To: Glendale City Council

The City of Glendale's EIR for the Scholl Canyon Landfill (*Scholl Canyon Landfill EIR/Draft EIR, March 2014*) should not be approved because of an incomplete analysis of the geology of the site and surroundings of the landfill. The 2014 EIR is seriously flawed based on the following:

I. Water Quality and Monitoring

i. There are over 200 compounds of "concern" reported in the 2014 Draft EIR:

Table 3
Scholl Canyon Landfill Constituents of Concern

Field Parameters
Turbidity (Field)

General Parameters
Boron
Conductivity
Cyanide, Total
Fluoride
MBAS
Nitrite as Nitrogen
pH
Total Alkalinity
Residue, Filterable (TDS)
Total Hardness as CaCO3

Anions
Bicarbonate Alkalinity
Carbonate Alkalinity
Chloride
Hydroxide Alkalinity
Nitrate as Nitrogen
Sulfate
Sulfide

Cations
Calcium Hardness as CaCO3
Hexavalent Chromium (dissolved)
Iron
Magnesium Hardness as CaCO3
Potassium
Sodium

Organics
Oil and Grease
BOD
COD
Total Organic Carbon
Total Organic Halogens

Metals
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Iron
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Tin
Vanadium
Zinc

Volatile Organic Compounds
1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethene
1,1-Dichloropropene
1,2,3-Trichloropropane
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,3-Dichloropropane
1,4-Dichlorobenzene
2,2-Dichloropropane
2-Hexanone
Acetone
Acetonitrile
Acrolein
Acrylonitrile
Allyl Chloride
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Chloroprene
cis-1,2-Dichloroethene
cis-1,3-Dichloropropene
Dichlorodifluoromethane
Dibromochloromethane
Dibromomethane
Ethylbenzene
Ethyl methacrylate
Isobutyl alcohol
1,3-Dichlorobenzene
m+p-Xylenes
Methacrylonitrile
Methyl ethyl ketone (MEK)
Methyl Iodide
Methyl Isobutyl Ketone (MIBK)
Methyl methacrylate
Methylene Chloride
o-Xylene
Propionitrile
Styrene
Tetrachloroethene
Toluene
trans-1,4-Dichloro-2-butene
trans-1,2-Dichloroethene
trans-1,3-Dichloropropene
Trichloroethene
Trichlorofluoromethane
Vinyl Acetate
Vinyl Chloride

Pesticides
2,4,5-T
2,4,5-TP (Silvex)
2,4-D
p,p'-DDD
p,p'-DDE
p,p'-DDT
Aldrin
alpha-BHC
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
beta-BHC
delta-BHC
Dieldrin
Dimethoate
Dinoseb
Disulfoton
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Parathion
gamma-BHC (Lindane)
Heptachlor
Heptachlor epoxide (Isomer B)
Methoxychlor
Methyl parathion
Phorate
Technical Chlordane
Thionazine (Zinophos)
Toxaphene

Semivolatile Organic Compounds
0,0,0-Triethylphosphorothioate
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,4-Naphthoquinone
1-Naphthylamine
2,3,4,6-Tetrachlorophenol
2,3,7,8-TCDD
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dichlorophenol
2,6-Dinitrotoluene
2-Acetylaminofluorene
2-Chloronaphthalene
2-Chlorophenol
4,6-Dinitro-2-methylphenol
2-Methylnaphthalene
2-Naphthylamine
3,3'-Dichlorobenzidine
3,3'-Dimethylbenzidine
3-Methylcholanthrene
4-Aminobiphenyl
4-Bromophenyl phenyl ether
4-Chloro-3-methylphenol
4-Chlorophenyl phenyl ether
5-Nitro-o-toluidine
7,12-Dimethylbenz[a]anthracene

Table 3
Scholl Canyon Landfill Constituents of Concern

a,a-Dimethylphenethylamine
Acenaphthene
Acenaphthylene
Acetophenone
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Benzyl alcohol
bis(2-Chloroisopropyl)ether
Bis(2-Chloroethoxy)methane
Bis(2-Chloroethyl)ether
bis(2-Ethylhexyl)phthalate
Butyl benzyl phthalate
Chlorobenzilate
Chrysene
Di-n-butyl phthalate
Di-n-octyl phthalate
Diallate (Avadex)
Dibenzo(a,h)anthracene
Dibenzofuran
Diethyl phthalate
Dimethyl phthalate
Diphenylamine
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-cd)pyrene
Isodrin
Isophorone
Isosafrole
Kepone
m,p-Cresol
1,3-Dinitrobenzene
3-Nitroaniline
Methapyrilene
Methyl methanesulfonate
N-Nitrosodi-n-butylamine
N-Nitroso-n-propylamine
N-Nitrosodiethylamine
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
N-Nitrosomethylethylamine
N-Nitrosopiperidine
N-Nitrosopyrrolidine
Naphthalene
Nitrobenzene
o-Cresol
2-Nitroaniline
2-Nitrophenol
o-Toluidine
p-(Dimethylamino)azobenzene
4-Chloroaniline
4-Nitroaniline
4-Nitrophenol
p-Phenylenediamine
Pentachlorobenzene
Pentachloronitrobenzene
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
Pronamide
Pyrene
Safrole
1,3,5-Trinitrobenzene

ii. Of the above compounds, the following are reported from sampling wells west of the landfill barriers and west of the western terminus of the landfill:

Table 2 (see the 2014 Draft EIR, for additional sampling wells and data)

		Barrier 1											
		M02B		M04B		M05A[1]		M06B		M08B		M10B	
Consituent	Units[2]	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range
DEPTH TO WATER	FEET	4	36.18 - 37.49	4	35.33 - 37.88	3	32.64 - 34.18	4	28.77 - 67.11	4	45.82 - 52.84	3	46.28 - 47.59
DEPTH TO BOTTOM	FEET	4	67.14 - 67.24	4	54.94 - 55.07	3	40.38 - 40.44	4	74.88 - 75.01	4	63.57 - 63.80	3	52.12 - 52.18
FIELD DISSOLVED O2	MG/L	4	0.15 - 0.38	4	0.17 - 0.20	3	0.28 - 0.54	4	0.15 - 0.28	4	0.12 - 0.26	3	0.65 - 4.44
FIELD CONDUCTIVITY	UMHOS/CM	4	1921 - 2084	4	2043 - 2294	3	3224 - 3922	4	2816 - 3023	4	2334 - 3555	3	1292 - 1372
FIELD PH	S.U.	4	6.29 - 6.64	4	6.35 - 6.61	3	6.35 - 7.48	4	6.23 - 6.47	4	6.29 - 6.48	3	6.28 - 6.61
FIELD WATER TEMPERATURE	DEG.C.	4	19.03 - 23.92	4	20.98 - 24.70	3	23.11 - 27.06	4	19.14 - 27.38	4	22.63 - 24.77	3	20.18 - 24.90
AMMONIA NITROGEN	MG/L	7	<0.1 - 0.141	5	<0.1	3	<0.1	6	<0.27 - 0.7	6	0.112 - 0.15	3	<0.1
CONDUCTIVITY	UMHOS/CM	7	1850 - 2000	5	1920 - 2220	3	3280 - 3940	6	2630 - 3640	6	2100 - 3390	3	1270 - 1320
NITRITE NITROGEN	MG/L	7	<0.03	5	0.08 - 0.18	3	<0.03	6	<0.03	6	<0.03	3	<0.03
PH	S.U.	7	6.68 - 6.88	5	6.56 - 6.94	3	6.49 - 6.74	6	6.49 - 6.86	6	6.62 - 6.84	3	6.73 - 7.01
TOTAL ALKALINITY	MG/L	7	616 - 644	5	693 - 747	3	896 - 1080	6	788 - 967	6	674 - 863	3	368 - 383
TOTAL DISSOLVED SOLIDS	MG/L	7	1172 - 1310	5	1140 - 1424	3	1912 - 2723	6	1618 - 2376	6	1364 - 2492	3	816 - 848
TOTAL HARDNESS	MG/L	7	801 - 874	5	871 - 1000	3	1360 - 1570	6	1170 - 1560	6	974 - 1490	3	624 - 641
BICARBONATE ALKALINITY	MG/L	7	616 - 644	5	693 - 747	3	896 - 1080	6	788 - 967	6	674 - 863	3	368 - 383
CHLORIDE	MG/L	7	244 - 261	5	232 - 313	3	591 - 759	6	432 - 700	6	308 - 674	3	128 - 132
NITRATE NITROGEN	MG/L	7	<0.2	5	<0.2 - 0.51	3	<0.2	6	<0.2	6	<0.2	3	1.01 - 1.24
SULFATE	MG/L	7	74.5 - 78.2	5	52.9 - 68.2	3	7.1 - 31.9	6	6.9 - 51.6	6	23.7 - 80.9	3	142 - 151
CALCIUM-HARDNESS	MG/L	7	419 - 458	5	447 - 524	3	724 - 891	6	607 - 836	6	509 - 804	3	332 - 336
MAGNESIUM-HARDNESS	MG/L	7	382 - 416	5	424 - 478	3	630 - 761	6	560 - 724	6	465 - 687	3	292 - 309
POTASSIUM	MG/L	7	6 - 6.1	5	4 - 5.2	3	10.1 - 15.4	6	10 - 14	6	9 - 12	3	<80.0 - 13
SODIUM	MG/L	7	123 - 140	5	115 - 146	3	198 - 247	6	165 - 222	6	137 - 212	3	61 - 76
TOTAL COD	MG/L	7	26 - 38	5	23 - 30.7	3	141 - 231	6	85 - 207	6	44 - 133	3	<25 - 17
TOTAL ORGANIC CARBON	MG/L	7	9.16 - 11.8	5	9.4 - 10.7	3	45.5 - 74	6	28.8 - 58.6	6	16.4 - 42.5	3	2.26 - 2.44
1,1,1,2-TETRACHLOROETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
1,1,1-TRICHLOROETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
1,1,2,2-TETRACHLOROETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
1,1,2-TRICHLOROETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
1,1-DICHLOROETHANE	UG/L	7	1 - 1.2	5	0.86 - 2	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - 0.7	3	0.74 - 0.99
1,1-DICHLOROETHENE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
1,2,3-TRICHLOROPROPANE	UG/L	7	<1	5	<1	3	<5 - <10	6	<1 - <5	6	<1 - <10	3	<1
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	7	<0.01	5	<0.01	3	<0.01	6	<0.01	6	<0.01	3	<0.01
1,2-DIBROMOETHANE	UG/L	7	<0.01	5	<0.01	3	<0.01	6	<0.01	6	<0.01	3	<0.01
O-DICHLOROBENZENE	UG/L	7	0.72 - 0.9	5	1 - 2.7	3	<2.5 - <5	6	<0.5 - 3	6	<0.5 - 2	3	<0.5
1,2-DICHLOROETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
1,2-DICHLOROPROPANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
P-DICHLOROBENZENE	UG/L	7	2.6 - 3	5	4 - 11.3	3	14 - 31	6	<0.5 - 20	6	3.2 - 13	3	<0.5 - 0.63
2-HEXANONE	UG/L	7	<2	5	<2	3	<10 - <20	6	<2 - <10	6	<20	3	<2
ACETONE	UG/L	7	<10 - 14	5	<10 - 15.9	3	<50 - <100	6	<10 - <50	6	<10 - <100	3	<10 - 10.3
ACRYLONITRILE	UG/L	7	<5	5	<5	3	<25 - <125	6	<5 - <10	6	<5	3	<5
BENZENE	UG/L	7	<0.5	5	<0.5 - 0.74	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - 0.8	3	<0.5
BROMOCHLOROMETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
BROMODICHLOROMETHANE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5

		Barrier 1											
		M02B		M04B		M05A[1]		M06B		M08B		M10B	
Consituent	Units[2]	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range	No. of Samples	Result Range
METHYLENE CHLORIDE	UG/L	7	<0.5	5	<0.5	3	<2.5 - 8	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
O-XYLENE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
STYRENE	UG/L	7	<1	5	<1	3	<5 - <10	6	<1 - <5	6	<1 - <10	3	<1
TETRACHLOROETHYLENE	UG/L	7	<0.5	5	<0.5 - 7	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	0.8 - 1.7
TOLUENE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
TRANS-1,2-DICHLOROETHYLENE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
TRANS-1,3-DICHLOROPROPENE	UG/L	7	<0.5	5	<0.5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - <5	3	<0.5
T-1,4-DICHLORO-2-BUTENE	UG/L	7	<1	5	<1	3	<5 - <10	6	<1 - <5	6	<1 - <10	3	<1
TRICHLOROETHYLENE	UG/L	7	4 - 6	5	0.62 - 5	3	<2.5 - <5	6	<0.5 - <2.5	6	<0.5 - 0.8	3	3 - 4
FREON 11 (CCL3F)	UG/L	7	<1	5	<1	3	<5 - <10	6	<1 - <5	6	<1 - <10	3	<1
VINYL ACETATE	UG/L	7	<2	5	<2	3	<10 - <20	6	<2 - <10	6	<20	3	<2
VINYL CHLORIDE	UG/L	7	<0.5	5	<0.5 - 1.3	3	<2.5 - <5	6	<0.5 - 0.57	6	<0.5 - 1	3	<0.5
1,4-DIOXANE	UG/L	7	27.6 - 31.1	5	27.3 - 36.4	3	86 - 130	6	72.3 - 121	6	79.6 - 122	3	4.4 - 5.5

iii. Two, subsurface barriers at the west side/end of the landfill have not prevented dangerous and carcinogenic compounds from percolating to the west into the groundwater and further west of the Landfill into the City Water Wells.

iv. The 2014 Draft EIR doesn't reference a City of Glendale report (*Technical Background Report to the 2003 Safety Element City of Glendale report* [TBR 2003 SECGR]) that provides some of the bases for understanding how the compounds of "Concern" have found their way into the subsurface groundwater west of the landfill and west of the subsurface landfill barriers.

(a). The bedrock is "highly shattered, sheared, and crushed" (see below), i.e., the pollutants from the landfill are able to percolate into and through the bedrock and into the groundwater beneath the barrier and flow to the west of the

Landfill. See section 2.3.2 Bedrock Units TBR 2003 SECGR).

2.3.2 *Bedrock Units*

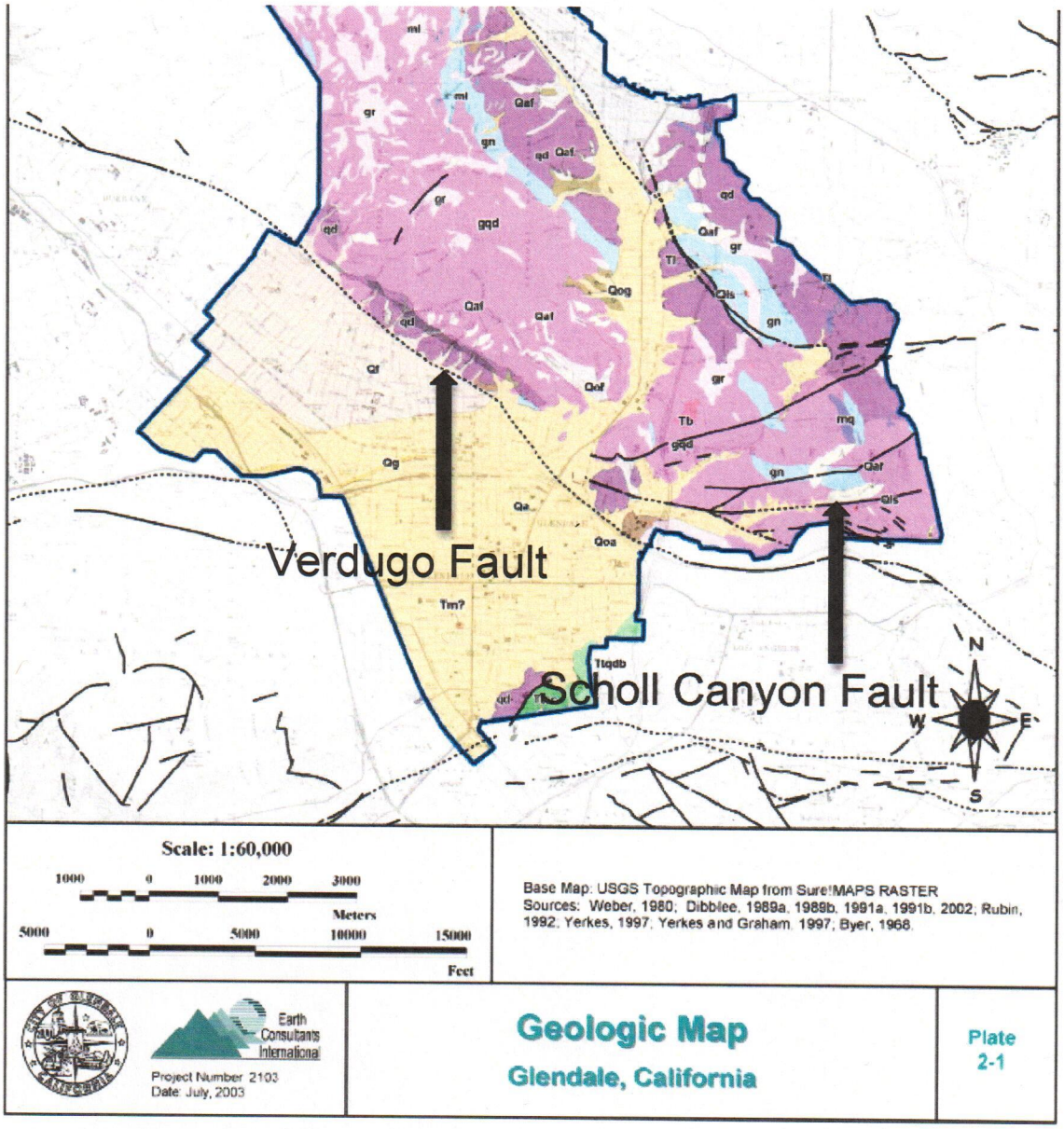
Within Glendale, areas of high relief are underlain primarily by a complex assemblage of crystalline rocks created from multiple episodes of igneous intrusion and metamorphism deep within the Earth's crust. This association represents a long history of such events, and includes some of the oldest rocks (dating back to the Precambrian age) in southern California. The contacts between rock types are approximate and somewhat variable in geologic maps published over the years, reflecting the difficulty of mapping in rugged, brush-covered terrain, as well as identifying rock types that are highly shattered, sheared, and crushed. Many map units include more than one rock type, and the predominant rock type has typically been used to characterize the unit. One unit, the leucocratic granodiorite, occurs as dikes and irregular-shaped lenses intruding into the various different units southwest of the South Branch of the San Gabriel fault. The youngest bedrock unit consists of sedimentary rock formed from deep marine deposits that encroached onto the area where Glendale is now located prior to uplift of the present Verdugo and San Gabriel Mountains.

(b). No impermeable membrane/barrier was installed beneath the landfill as required by the Environmental Protection Agency. "Modern landfill design incorporates liners constructed of soil (i.e., re-compacted clay), or synthetics (i.e., high density polyethylene), or both to provide an impermeable barrier to leachate (i.e., water that has passed through the landfill) and gas migration from the landfill" (EPA, 1998).

3.3.7.1 Liquids Management section of the 2014 EIR states that: "The SCLF (Scholl Canyon Landfill) was developed and the extent of refuse placement was established prior to Subtitle D regulations requiring installation of a composite liner at the bottom of the landfill. Although the site does not have a composite liner, **the existing natural liner of bedrock**, the subsurface barrier at the mouth of the canyon, and the groundwater monitoring and extraction systems collectively provide an equivalent level of protection".

The 2003 SECGR clearly states that the bedrock is "highly shattered, sheared, and crushed". The substances of concern are simply flowing beneath the subsurface barrier at the mouth of the canyon through the fractured bedrock—confirmation of this is provided in Table 2 of the 2014 EIR (above).

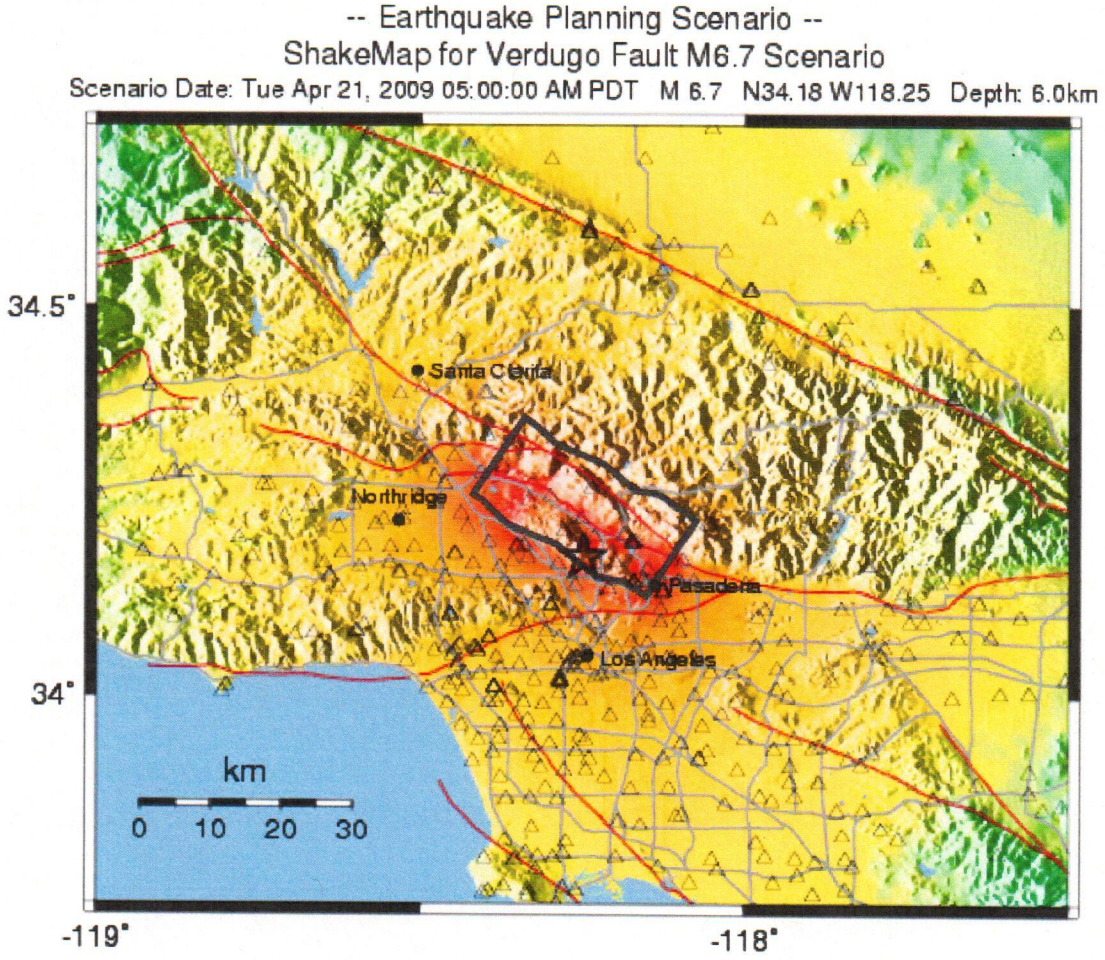
(c) A geologic map in the 2003 SECGR provides evidence of another gateway for contaminated groundwater to flow westward past and beneath the western barrier of the landfill. The fractured bedrock along the fault plane of the Scholl Canyon fault (below, first named in the 2003 SECGR), is perpendicular to the western barrier and along the former westward trend of Glenoaks Canyon. The fault plane provides a pathway for contaminated groundwater to flow westward to Glendale's water wells.



II Geology

The Verdugo fault, with an earthquake capability of Magnitude 6.7 or from 6.0 to 6.7 (Southern California Earthquake Center [SCEC]) is present along the 134 Freeway and less than 1 mile south of the two western barriers (concrete, faced with volcanic ash) located at the landfill. According to SCEC, there will be strong to violent shaking in the epicenter area during an earthquake (see below). The death toll can be between none and 25,000. An earthquake of 6.0 to 6.7 can easily rupture the barriers in the landfill, allowing westward flow of contaminants in the landfill. The extraction wells east of the barriers cannot and do not remove all of the pollutants, and these barriers weren't mandated and installed until after approximately 20 years of rubbish and chemicals had been dumped at the site of the landfill.

The active San Andreas fault (northeast corner of the map below) with a magnitude of 7.8 earthquake capability, the San Gabriel fault with a M 6.7 or higher earthquake capability north of La Canada, and the Santa Monica-Hollywood-Raymond fault with a 6.7 magnitude capability just south of the landfill, and near near Broadway, are all capable of generating ground movement during an earthquake that could rupture any barriers at the landfill.



The 2014 EIR does not consider or adequately consider the earthquake capabilities of these faults that could rupture the barriers and release contaminants into the groundwater and Glendale's water wells.

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