaries of one, or both, of the disposal units either currently, or in the future."

This of course means that the site is or could be below OAG groundwater, leading to the need for dewatering or even modifications in the design of the disposal unit liner and cover system. There is even greater concern that the OAG groundwater could interact with the underlying Dockum aquifer. In fact, the EA points out that north of the boundaries of the proposed facilities, this is exactly what happens according to the application.

And what is TCEQ's regulatory response to this uncertainty that would call into question the suitability of the site to accept low-level radioactive waste? License conditions, including a relocation of the FWF boundary and a corresponding revised design of the FWF. Thus, the public is asked to trust a license which is granted to a company which has inaccurately portrayed the location of the dry line – that is the area that divides saturated from unsaturated conditions.

A second condition would establish a vertical buffer zone between the deepest zone of waste disposal and the located zone of saturation of the Dockum red bud materials, once those are determined. Thus, the ED is adding proposed license conditions to determine if unsaturated conditions are present within the "boundaries of the proposed CWF and FWF, and immediately outside the buffer zones defined for the proposed units (Page 225)." These conditions include a provision that any saturated conditions in the OAG materials that require modifications in the design or construction of the disposal units be submitted to the ED for review prior to completion. But this additional data – and changed condition – will not be reviewed by the public.

The ED is also requiring a retesting of the applicant's resistivity study to further verify the location of the dryline – again, because of uncertainties.

There is also uncertainty about how close the water table underneath the site is to both the OAG zone of saturation and the facilities themselves. Thus, the applicant says the closest – including capillary action – is 14 feet below the site near the northern portion of the FWF, but, as TCEQ notes, "details of this cited interpretation are not given in the application (EA, page 228).

AS the analysis makes clear, other information in the application reports a minimum distance between the water table and the bottom of the disposal unit of approximately 20 feet, but recent elevation in monitoring wells indicate that there is the potential for water to be within 11 feet (EA, page 228). The TCEQ's response to these uncertainties over the primary danger of any radioactive waste site – that radioactive materials will get into the groundwater – is to require additional modeling and testing up to one foot below the bottom of the disposal site to determine saturated conditions. Apparently, saturated conditions at 18-inches below the site is of no concern to the TCEQ or the public it supposedly protects.

Again, the TCEQ notes that future wetter conditions "suggest that the current locus of the water table in the Dockum red bed...might move upward and toward the bottom of the proposed disposal units over some future period of time (page 230)." In fact, TCEQ concludes that assuming higher rainfall, then "the lower water table in the Dockum must eventually intersect the lateral boundary of the proposed FWF unit (EA, page 232)."

In fact, as the analysis points out, saturated conditions within the Dockum Group exist above the elevation of the bottom of the disposal unit, albeit to the East, but "the saturated conditions in the Dockum red beds may be more extensive than depicted in ...the application" due in part to a capillary fringe (EA, 245). Thus, TCEQ can not honestly answer whether saturated conditions might exist now from the Dockum red bed which could intersect the proposed facilities, and directly prohibit the ability of TCEQ to grant a license.

A related review by the BEG of the applicant's moisture study – which apparently helped determine the zones of saturation of the Dockum red beds – questioned the applicant's methodology in part because of the resolution of the moisture retention data, but of more concern because of "uncertainties in measured moisture retention used for converting moisture content to matric potential (EA, 246)."

The answer to the unknowns is to raise the lowest depth at which waste can be buried in the federal site and the performance of in-situ measurement techniques to verify the matric potential.

The TCEQ also points out that the applicant made an assumption that there would be no vertical flows into the 225-feet layer of sandstone, a problematic assumption since vertical gradients were measured in the nested monitoring wells by the applicant in the 225-foot layer (EA, Page 250).

Furthermore, the Executive Director did not find the predictive modeling studies known as MODFLOW of the dry line performed by the applicant to be conclusive, and has added conditions requiring additional studies with sensitivity investigation studies (Page 225). In fact, "the MODFLOW simulations of the locus of the OAG dry line... are considered to be inconclusive (EA, Page 262)" and a number of additional license conditions are proposed. Again, the applicant could not accurately portray the current or future location of the dryline to prove the waste site would not be saturated, but TCEQ preferred to issue a draft license.

The TCEQ also notes that while the hydrogeologic conceptual model posited saturated conditions within 14 feet of the bottom of the federal unit – a conclusion that was problematic according to the agency – a further refinement of the model known as TOUGH2 used to predict future saturation conditions was useful but could not be used to calibrate any results (EA, 266). Thus, for example, they note that the applicant assumes a very idealized continuous 225-foot layer "that is very improbable," yet forms the basis for the site hydrogeologic model (EA, 270). Instead, the TCEQ analysis notes that there should be more attention to the potential for fractures to lead to saturated conditions within the Dockum red beds where one would not normally expect it.

The BEG's analysis of the TOUGH2 modeling noted that the applicant had used a value for "top-boundary" flux of 0.01 inch/year which was far too low, and by

using instead a value of 0.1 to 1 inch/year, the "breakthrough" time for various contaminants went down by huge factors. In other words, their review of WCS' s model suggested the model was overly optimistic about the potential for releases to enter the area groundwater.

No Alternatives Discussed

According to Texas law[4], anyone wanting to license a low-level radioactive waste site must look at the need for and alternatives to the proposed activity, including an alternative siting analysis.

Unfortunately, WCS did not comply with this Texas statute as required by the Legislature. Thus, Section 11.2 of the application simply describes a description of the site selection process, but it only addresses the proposed Andrews County facility. There is, in fact, no alternative siting analysis (EA, 294). TCEQ can not license the proposed low-level radioactive waste site, because the applicant did not assess the potential to find other sites in West Texas that might have been more suitable for such disposal.

In addition to site selection, the applicant is specifically required under Chapter 401, to assess different techniques for managing radioactive waste, including: "(1) waste processing and reduction at the site of waste generation and at the disposal facility; and (2) the use of aboveground isolation facilities."

While there was some attempt to look at waste reduction techniques at the disposal site, there was no real attempt to assess the use of aboveground isolation facilities. It was in fact during the 2003 Legislative Session that an amendment was added to force any applicant to review this potential. This amendment was in fact supported by the Lone Star Chapter of the Sierra Club as a preferable way to be able to monitor and verify that no underground leakage could occur.

Nonetheless, the application, in Section 11.3.2, only provides a 50 page "Environmental Report and Alternative Management Techniques" that does a very cursory review of this technique, relying upon a 987 report prepared by the Texas Low-Level Radioactive Waste Disposal Authority from 1987. In fact, the section of the Environmental Report dealing with alternative management

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[4] Sec. 401.112. LOW-LEVEL RADIOACTIVE WASTE PROCESSING OR DISPOSAL LICENSE APPLICATION AND CONSIDERATIONS. (a); (4) the need for and alternatives to the proposed activity, including an alternative siting analysis prepared by the applicant;

techniques is only four or five pages long and relies upon previous work done by a discredited agency. The use of a 1987 report as the basis for assessing different waste management techniques is a far cry from meeting the spirit of the 2003 Law, which specifically asked applicants to assess aboveground isolation facilities as an alternative. WCS should be forced to assess this potential before any license could be granted.

Ownership of Mineral Rights

WCS has requested that the Attorney General condemn certain mineral rights so it may meet the conditions of Texas Health and Safety Code 401.204. Nevertheless, rather than wait until the condemnation happens or WCS is able to negotiate a sale of the outstanding mineral rights, TCEQ posits a license order that prevents the granting of the license until the mineral rights are obtained. This is simply against the law to issue a final decision on a license when it is in fact not final. TCEQ's analysis that because WCS has asked the AG's Office to intervene they can issue the license – if conditionally – is a false interpretation of HSC 401 and 30 TAC 336.207 (4).

Sierra Club also objects to the granting of the license before the Federal Government has agreed to assume ownership of all property – including al rights, title, land, building and future waste. Clearly, Texas law requires that the federal government assume all this property before a license can be issued. Allowing an exemption to this law is against the law in our view.

Cumulative Impacts

The Applicant failed to take into account how added wastes and management from the RCRA facility, byproduct materials license as well as activity resulting from the LES Uranium Enrichment facility could increase the potential for accidents and releases. In particular, as pointed out by TCEQ, the applicant's evaluation of these activities did not take into account the possibility of changed locations related to saturated conditions that could impact the results (EA, page 330).

Moreover, while the Facility Inventory provided by the applicant of waste streams includes deconverted uranium hexafluoride waste that results from the uranium enrichment process. However, there is no discussion of whether this is projected to come from the LES uranium enrichment plant next door or some other existing plant. However, the possibility that such waste will be declared to be LLRW by the federal government should be analyzed, particularly as the proposed disposal site may not be suitable for depleted uranium waste. The Sierra Club recognizes that the Executive Director has recommended the prohibition of UF6 waste, but remains concerned about the types of this and other waste that might arrive from LES, and the potential of such wastes to physically injure our members.

Accidents

As reviewed by TCEQ in the Environmental Analysis, the applicant made assumptions that are not terribly conservative about accidents. Thus, despite 12 recent flash floods in Andrews County, they discounted the potential for flash floods to submerge the disposal units in water, while also discounting tornadoes since there have only been 2 in the last 10 years. Nor did they consider the potential for brush fires to impact the site, even though such a fire occurred at the RCRA facility recently (EA, page 342). The types of accidents that were reviewed only had limited assessments of their impact on workers or the public. Members of the Sierra Club are concerned about the potential of accidents to release harmful radioactive or other materials into the atmosphere, be it from unusual weather events, explosions, or fires.

TCEQ said while many of the presumed doses from potential accidents are reasonable and follow NRC guidelines, other types of potential accidents are ignored. Again, rather than forcing the applicant to do a more rigorous examination of potential pathways to exposures from accidents before considering granting a license, the agency adds conditions to the license. And yet the public will not be able to intervene and assess the validity of these reports or plans on what to do in the event of such accidents.

Of added concern is the lack of analysis of the potential for long-term erosion – whether from water or wind – to become a path of exposure to the public from radioactive materials. The TCEQ notes in its analysis that a modeling procedure known as SWAT did not include any site-specific erosional data, and that no site-specific erosion monitoring data had been submitted to the TCEQ.

Thus, again, any analysis of the potential for erosion to serve as a pathway to the public is not based on actual data from the site.

Financial Assurance

Sierra Club is concerned that the financial assurance requirements are not protective of public health and the environment and would put our members at risk due to failure to adequately close and clean up the site.

In particular, there appears to be no specific information about whether WCS carried insurance to cover traffic accidents within the boundaries of its site, potentially delaying or preventing clean-up or leading to financial insolvency.

It also appears that the criteria to meet financial qualifications and assurance are based on a commitment letter by the parent company promising they are "good" for the money – approximately $210 million for closure, post-closure and corrective action. A letter from a parent company does not equal money in the bank to assure Sierra Club members in Eunice that the area will be closed

adequately to prevent releases. The application then states they will utilize a Letter of Credit to cover the first year costs – an estimated $65.7 million – as well as the costs of post-closure. The Sierra Club agrees with the TCEQ analysis that the "worst-case" corrective action determined by the applicant seriously undercounts the actual cost of clean-up in the event of an unplanned accident or event.

Contested Case Hearing Request

While we believe based upon the concerns and comments raised here, TCEQ can not legally grant a license since the applicant has failed to meet the conditions established in Texas Law, in the event TCEQ Commissioners do not agree with our position, the Sierra Club is also requesting a contested case hearing on proposed Radioactive Material License Number R04001, which authorizes the commercial disposal of low-level radioactive waste to Waste Control Specialists.

Basis of our Contested Case Hearing

Since 1892, the Sierra Club has been working to protect communities, wild places, and the planet itself. We are the oldest, largest, and most influential grassroots environmental organization in the United States. With over 1.3 million members and supporters, the Club is dedicated to help its members explore, enjoy, and protect the planet. This includes our membership in Lea County, New Mexico. While the Sierra Club has approximately 12 members in Lea County, New Mexico, and we believe these individuals to be concerned about potential problems with the proposed issuance of a license to Waste Control Specialists, we are through this letter identifying two members in good standing that have specifically asked us to request a contested case hearing on Radioactive Material License Number R04001 on their behalf. Other individuals who are Sierra Club members may decide to make similar requests through our organization if given the opportunity. These two individual members will be adversely affected by the issuance of the license both because of potential injuries to their bodies and economic damage to their livelihoods.

Rose Gardner lives in Eunice, New Mexico, approximately four miles due west from the proposed WCS commercial byproduct facility. She is more impacted than the general public by the proposed issuance of the license however. The physical address of her home is 1402 Avenue A, Eunice, NM 88231. Her home is just off of Route 207, approximately one to one-and-half mile from the intersection with Highway 234/Highway 176. In addition, Mrs. Gardner and her husband own a Feed Store located right next to the house. In addition, Mrs. Gardner owns a flower shop, which is located just due north of downtown Eunice at 1700 Main Street on Route 207, again about one to one-and-a-half miles the other direction of the intersection with Highway 234/176. Mrs. Gardner says the

opening of the WCS low-level radioactive waste site will impact her livelihood in several ways. Because she relies on travelers from outside Eunice to purchase goods at the feed store and flower shop, the negative publicity surrounding the opening of a radioactive waste site just down Highway 234/176 will impact her business. One of the criteria for affected status is economic damage. Furthermore, Mrs. Gardner's wholesale supplier for the flower shop is located in Odessa, Texas, and the family uses Highway 234/176 frequently for trips to Odessa, while supplies also arrive to the shop from Odessa by truck. In addition, because both the feed store and the flower shop accumulate trash and debris – such as bags in which the feed is stored and boxes in which the flowers arrive – Mrs. Gardner and her husband periodically travel to the local waste landfill owned by Waste Management, which is located directly across the New Mexico/Texas line and within 500 meters of the WCS site. Thus, any dispersal of radioactive material from the site to the west, or any traffic accident involving toxic or radioactive material along HW 176 have the potential to impact her livelihood and health.

In addition to her retail businesses in Eunice, Rose Gardner and her husband own approximately 15 acres of land off of 16th Street in Eunice, which has a direct connection to Highway 234 (176 in Texas), again approximately four miles due west of the proposed disposal facility. This land is used to raise both alfalfa and at times "hay grazer." Rose and her husband own horses, cattle, goats, chickens and a pig, which are housed on this land and frequently graze parts of the fields. The alfalfa itself is cut and dried and used both for their own animals but also to provide some hay for the feed store. This alfalfa relies on a 200-foot water well owned by Mrs. Gardner and her husband which is potentially hydrologically connected to groundwater resources found in the vicinity of the WCS site. Therefore, the failure of the applicant to characterize and verify the porosity, fissures, water table and saturation zones – among other issues identified by TCEQ and its consultants in the Environmental Analysis -- at the proposed site and the potential that indeed groundwater could be contaminated by the opening of the site could directly impact one of her core businesses and the health and welfare of local livestock.

Finally, in addition to the frequent trips to the nearby landfill, Ms. Gardner travels frequently on both Highway 18 and Highway 234/176 into Texas. Because much of the waste coming to the WCS proposed site will likely travel through New Mexico, it is believed that these highways will be used to transport waste. A specific issue is the possibility that waste from the recently permitted uranium enrichment plant known as LES – located just a few miles from Eunice along Highway 234 – could travel near the businesses and homes owned by Ms. Gardner on its way to the WCS site, since certain wastes generated in the uranium enrichment process could be considered low-level radioactive waste or byproduct materials. While our interpretation is that it would be improper to receive depleted uranium or other wastes from enrichment activities under either the byproduct materials disposal license or the low-level radioactive waste

license, the waste characterization report submitted by WCS specifically mentions depleted uranium as a federal waste that could be received by its federal LLRW proposed facility. (Federal Facility Inventory, Appendix 8.0-2). In fact, it is reasonable to assume that depleted uranium from the uranium enrichment process, after some further stabilization, would meet federal definitions of LLRW. Thus, it is quite possible that depleted uranium from the enrichment plant at LES adjacent to the WCS property would travel to the WCS property. In fact, the landfill to which Mrs. Gardner travels frequently is located in between the LES Uranium Enrichment permitted site and the proposed low-level radioactive waste landfill.

In addition, while the proposed license specifically prohibits WCS from bringing in waste by rail, the proposed application makes it clear that the applicant also would like to bring waste by rail, and an amendment to the license would not prohibit such an activity. Thus, if the license were granted, WCS would likely through an amendment seek to be able to import waste by rail. The railroad passes right near an area that Ms. Gardner often travels by, near the intersection of highways 234 and 18. Again, part of the problem with the application is the failure to address the potential for off-site and on-site accidents from railcar transport of radioactive materials.

Ms. Gardner lives in the same hydrological basin as the WCS site, with lands in both areas being part of the Pecos River Basin, as well as the Pecos River Basin alluvial aquifer. Formations associated with the Pecos Valley, Ogallala aquifer formations and the Dockum (subcrop) underline both the proposed site and the businesses and home owned by Ms. Gardner. As such, Ms. Gardner is more impacted than the general public by the granting of the proposed permit.

In addition, the western part of Andrews County and eastern part of Lea County where Ms. Gardner lives, works and travels are subject to high winds. One of the weaknesses identified in the application is the failure to model the dispersion of radioactive materials and surface water contaminated by radioactive waste because of single-direction winds. High, single-direction winds traveling westward from the site have the potential to materially harm the property, livelihood and health of Ms. Gardner. This is particularly true at the noncontainerized Federal site, since it could receive wastes that could more easily be blown away.

Mr. Gardner is also concerned with the very limited financial assurances provided by the company in its application, and is concerned that the company could walk away without providing proper clean-up or closure of the facility.

In addition to Ms. Gardner, another Sierra Club member, Fletcher Williams, lives even closer to the proposed WCS site. Mrs. Williams lives at 1800 E. Texas Avenue, Eunice, New Mexico 88231. Mrs. Williams lives approximately two and-a-half to three miles from the site just off of HW 234/176 near the border with

Texas. Her home is located near both the railroad line – including a rail spur that is directly behind her house – as well as the Highway 18/ HW 234 interchange where traffic is likely to be heavy. Like Mrs. Gardner, Mrs. Williams and her family face specific threats from the proposed issuance of a permit to bury byproduct materials near her residence and the roads she frequents, including the use of groundwater for wells in the area, her frequent travels along HW 18 and HW 176, subjecting herself to exposure from transportation accidents, her close proximity to the rail line, and direct exposure due to high winds common in the area, which have the potential to carry radioactive material off-site.

Mrs. Williams is a caregiver and takes care of both her elderly mother as well as two young children under the age of six. Because her mother and other members of her family rely on medical care in Andrews, she frequently travels east along Highway 234/176 to Andrews, passing directly by the site. She also travels with her family along Highway 234/176 on the way to Odessa on trips there for shopping or to the airport.

Again, as detailed in the first part of this comment letter, both Mrs. Gardner, Mrs. Williams and others living in the area are faced with an application that is inadequate because it does not sufficiently describe and verify the soils, ground waters, saturation zones, water table, and subsidence issues that underlie and surround the proposed site as required under Chapter 401 of the Health and Safety Code; it does not include a final design of either a leachate wastewater collection system or even of the federal disposal site itself since the proposed license changes the boundaries; it fails to provide a year of monitoring data on basic groundwater parameters, erosional measures and flora and fauna; ignores worst-case scenarios of flood-like conditions or tornadoes; and ignores the worst earthquakes and seismic activities in the area in its design and ignores high-wind events that have the potential to cause radioactive waste to migrate off-site, as well as the potential for accidents because of the multiplicity of wastes there – from RCRA, to the byproduct materials waste. The applicant also failed to provide detailed information about potential alternatives to the design and location of the site, such as an above-ground facility, which is specifically called upon by Texas law and might be safer for the public.

Sincerely,

Ken Kramer, Ph.D., Director
Lone Star Chapter, Sierra Club

cc. David Frederick, Esquire
The Honorable Rick Perry
The Honorable David Dewhurst
The Honorable Tom Craddick

The Honorable Susan Combs
The Honorable Kip Averitt
The Honorable Robert Duncan
The Honorable Eliot Shapleigh
The Honorable Kel Seliger
The Honorable Steve Ogden
The Honorable Kirk Watson
The Honorable Carlos Uresti
The Honorable Warren Chisum
The Honorable Dennis Bonnen
The Honorable Mike Hamilton
The Honorable Pete Gallego