

BEFORE THE STATE OF NEVADA,
STATE ENVIRONMENTAL COMMISSION

In Re:

Appeal of Solid Waste Disposal Site Permit

Permit No. SW495REV00

Operator: Recology

APPELLANT BRIEF OF RICHARD COOK

By issuing this permit NDEP is in violation of NAC 444.678 Sections 1, 2 and 9.

NAC 444.678 Location restrictions: Generally. The location of a Class I site must:

1. Be easily accessible in all kinds of weather to all vehicles expected to use it.

The site is situated on the bottom of an ancient lake bed that is susceptible to frequent inundation during the winter and spring months. The soil is highly permeable and according to Berger is composed of, “discontinuous units and heterogeneous mixtures of sand, silt, clay and gravel” (U.S. Geological Survey Report 95-4119 page 20, report attached to electronic version of this brief).

Locals have long known not to venture off raised main roads when the surface is inundated, saturated or even wet as the entire area becomes a quagmire impassable to many track and non-track vehicles used in landfill operations. It is difficult and hazardous to even walk in the area when the ground in Desert Valley is

muddy, mud cakes to boot soles which then become slippery.

Recology's NDEP approved plan to build a 4' high berm of native soils around the site to control run-on and run-off would only result in a berm that has water on both sides and the site will still be impassable. Planned drainage ditches won't work as there is nowhere for water from the site to be drained to. Frequently during winter and spring months the landfill operator will be forced to pile waste indefinitely on the railroad siding landing with no way to move it to an active landfill cell. **(Exhibit A and B)**

NAC 444.678 Location restrictions: Generally. The location of a Class I site must:

2. Prevent pollutants and contaminants from the municipal solid waste landfill units at the site from degrading the waters of the State.

9. Unless approved by the solid waste management authority, not be within 1,000 feet of any surface water or 100 feet of the uppermost aquifer if the site is approved after September 2, 1992.

NDEP abused their discretion and acted arbitrarily and capriciously in approving a waiver to the 100' to aquifer requirement (the requirement was 300' prior to 9/21/77 when it was reduced to 100' by the SEC). NDEP by allowing a 70% reduction in the 100' to aquifer requirement makes a mockery of this already weakened regulation and the regulation's intent to protect waters of the State from degradation. The site sits above an aquifer that contains millions of acre feet of water (Berger report page 24) an invaluable resource for the people of Nevada that will be at high risk for leachate contamination.

The water table stands at about 60' in this area and cell construction will reduce the earth buffer to 30' above the aquifer. NDEP attempted to compensate for their waiver of regulation in part by requiring Recology to add, in addition to another clay layer, a second 60 mil HDPE liner to their design. A sixty one-thousands of an inch plastic (petroleum based) liner that is susceptible to degradation by many compounds that will be included in the solid waste, including margarine, cannot safely substitute for the ground water protection value of 70' of earth cover. Adding a second liner is analogous to adding a second bumper to a vehicle to limit damage in an accident. (**Exhibit C** - Rachel's Hazardous Waste News #117).

NDEP started down a long slippery slope when they decided to assist in permitting a landfill in a lowland lake bed thereby dictating that any engineering design begin from a position of weakness by attempting to compensate for the geographical unsuitability of the site due to relative elevation, ground and surface water conditions, poor soils and seismic zone status. In his December 2011 fifty-five page report on the proposed project for the Humboldt County Board of Commissioners Harvard educated environmental engineer and landfill expert G. Fred Lee, PhD. soundly condemned the project and concluded that the landfill as designed will fail to protect the groundwater from contamination (Dr. Lee's report is attached to the electronic version of this brief).

NDEP has also attempted to circumvent this regulation by using semantics and deceit. In NDEP's, "Response to Specific Comments," (attached to electronic version of this brief) they note:

"NAC 444.6785(3) defines floodplains. In this section, "100-year floodplain" means the lowland and the relatively flat lands adjoining the waters that are inundated by a 100-year flood. The site does not adjoin a water body that has a 100-year flood designation. As such, it is not defined as a floodplain in the State of Nevada".

While it is true that the FEMA FIRM maps of Desert Valley do not designate the area as a 100 year floodplain, it is also obvious from the multi-year photos included in these Exhibits (**Exhibits A, D, E, F**) that the FEMA designation is incorrect (this is the same governmental agency that had such a pathetic response to hurricane Katrina). FEMA defines floodplain as, "Any land area susceptible to being inundated by flood waters from any source." (**Exhibit G**)

NDEP cannot be unaware that FEMA erred by its own definition in not designating Desert Valley as a floodplain. NDEP has continuously ignored citizen reports of frequent extensive flooding in Desert Valley relying solely on Golder Associates, Recology's hired engineering firm with a vested interest in the matter whose reports on the site contradict Berger's findings; indeed, NDEP and Golder show the prevailing wind direction opposite from Berger who sited thousands of years of active sand dune migration as proof of prevailing

wind direction (Berger page 3). NDEP relied instead on a one-year record from Cyanco a company that produces cyanide near Winnemucca and may have an interest in the prevailing wind direction blowing away from the population center.

At the December 1, 2011 NDEP public hearing on this permit, Jon Taylor, of NDEP defended the erroneous wind flow data using Cyanco data over Winnemucca airport data because Cyanco was, "closer." The airport is less than four miles away from Cyanco and uses meteorological instruments whose accuracy is regulated by the Federal government. Thirty years of airport records demonstrate, unequivocally, a predominant Easterly flow. Wind rose data defended by NDEP are selective, incomplete and misleading at best. Apparently NDEP believes that Golder Associates can do no wrong, facts are irrelevant and local citizens know nothing because they are not engineers like themselves.

NDEP did no independent investigation of the suitability of the proposed site, visiting the site, according to Taylor, on only three occasions. NDEP relied solely on Golder's findings and ignored local common knowledge and citizen reports that the area floods frequently and the prevailing winds are out of the West. This is a classic case of relying on the fox to protect the hen house. Flooding is so frequent in the area that soil samples taken near the NE corner of the site on a shared micro-playa contained aquatic life - fairy shrimp (branchiopod) eggs that the appellant and associates hatched out which required ten days of constant inundation indicating substantial periods of flooding, at least fourteen days,

for the branchiopods to complete their life cycle (**Exhibits H and I**).

In a March 4, 2009 letter to Erin Merrill of, then, NORCAL Waste Systems, Jon Taylor of NDEP instructed Merrill, “Please remove references to “sheetflow” this site is predominantly subject to “Ponding” (**Exhibit J**). Sheetflow is a type of flooding that FEMA defines as, “A flood hazard with flooding depths of 1 to 3 feet that occurs in areas of sloping land” (**Exhibit G**).

While ponding may be the predominant flood hazard at this site it is also subject to sheet flow flooding which is exacerbated by the railroad berm acting as a dam along the north edge of the proposed site. NDEP has attempted to resolve the problem of frequent area flooding by removing reference to it much like an ostrich sticking its head in the sand to avoid danger.

Had Recology purchased land for the project along the railroad tracks a few miles to the west in the higher ground at the south end of the Jackson Mountains or a few miles to the east in the higher ground between the Eugene Mountains and Blue Mountain you would not be reading this brief. Witness the landfills at Lockwood, Nevada and the Humboldt County Regional Landfill, both are located on mountain sides free from threats of flooding and high above the water table. When the reasonable observer looks closely at Recology’s proposed site the thought becomes, “What was NDEP thinking?”

The State Environmental Commission should overturn this operating permit for

cause in order to protect the environment, the people and the waters of the State of Nevada.

Respectfully submitted,

Richard Cook
4320 Paradise Ranchos Dr.
Winnemucca, NV 89445



Exhibit A 3/19/12 photo of proposed site facing south from near Jungo Rd. Lat. 40.927N Long. 118.3004W.

North

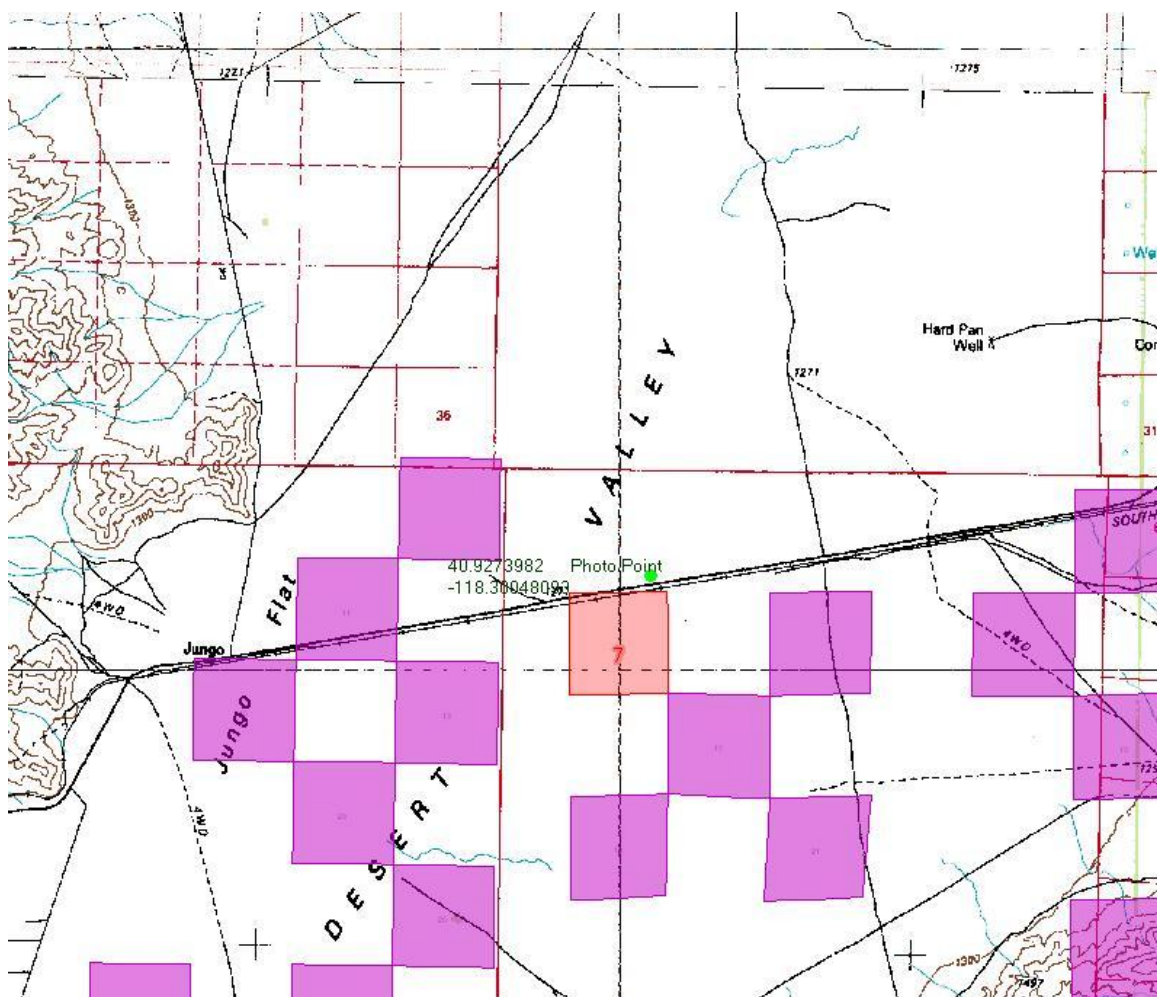


Exhibit B photo point for exhibit A. Photo was taken facing south square marked number seven is actual site. This is also the photo point for **Exhibit D** taken on 2/19/10 facing southwest.

=====Electronic Edition=====

RACHEL'S HAZARDOUS WASTE NEWS #117

---February 21, 1989---

News and resources for environmental justice.

Environmental Research Foundation

P.O. Box 5036, Annapolis, MD 21403

Fax (410) 263-8944; Internet: erf@igc.apc.org

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THE BEST LANDFILL LINER: HDPE.

The very best landfill liners today are made of a tough plastic film called high density polyethylene (HDPE). HDPE has only been in use in this country for this purpose since the early 1980s, so we have little actual experience to go on. However, landfill designers assure us that HDPE resists attack by nearly all chemicals.

Resistance to chemical attack is important because the theory of landfill design says that the landfill liner must maintain its integrity for the duration of the hazard it is supposed to contain. If the garbage in the landfill will remain toxic for thousands of years, the landfill liner must maintain its integrity for thousands of years; if the liner fails before the hazard has gone away, the failed liner will allow the hazard to escape, and we will have simply passed today's problem onto our children and grandchildren.

There are other plastic liners besides HDPE in use today, and we will discuss their characteristics in [future issues of RHWN](#). But HDPE is the liner of choice, if you can afford it, so let's start there.

When we looked up HDPE in a standard reference source (the KIRK-OTHMER ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY, 3rd edition), we learned that HDPE "is not attacked by most inorganic chemicals and is insoluble in most organic solvents at room temperature. In a study of linear polyethylenes, only 14 of 270 chemicals and materials were rated as capable of causing, upon prolonged exposure at room temperature, softening, embrittlement, or a significant loss of strength." The study cited by KIRK-OTHMER was conducted by the Phillips Petroleum Company in Bartlesville, OK, so we phoned Phillips to learn more.

Phillips has been in the plastic business for 30 years, and they are proud of their HDPE product. They sent us a very informative booklet describing the chemical properties of HDPE. The booklet described the use of HDPE for packaging. Thus the information is very relevant, because that's what a landfill liner is: a huge plastic baggie for packaging wastes; like a plastic bottle or drum, a landfill liner is intended to contain wastes, to

prevent them from escaping. The booklet gave us confidence that Phillips has done its homework, but it did not give us confidence in HDPE as a landfill liner.

According to Phillips, there are many household chemicals that will degrade HDPE, permeating it (passing through it), making it lose its strength, softening it, or making it become brittle and crack. If you've ever held a thick (100 mil, or 1/10 of an inch) piece of HDPE landfill liner in your hand, you know it's about as stiff as a linoleum tile. If chemicals make it even stiffer and it cracks under the massive weight of the garbage heaped above it, that's all she wrote for the safety of the local environment.

In addition to many individual chemicals (mentioned below), Phillips lists two major classes of chemicals that are not compatible with HDPE: aromatic hydrocarbons, and halogenated hydrocarbons. The basic aromatic hydrocarbon is benzene (a major component of gasoline); others are toluene (also called methylbenzene), and the three xylenes (o-, m-and p-xylene). Others include naphthalene (moth balls), and p-dichlorobenzene (also moth balls). These aromatic hydrocarbons "permeate excessively and cause package deformation," says Phillips.

Another class of compounds incompatible with HDPE is halogenated hydrocarbons. The most familiar names here are carbon tetrachloride, chloroform, DDT, aldrin, dieldrin, lindane, 2,4-D, 2,4,5-T, trichloroethylene, trichloroethane, perchloroethylene, and so forth. The full list is very long and growing all the time as chemists find new ways to attach chlorine, fluorine, bromine and iodine atoms to carbon and hydrogen.

The Phillips booklet lists many individual household chemicals as incompatible with HDPE.

Appendix I of the Phillips booklet lists the following chemicals under the heading "can cause stress cracks" in HDPE:

Acids: acetic acid (1% to 10% solution); aqua regia.

Foods & food products: cider, lard, margarine, vinegar, vanilla extract.

Household toiletries and pharmaceutical products: detergents (standard); detergents (heavy duty); dry cleaners; hair oil; hair shampoo; hair wave lotions; hand creams; iodine (tincture) ("embrittlement may occur after prolonged exposure"); lighter fluid; nail polish; shaving lotion; shoe polish (liquid); shoe polish (paste); soap; wax (liquid and paste); amyl alcohol 100%; carbon tetrachloride; chlorobenzene ("softening and part deformation will occur"); chloroform ("softening and part deformation will occur"); cyclohexanol; ethyl alcohol (also known as booze); methyl alcohol (a component of shellac); propyl alcohol.

Oils: castor; mineral; peppermint; vegetable; pine.

Industrial chemicals: amyl alcohol 100%; chlorobenzene; chloroform; cyclohexanol; ethyl alcohol; methyl alcohol; propyl alcohol.

So much for stress cracks. What about common chemicals that can permeate through HDPE? Phillips says "permeation is considered a physical migration of a product through the container walls." Chemicals that will permeate a plastic film will often also physically damage it. Appendix I of the Phillips booklet lists the following chemicals (giving the permeation in parentheses):

Household toiletries and pharmaceutical products: lighter fluid ("high"); nail polish ("4% loss per year"); shoe polish (liquid) ("high"); turpentine ("8.5% loss per year").

Industrial chemicals: acetone ("3.4% loss per year"); amyl acetate ("4% loss per year"); amyl chloride ("high"); benzene ("high"); carbon tetrachloride ("80% loss per year"); chlorobenzene ("high; softening and part deformation will occur"); chloroform ("high"); ethylene chloride ("high; softening and part deformation will occur"); gasoline ("high"); toluene ("high; softening, swelling, and part deformation will occur"); trichloroethylene ("high; softening, swelling, and part deformation will occur").

Oils: orange ("high"); peppermint ("high"); pine ("high").

So much for chemicals that pass through HDPE, weakening it as they go.

Appendix II of the Phillips booklet lists the following chemicals as "unsatisfactory" or causing "some attack" on HDPE at room temperature: bromine liquid; butyl acetate; chlorine liquid; chlorosulfonic acid 100%; cyclohexanone; ethyl chloride; methyl ethyl ketone; methyl bromide; methylene chloride 100%; nitrobenzene 100%; oleum concentrated; petroleum ether; tetralin; tetrahydrofuran; xylene.

So long as your municipality's garbage contains none of the items listed above (assuming the information from Phillips is complete), HDPE will perhaps do a good job for you. However, if your garbage is free of these items, you're probably from another planet anyway and therefore you won't need to rely on America's best available landfill liners for solving your resource management problems.

Get MARLEX POLYETHYLENE TIB 2 PACKAGING PROPERTIES free from: Mrs. Frances L. Campbell, Plastics Technical Center, Plastics Division, Phillips 66 Company, Bartlesville, OK 74004. Phone (918) 661-6600. Additional technical information available from: Phillips 66 Company, P.O. Box 792, Pasadena, TX 77501; phone 1-800-231-1212.

--Peter Montague, Ph.D.

Descriptor terms: hdpe; high density polyethylene; landfilling; landfill liners; failure mechanisms; leaks; toluene; methylbenzene; carbon tetrachloride; chloroform; ddt; aldrin; dieldrin; halogenated hydrocarbons;





Exhibit E Desert Valley facing southwest March 2006. This photo which shows extensive flooding to the southwest was taken by a railroad buff long before the Jungo landfill controversy, it is a couple of miles west of the site the train is eastbound. Notice that the railroad berm is a couple of feet above the grade whereas the berm is a fairly consistent 5' above the grade along the north side of the proposed site (see exhibits A and D). The railroad builds for the 100-year flood event and 5' above the grade is what their engineers determined was required along the north edge of the proposed site to keep the tracks above all but the most extreme flooding. The 5' berm also acts as a dam preventing northward run-off from the site thereby increasing flood depth at the site an important fact that was apparently never even considered by NDEP.



Exhibit F Desert Valley facing south from the railroad tracks Feb. 2010. Notice that the railroad berm is acting as a dam preventing northward runoff and increasing flood hazard. This photo was taken approximately two miles west of the proposed site because it was the closest place to the site that a four-wheel drive vehicle could exit Jungo Rd. which is busy with mining related activity without getting buried to the axels in mud.



Definitions (downloaded from FEMA web site)

- **Flood**--
 - A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is the policyholder's property) from:
 - Overflow of inland or tidal waters; or
 - Unusual and rapid accumulation or runoff of surface waters from any source; or
 - Mudflow; or
 - Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.
- **Floodplain**--Any land area susceptible to being inundated by flood waters from any source.
- **Ponding Hazard**--A flood hazard that occurs in flat areas when there are depressions in the ground that collect "ponds" of water. The ponding hazard is represented by the zone designation AH on the FIRM.

AH

Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

- **Sheet Flow Hazard**--A type of flood hazard with flooding depths of 1 to 3 feet that occurs in areas of sloping land. The sheet flow hazard is represented by the zone designation AO on the FIRM.

AO

River or stream flood hazard areas and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.

- **Closed Basin Lake**--A natural lake from which water leaves primarily through evaporation and whose surface area exceeds or has exceeded one square mile at any time in the recorded past. NFIP-insured buildings that are subject to

continuous lake flooding from a closed basin lake are covered under the provisions of [Standard Flood Insurance Policy](#).

jg

FEMA Definitions page 2

Waters of the United States include:

1. All waters which are currently used or were used in the past or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;
2. All interstate waters, including wetlands;
3. All other waters—such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, wetlands, sloughs, prairie potholes, wet meadows, **playa lakes**, or natural ponds—the use, degradation, or destruction of which could affect interstate or foreign commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in this section;
6. The territorial sea; and
7. Wetlands adjacent to waters identified above.



Exhibit H photo taken 12/29/11. This is a soil sample site for branchiopod eggs; fence post visible in middle background is NE corner marker of proposed site.



Exhibit I fairy shrimp hatched 1/17/12 from soil sample taken from location in exhibit H on 12/29/11.



STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor

Allen Biaggi, Director

Leo M. Drozdoff, P.E., Administrator

March 4, 2009

Erin Merrill
NORCAL Waste Systems
160 Pacific Avenue
San Francisco CA 94111

Reference: With respect to NORCAL Waste Systems and the correspondence dated 12/24/08 Response

Subject: First Technical Review of Jungo Landfill Application (Application)

Dear Ms. Merrill:

Thank you for your Response, the Nevada Division of Environmental Protection (NDEP) has had an opportunity to conduct a preliminary review and herein provides comments. The NDEP will continue reviewing the Application upon receipt of a response. Please provide a response to these comments within 60 days of receipt.

The primary concerns the NDEP has are related to whether there is sufficient characterization of the subsurface soils and a reasonable understanding of the engineering properties necessary to address the regulatory requirements of NAC 444.6795 *Location restrictions: Unstable areas*. (NRS 444.560). Please note that this term includes:

(e) "Unstable area" means a location which is susceptible to natural or man-made features that are capable of impairing the integrity of some or all of the structural components of a municipal solid waste landfill unit that will prevent the release of the solid waste, or any by-product thereof, from that landfill. The term includes poor foundation conditions, areas susceptible to mass movements and karst terrains.

In the NDEPs view, the suspect soils (landfill bottom being almost directly adjacent) in combination with being located in a Seismic Impact Zone (NAC 444.6793) present a problematic site condition. Accordingly the NDEP will be reserving authority to require further investigation. To try to clarify, at the landfill boundary there will be some 100psi of effective stress either in or adjacent to the Sandy-Silt/Silty-Sand layers with little to no cohesion. Coupled with a seismic event at partial buildout may compromise the integrity of the liner.

Additionally, it will be difficult to determine whether "settlement" has taken place in the waste mass or in the subsurface soils for the purpose of maintaining grade to sumps. In view of the critical slope necessary to promote drainage some 1600' and knowing only the last point taken prior to the next expansion does not provide assurance drainage is being maintained throughout the entire distance.

The NDEP will not assume "no leakage" through the liner, nor remove from consideration further protective measures for the groundwater as the site is restricted (NAC 444.678 *Location restrictions: Generally*. (NRS 444.560) The location of a Class I site must:

9. Unless approved by the solid waste management authority, ***not*** be within 1,000 feet of any surface water *or 100 feet of the uppermost aquifer* if the site is approved after September 2, 1992.

1. All drawings must be 200'/'"
2. Please revise the HELP Model, Foundation Settlement, Slope Stability Calculations to reflect a Unit Weight of ~45lbs/ft³ for the waste mass.
3. Please include soil loss due to wind at the facility (NRCS Custom Soil Resource Report for Humboldt County).
4. Please provide detailed sump design drawings, both in plan and in elevation with depths to groundwater included.
5. Please include (*i.e.* show) the Final Cover, with detailing, (Drawing 4) in conjunction with the LCRS and Gas Collection Piping detail.
6. Previously the NDEP requested:

NAC 444.680 Please provide the following:

- (d) *Show any proposed soil borrow areas.* [As a matter of note calculations show a deficit of ~132,000 yd³ of soil, please identify where this will be taken from]

The NDEP cannot find any soil borrow area(s) identified. It is understood that the landfill will progress in a modular fashion with excavation taking place ahead of disposal, please show these areas in conjunction with various phases of the site.

7. Please provide a cross section (in elevation) showing the excavation in each of the phases with distance/depth to water and detailing (adjacent soil profiles would also be helpful).
8. Please return the number of employees previously submitted and then removed. Please do not remove anything from the application not directly commented on or required to remove.
9. Please remove references to "sheetflow" this site is predominantly subject to "Ponding" (NRCS Custom Soil Resource Report for Humboldt County).
10. Are the PE Stamps and signature either scanned or computer generated?
11. Please provide updated and current Groundwater Elevations for each of the borings.
12. Please include in the Closure Plan a process for verification of Interim Closure for the site. This would include a request to the NDEP for a site visit and inspection to confirm Partial Closure and confirmation Financial Assurance is no longer required for this particular area.
13. It is not clear for each of the expansions (modules) how Run-on and Run-off will be managed. The NDEP cannot authorize a release onto adjacent properties; accordingly all waters must be managed onsite. Please provide details for each expansion.
14. Are the blow counts corrected or uncorrected in the Well logs?

Erin Merrill
NORCAL Waste Systems
March 4, 2009
Page 3 of 3

15. Please remove "Conceptual Design" and Replace with "Final Design", the NDEP will not review Conceptual Designs

16. Just to clarify, is NORCAL proposing a 5 foot soil Cap with membrane?

Any questions regarding this may be directed to the undersigned at 775-687-9477 or jtaylor@ndep.nv.gov.

Sincerely,

Original Signed

Jon Taylor PE CEM
Staff Engineer III
Solid Waste Branch
Bureau of Waste Management

[JT:cb](#)

cc: Ken Haskell Golder Associates Inc. 1009 Enterprise Way Suite 350 Roseville CA 95678

ec: [Eric Noack](#)
[Ed Glick](#)

File: 495_jtaylor_03042009_08_LTR_First Technical Comments.doc