

#76072



State of New Mexico  
ENVIRONMENT DEPARTMENT  
DOE Oversight Bureau  
P.O. Box 1663, MS/J-993  
Los Alamos, New Mexico 87545



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Gene Turner, DOE/AIP/POC  
Department of Energy  
Office of Los Alamos Site Operations  
MS: A316  
Los Alamos, NM 87545

July 28, 2003

Re: 2001 Benthic Macroinvertebrate Data from Cañon de Valle

Dear Mr. Turner:

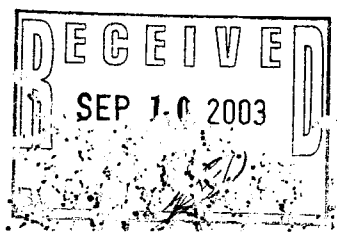
The Department of Energy Oversight Bureau of the New Mexico Environment Department has compiled benthic macroinvertebrate data from samples collected in springs and perennial water found in Cañon de Valle during 2001. These samples were collected to support the Building 260 outfall ecological risk assessment currently being conducted.

We used a multi-metric approach to evaluate the macroinvertebrate communities. This approach follows the assessment protocol found in the State of New Mexico procedures for assessing standards attainment for §303 (d) list and §305 (b) report. This approach generated a percent of reference condition, which was evaluated against the criteria for assessment of aquatic life use support. The 2001 samples were compared to reference community metrics found in Cañon de Valle during 1997 and Upper Pajarito Canyon in 1994.

Qualitative kick samples collected from Burning Ground Spring, a pool near MDA P, and a riffle below MDA P showed slight impairment (full support, impacts observed) when compared to Cañon de Valle-1997 communities. When compared to Upper Pajarito-1994 communities, the Burning Ground Spring and riffle below MDA P showed slight impairment while the pool near MDA P showed moderate impairment (partial support).

Quantitative, modified Hess samples collected below MDA P and in Burning Ground Spring showed slight impairment (full support, impacts observed) when compared to Cañon de Valle-1997 communities while quantitative samples collected in Cañon de Valle below Burning Ground Spring were non-impaired (full support). These same samples showed slight impairment when compared to Upper Pajarito-1994 communities.

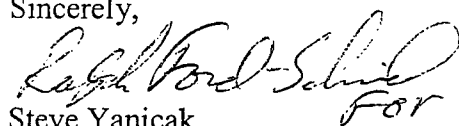
A museum collection of specimens was produced and is available for archive purposes for the Building 260 outfall ecological risk assessment team.



Gene Turner  
July 28, 2003  
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These data are provided to DOE for review and comment prior to their release as final to other State of New Mexico and Federal agencies, the Pueblos, and interested members of the public. We are including a paper copy of all data only. This data is not available electronically at this time. Please contact Ralph Ford-Schmid at 428-2559 if you have any questions about this data.

Sincerely,

A handwritten signature in cursive script that reads "Ralph Ford-Schmid". Below the signature, the word "For" is written in a smaller, simpler font.

Steve Yanicak,  
Point of Contact/LANL  
NMED, DOE OB

SY: rfs

cc w/o encl: Courte Voorhees, Chief, NMED, DOE OB

cc: with enclosures

Steve Rae, LANL, RRES-WQH, MS K497  
Phillip Fresquez, LANL, RRES-ECO, MS M887  
Tim Michael, NMED, DOE OB  
Mark Tardiff, Neptune, MS M969  
Lisa Henne, RRES-ECO, MS M887

NMCo: Los Alamos Date: 25-May-01 Location: Canyon de Valle CDV-03 Landmark: Burning Ground Spring Sample Type: Qualitative Kick Net 17 Random Sq = 300 count Collector: Ralph Ford-Schmid	NMCo: Los Alamos Date: 25-May-01 Location: Canyon de Valle CDV-04 Landmark: Pool near MDA P Sample Type: Qualitative Kick Net 8 Random Sq = 300 Count Collector: Ralph Ford-Schmid	NMCo: Los Alamos Date: 25-May-01 Location: Canyon de Valle CDV-05 Landmark: Riffle Below MDA P Sample Type: Qualitative Kick Net 10 Random Sq = 300 Count (Same location as 1997 sampling) Collector: Ralph Ford-Schmid
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The three qualitative samples above (CDV-03, 04, 05) are to be treated as separate samples for population assessment.

CDV-03 = 17 random squares were sorted to obtain approximately 300 count sample.

CDV-04 = 8 random squares were sorted to obtain approximately 300 count sample.

CDV-05 = 10 random squares were sorted to obtain approximately 300 count sample.

NMCo: Los Alamos Date: 01-June-01 Location: Canyon de Valle CDV-00 Landmark: Burning Ground Spring 20 ft before confluence with CDV Sample Type: Modified Hess Quantitative Collector: Ralph Ford-Schmid
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The one quantitative sample above (CDV-00) was collected in a spring discharging into Canyon de Valle and is to be assessed alone.

NMCo: Los Alamos Date: 01-June-01 Location: Canyon de Valle CDV-01 Landmark: Canyon De Valle; Rriffle 75 ft below confluence with Burning Ground Spring Sample Type: Modified Hess Quantitative Collector: Ralph Ford-Schmid	NMCo: Los Alamos Date: 01-June-01 Location: Canyon de Valle CDV-02 Landmark: Canyon de Valle; Rriffle 200 ft above MDA P Sample Type: Modified Hess Quantitative Collector: Ralph Ford-Schmid
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The two quantitative sample above (CDV-01, 02) were collected along a 1/4 mile reach and represent the riffle habitat in this area. These are to be assessed together (two samples instead of the regular three) as one sample.

NMCo: Los Alamos Date: 15-June-01 Location: Canyon de Valle CDV - "A" Landmark: Riffle Below MDA P (Same location as 1997 sampling) Sample Type: Modified Hess Quantitative Collector: Ralph Ford-Schmid	NMCo: Los Alamos Date: 15-June-01 Location: Canyon de Valle CDV - "B" Landmark: Riffle Below MDA P (Same location as 1997 sampling) Sample Type: Modified Hess Quantitative Collector: Ralph Ford-Schmid	NMCo: Los Alamos Date: 15-June-01 Location: Canyon de Valle CDV - "C" Landmark: Riffle Below MDA P (Same location as 1997 sampling) Sample Type: Modified Hess Quantitative Collector: Ralph Ford-Schmid
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The three quantitative samples above (CDV-"A", "B", "C") were collected along a 50 ft reach and represent the riffle habitat in this area. These are to be assessed together as one sample.

Table 1 Benthic macroinvertebrate bioassessment of four Los Alamos stream locations (VA 2.6 - 1997, CDVs - 2001).

Metric	Stations			
	VA 2.6 reference	CDV-03	CDV-04	CDV-05
<b>Calculated Value</b>				
Standing Crop (No./m2)	3101	474	875	900
No. of Taxa	31	26	28	20
BCI (CTQd)	90.0	84.5	95.9	92.2
HBI	5.15	4.67	6.40	6.23
EPT Index	6	4	2	3
EPT/EPT + Chiron.	0.66	0.52	0.37	0.21
Community Loss	0	0.81	0.75	1.15
% Dominant Taxon	20	23	26	65
Diversity	3.93	3.62	3.42	2.16
Scra./Scra.+Filt. Coll.	0.145	0.851	0.068	0.500
Shredders/Total	0.164	0.291	0.017	0.090
<b>Percent of Reference</b>				
Standing Crop (No./m2)	100	15	28	29
No. of Taxa	100	83	90	64
BCI (CTQd)	100	100	93	97
HBI	100	100	80	82
EPT Index	100	66	33	50
EPT/EPT + Chiron.	100	78	56	32
Scra./Scra.+Filt. Coll.	100	100	47	100
Shredders/Total	100	100	10	54
<b>Score</b>				
Standing Crop (No./m2)	6	0	2	2
No. of Taxa	6	6	6	4
BCI (CTQd)	6	6	6	6
HBI	6	6	4	4
EPT Index	6	0	0	0
EPT/EPT + Chiron.	6	6	4	2
Community Loss	6	4	4	4
% Dominant Taxon	6	4	4	0
Diversity	6	6	6	4
Scra./Scra.+Filt. Coll.	6	6	4	6
Shredders/Total	6	6	0	6
<b>Biological Condition</b>				
Total	66	50	40	38
% of Reference	100	75	60	57
Condition		SI	SI	SI

Table 2 Benthic macroinvertebrates from four Los Alamos stream locations (VA 2.6 - 1997, CDVs - 2001).

	Stations			
	VA 2.6 reference	CDV-03	CDV-04	CDV-05
PLECOPTERA - stoneflies				
<i>Amphinemura banksi</i>	340	99	0	45
<i>Isoperla</i> sp.	68	0	0	0
EPHEMEROPTERA - mayflies				
<i>Ameletus</i> sp.	6	0	0	0
<i>Baetis tricaudatus</i>	618	26	225	6
<i>Acentrella insignificans</i>	0	0	0	6
TRICHOPTERA - caddisflies				
<i>Agapetus</i> sp.	0	4	0	0
<i>Hydropsyche occidentalis</i>	442	0	0	0
<i>Hesperophylax</i> sp.	45	0	4	0
<i>Lepidostoma</i> sp.	0	26	0	0
DIPTERA - true flies				
<i>Antocha monticola</i>	6	0	0	0
<i>Dicranota</i> sp.	23	7	0	0
<i>Tipula</i> sp.	6	0	0	3
<i>Culiseta</i> sp.	0	0	19	0
<i>Dixa</i> sp.	0	7	0	3
<i>Dixella</i> sp.	17	0	0	0
<i>Simulium</i> sp.	301	5	30	582
<i>P. merina</i> sp.	0	5	161	0
<i>O. tomesa</i> sp.	0	9	4	0
<i>Thienieniella</i> sp.	0	0	0	6
<i>Diamesa</i> sp.	40	0	0	0
<i>Pagastia</i> sp.	0	0	4	3
<i>Thienemannimyia</i> sp.	0	0	23	3
<i>Pseudodiamesa</i> sp.	6	0	0	0
<i>Orthocladius</i> sp.	176	2	4	21
<i>Brillia</i> sp.	0	11	11	33
<i>Eukiefferiella</i> sp.	45	11	4	75
<i>Parametriocnemus</i> sp.	6	0	8	0
<i>Tvetenia</i> sp.	0	58	0	15
<i>Cricotopus</i> sp.	62	0	0	0
<i>Nilotanypus</i> sp.	0	0	15	0
<i>Macropelopia</i> sp.	0	2	8	0
<i>Cladotanytarsus</i> sp.	204	0	0	0
<i>Paratendipes</i> sp.	0	5	0	0
<i>Tanytarsus</i> sp.	62	0	0	0
<i>Paratanytarsus</i> sp.	11	0	0	0
<i>Polypedilum</i> spp.	34	2	0	0
<i>Micropsectra</i> sp.	62	35	143	48
<i>Parochlus kiefferi</i>	0	0	0	3
<i>Paraphaenocladus</i> sp.	0	4	0	6
<i>Pentaneura</i> sp.	85	0	0	0
<i>Odontomyia</i> sp.	0	5	0	0
<i>Chelifer</i> sp.	136	0	0	0

<i>Hemerodromia</i> sp.	11	0	4	0
<i>Limnophora</i> sp.	0	0	0	12
Thaumaleidae	0	12	0	0
ODONATA - damsel/dragonflies				
<i>Cordulegaster</i> sp.	0	0	4	0
<i>Ophiogomphus</i> sp.	96	0	0	0
Aeshnidae	0	0	4	0
<i>Boyeria</i> sp.	0	12	4	0
Libellulidae	0	0	11	0
<i>Libellula</i> sp.	62	0	0	0
Coenagrionidae	23	0	0	0
<i>Argia</i> sp.	0	0	4	0
<i>Enallagma</i> sp.	0	0	8	0
HEMIPTERA - true bugs				
<i>Gerris</i> sp.	0	0	4	0
<i>Trepobates</i> sp.	0	0	41	0
<i>Metrobates</i> sp.	0	2	0	0
<i>Notonecta</i> sp.	0	0	4	0
<i>Microvelia</i> sp.	0	2	0	6
COLEOPTERA - beetles				
Dytiscidae A1	0	0	30	21
<i>Optioservus</i> sp.	79	107	4	3
<i>Prionocyphon</i> sp.	0	2	0	0
LEPIDOPTERA - moths				
<i>Petrophila</i> sp.	23	0	0	0
MOLLUSCA - snails/clams				
Sphaeriidae	6	14	90	0
Total (numbers/m2)	3101	474	875	900

Table 3 Benthic macroinvertebrate bioassessment of four Los Alamos stream locations (VA 2.6 - 1997, CDVs - 2001).

Metric	Stations			
	VA 2.6 reference	CDV-A/B/C	CDV-00	CDV-01/02
<b>Calculated Value</b>				
Standing Crop (No./m2)	3101	1248	7480	4906
No. of Taxa	31	26	24	35
BCI(CTQd)	90.0	85.7	78.2	90.2
HBI	5.15	4.88	3.35	5.41
EPT Index	6	4	6	5
EPT/EPT + Chiron.	0.66	0.55	0.80	0.51
Community Loss	0	0.81	0.92	0.54
% Dominant Taxon	20	36	32	27
Diversity	3.93	3.29	3.20	3.69
Scra./Scra.+Filt. Coll.	0.145	1.000	0.817	0.353
Shredders/Total	0.164	0.382	0.186	0.141
<b>Percent of Reference</b>				
Standing Crop (No./m2)	100	40	241	158
No. of Taxa	100	83	77	100
BCI(CTQd)	100	100	100	99
HBI	100	100	100	95
EPT Index	100	66	100	83
EPT/EPT + Chiron.	100	84	100	78
Scra./Scra.+Filt. Coll.	100	100	100	100
Shredders/Total	100	100	100	85
<b>Score</b>				
Standing Crop (No./m2)	6	4	2	4
No. of Taxa	6	6	4	6
BCI(CTQd)	6	6	6	6
HBI	6	6	6	6
EPT Index	6	0	6	6
EPT/EPT + Chiron.	6	6	6	4
Community Loss	6	6	6	6
% Dominant Taxon	6	4	4	4
Diversity	6	2	2	4
Scra./Scra.+Filt. Coll.	6	6	6	6
Shredders/Total	6	6	6	6
<b>Biological Condition</b>				
Total	66	52	54	58
% of Reference	100	78	81	87
Condition		SI	SI	NI

Table 4 Benthic macroinvertebrates from four Los Alamos stream locations (VA 2.6 - 1997, CDVs - 2001).

	Stations			
	VA 2.6 reference	CDV-A/B/C	CDV-00	CDV-01/02
PLECOPTERA - stoneflies				
<i>Amphinemura banksi</i>	340	454	816	408
<i>Isoperla</i> sp.	68	0	51	0
<i>Sweltsa</i> sp.	0	0	17	0
EPHEMEROPTERA - mayflies				
<i>Ameletus</i> sp.	6	0	0	0
<i>Baetis tricaudatus</i>	618	40	238	621
<i>Paraleptophlebia</i> sp.	0	40	0	0
TRICHOPTERA - caddisflies				
<i>Agapetus</i> sp.	0	0	1377	119
<i>Hydropsyche occidentalis</i>	442	0	0	0
<i>Hesperophylax</i> sp.	45	6	0	94
<i>Lepidostoma</i> sp.	0	0	510	26
DIPTERA - true flies				
<i>Antocha monticola</i>	6	0	0	0
<i>Dicranota</i> sp.	23	6	119	17
<i>Tipula</i> sp.	6	0	0	0
<i>Pericoma</i> sp.	0	0	0	9
<i>Culiseta</i> sp.	0	0	0	9
<i>Dixa</i> sp.	0	0	68	17
<i>Dixella</i> sp.	17	0	0	0
<i>Simulium</i> sp.	301	113	85	68
<i>Odontomesa</i> sp.	0	11	102	0
<i>Diamesa</i> sp.	40	0	0	0
<i>Pagastia</i> sp.	0	193	0	9
<i>Rhienemannimyia</i> sp.	0	11	17	153
<i>Pseudodiamesa</i> sp.	6	0	0	0
<i>Heterotrissocladius</i> sp.	0	6	0	26
<i>Orthocladius</i> sp.	176	23	17	34
<i>Brillia</i> sp.	0	17	68	51
<i>Synorthocladius</i> sp.	0	0	0	17
<i>Mukiifferiella</i> sp.	45	17	0	0
<i>Parametriocnemus</i> sp.	6	0	0	51
<i>Vetenia</i> sp.	0	11	255	221
<i>Micropsectra</i> sp.	62	0	0	0
<i>Procladius</i> sp.	0	0	0	9
<i>Procladius</i> sp.	0	0	68	9
<i>Procladius</i> sp.	0	11	0	26
<i>Procladius</i> sp.	0	0	0	17
<i>Procladius</i> sp.	204	0	0	0
<i>Procladius</i> sp.	62	0	0	0
<i>Procladius</i> sp.	11	0	0	0
<i>Procladius</i> spp.	34	0	0	0
<i>Procladius</i> sp.	62	136	238	111
<i>Procladius</i> sp.	85	0	0	468
<i>Procladius</i> sp.	0	0	0	0
<i>Procladius</i> sp.	0	0	0	9



<i>Tabanus</i> sp.	0	0	0	9
<i>Chelifera</i> sp.	136	6	0	77
<i>Hemerodromia</i> sp.	11	0	0	0
<i>Conophora</i> sp.	0	6	17	9
Phaumaleidae	0	0	51	0
ODONATA - damsel/dragonflies				
Gomphidae	0	0	0	9
<i>Ophiogomphus</i> sp.	96	0	0	0
<i>Boyeria</i> sp.	0	11	34	77
<i>Libellula</i> sp.	62	0	0	0
Coenagrionidae	23	0	0	0
<i>Argia</i> sp.	0	11	0	170
<i>Enallagma</i> sp.	0	11	0	0
HEMIPTERA - true bugs				
<i>Gerris</i> sp.	0	0	17	0
<i>Trepobates</i> sp.	0	51	0	34
<i>Microvelia</i> sp.	0	17	0	0
COLEOPTERA - beetles				
Dytiscidae A1	0	6	0	17
<i>Optioservus</i> sp.	79	23	2397	604
Curculionidae	0	0	85	0
<i>Hydrobius</i> sp.	0	11	0	0
LEPIDOPTERA - moths				
<i>Petrophila</i> sp.	23	0	0	0
MOLLUSCA - snails/clams				
Sphaeriidae	6	0	799	1301
ANNELIDA - segmented worms				
Naididae	0	0	34	0
Total (numbers/m2)	3101	1248	7480	4906

Table 5 Benthic macroinvertebrate bioassessment of four Los Alamos stream locations (PA 9.0 - 1994, CDVs - 2001).

Metric	Stations			
	PA 9.0 reference	CDV-A/B/C	CDV-00	CDV-01/02
<b>Calculated Value</b>				
Standing Crop (No./m2)	2589	1248	7480	4906
No. of Taxa	25	26	24	35
BCI (CTQd)	80.0	85.7	78.2	90.2
HBI	4.38	4.88	3.35	5.41
EPT Index	10	4	6	5
EPT/EPT + Chiron.	0.84	0.55	0.80	0.51
Community Loss	0	0.58	0.67	0.37
% Dominant Taxon	21	36	32	27
Diversity	3.53	3.29	3.20	3.69
Scra./Scra.+Filt. Coll.	0.948	1.000	0.817	0.353
Shredders/Total	0.053	0.382	0.186	0.141
<b>Percent of Reference</b>				
Standing Crop (No./m2)	100	48	288	189
No. of Taxa	100	100	96	100
BCI (CTQd)	100	93	100	88
HBI	100	89	100	80
EPT Index	100	40	60	50
EPT/EPT + Chiron.	100	66	95	61
Scra./Scra.+Filt. Coll.	100	100	86	37
Shredders/Total	100	100	100	100
<b>Score</b>				
Standing Crop (No./m2)	6	4	0	4
No. of Taxa	6	6	6	6
BCI (CTQd)	6	6	6	6
HBI	6	6	6	4
EPT Index	6	0	0	0
EPT/EPT + Chiron.	6	4	6	4
Community Loss	6	4	4	6
% Dominant Taxon	4	2	2	4
Diversity	6	6	6	6
Scra./Scra.+Filt. Coll.	6	6	6	4
Shredders/Total	6	6	6	6
<b>Biological Condition</b>				
Total	64	50	48	50
% of Reference Condition	100	78	75	78
		SI	SI	SI

Table 6 Benthic macroinvertebrates from four Los Alamos stream locations (Pa  
 9.0 - 1994, CDVs -2001).

	Stations			
	PA 9.0 reference	CDV-A/B/C	CDV-00	CDV-01/02
PLECOPTERA - stoneflies				
<i>Amphinemura banksi</i>	6	454	816	408
<i>Isoperla</i> sp.	0	0	51	0
<i>Sweltsa</i> sp.	193	0	17	0
<i>Hesperoperla pacifica</i>	266	0	0	0
EPHEMEROPTERA - mayflies				
<i>Ameletus</i> sp.	79	0	0	0
<i>Baetis tricaudatus</i>	539	40	238	621
<i>Paraleptophlebia</i> sp.	0	40	0	0
TRICHOPTERA - caddisflies				
<i>Glossosoma</i> sp.	6	0	0	0
<i>Agapetus</i> sp.	0	0	1377	119
<i>Hydropsyche oslari</i>	23	0	0	0
<i>Hydroptila</i> sp.	6	0	0	0
<i>Hesperophylax</i> sp.	57	6	0	94
<i>Ecclisomyia</i> sp.	11	0	0	0
<i>Lepidostoma</i> sp.	0	0	510	26
DIPTERA - true flies				
<i>Dicranota</i> sp.	57	6	119	17
<i>Pedicia</i> sp.	6	0	0	9
<i>Curiseta</i> sp.	0	0	0	9
<i>Dixa</i> sp.	0	0	68	17
<i>Simulium</i> sp.	227	113	85	68
<i>Odontomesa</i> sp.	0	11	102	0
<i>Diamesa</i> sp.	51	0	0	0
<i>Pagastia</i> sp.	119	193	0	9
<i>Thienemannimyia</i> sp.	0	11	17	153
<i>Heterotrissocladius</i> sp.	0	6	0	26
<i>Orthocladius</i> sp.	6	23	17	34
<i>Brillia</i> sp.	11	17	68	51
<i>Synorthocladius</i> sp.	0	0	0	17
<i>Eukiefferiella</i> sp.	0	17	0	0
<i>Parametriocnemus</i> sp.	6	0	0	51
<i>Tvetenia</i> sp.	6	11	255	221
<i>Corynoneura</i> sp.	34	0	0	0
<i>Nilotanypus</i> sp.	0	0	0	9
<i>Radotanypus</i> sp.	0	0	68	9
<i>Macropelopia</i> sp.	0	11	0	26
<i>Stempellinella</i> sp.	0	0	0	17
<i>Polypedilum</i> spp.	0	0	0	111
<i>Micropsectra</i> sp.	0	136	238	468
Ceratopogonidae	0	0	0	9
<i>Tabanus</i> sp.	0	0	0	9
<i>Chelifera</i> sp.	0	6	0	77
<i>Liriophora</i> sp.	0	6	17	9
Thalassididae	0	0	51	0

ODONATA - damsel/dragonflies

Gomphidae	0	0	0	9
Boyeria sp.	0	11	34	77
Argia sp.	0	11	0	170
Enallagma sp.	0	11	0	0
HEMIPTERA - true bugs				
Gerris sp.	0	0	17	0
Trepobates sp.	0	51	0	34
Microvelia sp.	0	17	0	0
COLEOPTERA - beetles				
Dytiscidae A1	0	6	0	17
Helichus sp.	6	0	0	0
Narpus sp.	57	0	0	0
Optioservus sp.	414	23	2397	604
Curculionidae	0	0	85	0
Hydrobius sp.	0	11	0	0
MOLLUSCA - snails/clams				
Sphaeriidae	0	0	799	1301
ANNELIDA - segmented worms				
Naididae	0	0	34	0
Lumbricidae	352	0	0	0
PLATYHELMINTHES - flatworms				
Turbellaria	51	0	0	0
Total (numbers/m2)	2589	1248	7480	4906

Table 7 Benthic macroinvertebrate bioassessment of four Los Alamos stream locations (PA 9.0 - 1994, CDVs - 2001).

Metric	Stations			
	PA 9.0 reference	CDV-03	CDV-04	CDV-05
<b>Calculated Value</b>				
Standing Crop (No./m2)	2589	474	875	900
No. of Taxa	25	26	28	20
BCI(CTQd)	80.0	84.5	95.9	92.2
HBI	4.38	4.67	6.40	6.23
EPT Index	10	4	2	3
EPT/EPT + Chiron.	0.84	0.52	0.37	0.21
Community Loss	0	0.65	0.61	0.85
% Dominant Taxon	21	23	26	65
Diversity	3.53	3.62	3.42	2.16
Scra./Scra.+Filt. Coll.	0.948	0.851	0.068	0.500
Shredders/Total	0.053	0.291	0.017	0.090
<b>Percent of Reference</b>				
Standing Crop (No./m2)	100	18	33	34
No. of Taxa	100	100	100	80
BCI(CTQd)	100	94	83	86
HBI	100	93	68	70
EPT Index	100	40	20	30
EPT/EPT + Chiron.	100	62	44	25
Scra./Scra.+Filt. Coll.	100	89	7	52
Shredders/Total	100	100	32	100
<b>Score</b>				
Standing Crop (No./m2)	6	0	2	2
No. of Taxa	6	6	6	6
BCI(CTQd)	6	6	4	6
HBI	6	6	2	4
EPT Index	6	0	0	0
EPT/EPT + Chiron.	6	4	2	2
Community Loss	6	4	4	4
% Dominant Taxon	4	4	4	0
Diversity	6	6	6	4
Scra./Scra.+Filt. Coll.	6	6	0	6
Shredders/Total	6	6	2	6
<b>Biological Condition</b>				
Total	64	48	32	40
% of Reference	100	75	50	62
Condition		SI	MI	SI

Table 8 Benthic macroinvertebrates from four Los Alamos stream locations (PA 9.0 - 1994, CDVs - 2001).

	Stations			
	PA 9.0 reference	CDV-03	CDV-04	CDV-05
PLECOPTERA - stoneflies				
<i>Amphinemura banksi</i>	6	99	0	45
<i>Sweltsa</i> sp.	193	0	0	0
<i>Hesperoperla pacifica</i>	266	0	0	0
EPHEMEROPTERA - mayflies				
<i>Ameletus</i> sp.	79	0	0	0
<i>Baetis tricaudatus</i>	539	26	225	6
<i>Acentrella insignificans</i>	0	0	0	6
TRICHOPTERA - caddisflies				
<i>Glossosoma</i> sp.	6	0	0	0
<i>Agapetus</i> sp.	0	4	0	0
<i>Hydropsyche oslari</i>	23	0	0	0
<i>Hydroptila</i> sp.	6	0	0	0
<i>Hesperophylax</i> sp.	57	0	4	0
<i>Ecclisomyia</i> sp.	11	0	0	0
<i>Lepidostoma</i> sp.	0	26	0	0
DIPTERA - true flies				
<i>Dicranota</i> sp.	57	7	0	0
<i>Tipula</i> sp.	0	0	0	3
<i>Pericoma</i> sp.	6	0	0	0
<i>Culiseta</i> sp.	0	0	19	0
<i>Dixa</i> sp.	0	7	0	3
<i>Simulium</i> sp.	227	5	30	582
<i>Paramerina</i> sp.	0	5	161	0
<i>Odontomesa</i> sp.	0	9	4	0
<i>Thienimieniella</i> sp.	0	0	0	6
<i>Diamesa</i> sp.	51	0	0	0
<i>Pagastia</i> sp.	119	0	4	3
<i>Thienemannimyia</i> sp.	0	0	23	3
<i>Orthocladius</i> sp.	6	2	4	21
<i>Brillia</i> sp.	11	11	11	33
<i>Eukiefferiella</i> sp.	0	11	4	75
<i>Parametriocnemus</i> sp.	6	0	8	0
<i>Tvetenia</i> sp.	6	58	0	15
<i>Corynoneura</i> sp.	34	0	0	0
<i>Nilotanytus</i> sp.	0	0	15	0
<i>Macropelopia</i> sp.	0	2	8	0
<i>Paratendipes</i> sp.	0	5	0	0
<i>Polypedilum</i> spp.	0	2	0	0
<i>Micropsectra</i> sp.	0	35	143	48
<i>Parochlus kiefferi</i>	0	0	0	3
<i>Paraphaenocladius</i> sp.	0	4	0	6
<i>Odontomyia</i> sp.	0	5	0	0
<i>Hemerodromia</i> sp.	0	0	4	0
<i>Limnophora</i> sp.	0	0	0	12
Thaumaleidae	0	12	0	0

ODONATA - damsel/dragonflies				
• Cordulegaster sp.	0	0	4	0
Aeshnidae	0	0	4	0
Zygoptera sp.	0	12	4	0
Zellulidae	0	0	11	0
Argia sp.	0	0	4	0
Enallagma sp.	0	0	8	0
HEMIPTERA - true bugs				
Gerris sp.	0	0	4	0
Trepobates sp.	0	0	41	0
Metrobates sp.	0	2	0	0
Notonecta sp.	0	0	4	0
Microvelia sp.	0	2	0	6
COLEOPTERA - beetles				
Dytiscidae A1	0	0	30	21
Helichus sp.	6	0	0	0
Narpus sp.	57	0	0	0
Optioservus sp.	414	107	4	3
Prionocyphon sp.	0	2	0	0
MOLLUSCA - snails/clams				
Sphaeriidae	0	14	90	0
ANNELIDA - segmented worms				
Lumbricidae	352	0	0	0
PLATYHELMINTHES - flatworms				
Turbellaria	51	0	0	0
Total (numbers/m2)	2589	474	875	900