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NEW MEXICANS' PERCEPTIONS OF LOS ALAMOS NATIONAL LABORATORY

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Public Approval and The Perceived Environmental Responsibility of LANL: August 1994 Quarterly Profile

This is the seventeenth report in a series that began in August 1990 and focuses on public perceptions of Los Alamos National Laboratory (LANL). This report uses survey data to profile New Mexico residents' views of LANL. The most recent survey results are the responses of a representative, random sample (N=534) of New Mexico households to a set of questions asked in the Institute for Public Policy's *Quarterly Profile of New Mexico Citizens* (Fall 1994), which was conducted in August of 1994. The data allow statistical inference to the general population of New Mexico. The sample margin of error is slightly greater than plus or minus four percent at the 95% confidence level. One should bear this in mind when considering small percent changes that fall within the margin of error.

In addition to the state-wide sample, geographic regions of the state are defined to examine regional variations in perceptions of LANL. The regions are defined as follows:

Six County Region (SCR) includes Los Alamos and five counties in close proximity to LANL: Los Alamos, Mora, Rio Arriba, Sandoval, San Miguel and Taos (n=55).

Santa Fe County excluded from the counties near LANL because of its distinctive population characteristics (n=42).

Regional Breakdown refers to the state separated into four quadrants and Bernalillo County (n=161). The quadrants are: Northwest (n=141), Northeast (n=43), Southwest (n=83) and Southeast (n=104).¹

¹ Regions of the state are defined as follows: NW: Cibola, Los Alamos, McKinley, Rio Arriba, Sandoval, San Juan, Santa Fe and Valencia Counties; NE: Colfax, Curry, Guadalupe, Harding, Mora, Quay, San Miguel, Taos, Torrance and Union Counties; SW: Catron, Dona Ana, Grant, Hidalgo, Luna, Sierra and Socorro Counties; SE: Chaves, De Baca, Eddy, Lea, Lincoln, Otero and Roosevelt Counties; **Bernalillo County.**

Graphical Representation of Data

The following pages are the graphical representation of both the data collected in the August 1994 Quarterly Profile of New Mexico Citizens and the time-series data that began in August of 1990. The graphs and tables are organized by the two major topics of inquiry that the Institute for Public Policy has pursued for LANL. Section one is concerned with how respondents view LANL. These descriptions are based on a four point "favorability" scale that ranges from Very Unfavorable to Very Favorable. Section two is concerned with respondent's perceptions of LANL's environmental responsibility. Respondents rate LANL as: environmentally responsible, not environmentally responsible or neither. Under each section, the graphs and tables are organized by the state-wide responses, followed by the regional breakdown. Next, the state-wide, six county region, and Santa Fe county responses are shown over time. Finally, responses are shown for the four state quadrants and Bernalillo County.

Section 1: Favorability of LANL

State-wide Perceptions of LANL's Favorability

Perceptions of LANL's Favorability Across Regions

State-wide Perceptions of LANL's Favorability Over Time

Note: for exact percentages, see the table on the following page.

State-wide Perceptions of LANL's Favorability Over Time

	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Don't Know
Aug. 1994	24%	45%	11%	3%	17%
May 1994	24%	44%	10%	3%	19%
Feb. 1994	24%	48%	10%	5%	13%
Nov. 1993	27%	47%	10%	3%	12%
Aug. 1993	25%	49%	10%	2%	14%
May 1993	33%	45%	7%	3%	12%
Feb. 1993	27%	44%	10%	4%	14%
Nov. 1992	29%	44%	9%	3%	16%
Aug. 1992	25%	46%	12%	5%	12%
May 1992	25%	46%	11%	4%	14%
Feb. 1992	25%	47%	13%	3%	12%
Nov. 1991	20%	47%	13%	5%	15%
Aug. 1991	26%	42%	13%	4%	15%
May 1991	27%	41%	7%	4%	22%
Feb. 1991	31%	39%	5%	5%	20%
Nov. 1990	28%	44%	6%	4%	18%
Aug. 1990	33%	39%	7%	3%	17%

Six County Region Perceptions of LANL's Favorability Over Time

Note: for exact percentages, see the table on the following page.

Six County Region Perceptions of LANL's Favorability Over Time

	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Don't Know
Aug. 1994	24%	42%	14%	6%	14%
May 1994	26%	44%	12%	7%	11%
Feb. 1994	31%	50%	8%	5%	6%
Nov. 1993	37%	39%	10%	5%	8%
Aug. 1993	20%	53%	15%	7%	5%
May 1993	40%	48%	5%	2%	5%
Feb. 1993	26%	51%	12%	4%	8%
Nov. 1992	38%	34%	22%	4%	2%
Aug. 1992	26%	51%	15%	4%	4%
May 1992	18%	56%	12%	9%	5%
Feb. 1992	31%	35%	16%	10%	8%
Nov. 1991	21%	46%	13%	10%	10%
Aug. 1991	24%	41%	15%	6%	15%
May 1991	36%	46%	4%	7%	7%
Feb. 1991	33%	39%	6%	9%	12%
Nov. 1990	28%	45%	3%	10%	10%
Aug. 1990	33%	41%	13%	10%	1%

Santa Fe County Perceptions of LANL's Favorability Over Time

Note: for exact percentages, see the table on the following page.

Santa Fe County Perceptions of LANL's Favorability Over Time

	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Don't Know
Aug. 1994	19%	52%	21%	5%	3%
May 1994	14%	49%	19%	14%	5%
Feb. 1994	20%	42%	22%	10%	7%
Nov. 1993	36%	42%	8%	11%	3%
Aug. 1993	16%	44%	26%	9%	5%
May 1993	22%	53%	14%	11%	0%
Feb. 1993	25%	33%	19%	14%	8%
Nov. 1992	21%	39%	18%	13%	8%
Aug. 1992	11%	54%	22%	8%	5%
May 1992	18%	49%	25%	8%	0%
Feb. 1992	26%	50%	17%	5%	2%
Nov. 1991	20%	39%	22%	15%	4%
Aug. 1991	27%	51%	16%	3%	3%
May 1991	13%	34%	24%	18%	11%
Feb. 1991	20%	37%	14%	14%	14%
Nov. 1990	18%	45%	16%	13%	8%
Aug. 1990	18%	51%	18%	11%	2%

Perceptions of Favorability of LANL by State Quadrants

	Very Favorable	Somewhat Favorable	Somewhat Unfavorable	Very Unfavorable	Don't Know
Bernalillo	21%	49%	12%	4%	14%
Northwest	28%	43%	12%	4%	14%
Northeast	21%	42%	14%	5%	19%
Southwest	27%	47%	7%	1%	18%
Southeast	26%	41%	8%	0%	24%

Section 2: LANL's Environmental Responsibility

State-wide Perceptions of LANL's Environmental Responsibility

Regional Perceptions of LANL's Environmental Responsibility

State-wide Perceptions of LANL's Environmental Responsibility Over Time

Note: for exact percentages, see the table on the following page.

State-wide Perceptions of LANL's Environmental Responsibility Over Time

	Environmentally Responsible	Neither	Not Responsible	Don't Know
Aug. 1994	23%	36%	23%	18%
May 1994	23%	35%	21%	21%
Feb. 1994	25%	37%	21%	17%
Nov. 1993	21%	37%	26%	17%
Aug. 1993	27%	35%	20%	19%
May 1993	29%	34%	21%	16%
Feb. 1993	27%	33%	25%	15%
Nov. 1992	25%	34%	19%	21%
Aug. 1992	24%	36%	25%	15%
May 1992	23%	36%	24%	17%
Feb. 1992	28%	36%	22%	14%
Nov. 1991	26%	37%	26%	13%
Aug. 1991	28%	34%	21%	17%
May 1991	31%	30%	15%	24%
Feb. 1991	28%	27%	11%	32%
Nov. 1990	35%	27%	13%	25%
Aug. 1990	30%	30%	17%	22%

Six County Region Perceptions of LANL's Environmental Responsibility Over Time

Note: for exact percentages, see the table on the following page.

Six County Region Perceptions of LANL's Environmental Responsibility Over Time

	Environmentally Responsible	Neither	Not Responsible	Don't Know
Aug. 1994	24%	43%	24%	9%
May 1994	26%	51%	16%	7%
Feb. 1994	27%	38%	30%	6%
Nov. 1993	34%	39%	20%	7%
Aug. 1993	28%	30%	30%	12%
May 1993	36%	31%	19%	14%
Feb. 1993	22%	45%	20%	14%
Nov. 1992	26%	40%	30%	4%
Aug. 1992	28%	44%	25%	3%
May 1992	30%	40%	25%	5%
Feb. 1992	24%	35%	32%	8%
Nov. 1991	33%	28%	31%	8%
Aug. 1991	35%	31%	25%	7%
May 1991	42%	34%	14%	11%
Feb. 1991	38%	18%	22%	23%
Nov. 1990	45%	31%	15%	9%
Aug. 1990	26%	32%	32%	9%

Santa Fe County Perceptions of LANL's Environmental Responsibility Over Time

Note: for exact percentages, see the table on the following page.

Santa Fe County Perceptions of LANL's Environmental Responsibility Over Time

	Environmentally Responsible	Neither	Not Responsible	Don't Know
Aug. 1994	10%	38%	52%	0%
May 1994	27%	32%	35%	5%
Feb. 1994	29%	24%	42%	5%
Nov. 1993	28%	39%	33%	0%
Aug. 1993	26%	33%	37%	5%
May 1993	17%	36%	47%	0%
Feb. 1993	22%	22%	47%	8%
Nov. 1992	16%	37%	39%	8%
Aug. 1992	19%	27%	46%	8%
May 1992	8%	43%	49%	0%
Feb. 1992	24%	36%	36%	5%
Nov. 1991	28%	17%	52%	2%
Aug. 1991	32%	30%	33%	5%
May 1991	16%	42%	29%	13%
Feb. 1991	18%	26%	34%	23%
Nov. 1990	24%	29%	47%	0%
Aug. 1990	9%	31%	51%	9%

LANL's Environmental Responsibility by State Quadrant

	Environmentally Responsible	Neither	Not Responsible	Don't Know
Bernalillo	21%	39%	23%	17%
Northwest	18%	37%	32%	13%
Northeast	28%	33%	21%	19%
Southwest	29%	29%	20%	22%
Southeast	24%	40%	15%	21%

**Longitudinal Analysis of the
Public's Perceptions of
Los Alamos National Laboratories**

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Section 1: Introduction

Since May, 1990, the Institute for Public Policy (IPP) has published *Quarterly Profiles* (QPs) of New Mexico's citizenry. Each QP has focused on a different issue, but they have all asked a set of standard items, including questions about the public's perceptions of the Los Alamos National Laboratories (LANL). Each year, the IPP has used the University of New Mexico's Survey Research Center to conduct a telephone survey of a representative random sample of New Mexicans, and respondents were asked whether they had favorable or unfavorable views of LANL and the degree to which they perceived LANL as an environmentally responsible institution.

As a result of this sustained research effort, the IPP now has a collection of fifteen consecutive QPs. With an aggregate sample size of over 8800, we are now able to make precise statistical inferences with greater confidence than was possible when using individual QP samples. Such an extremely large sample mitigates two kinds of common survey research problems.

First, a sample of 600 individuals lacks sufficient statistical power to detect small associations (correlations .10 or smaller). A statistically nonsignificant finding in the sample might obscure a small but real association among the variables in the population. By contrast, a sample size of 8,800 has enough statistical power to detect even minute--but potentially important--correlations.

Second, a larger sample size gives the investigator narrower confidence intervals for statistically significant findings. For example, a relatively small sample might reveal a significant correlation of .30 among two variables, but the 95% confidence interval for this finding might range from .20 to .40. In other words, the odds are less than one in twenty that the actual population correlation is less than .20 or greater than .40. This result permits the inference that the variables are positively correlated in the target population, but the strength or magnitude of that association could be small or large. With a larger sample size, one might observe the same sample correlation of .30, but the confidence interval might range from only .28 to .32, which gives the investigator a precise estimate of the actual association in the target population.

Section 2 has both of these advantages and provides the reader with a reliable and precise estimate of the public's perceptions of LANL. This section also presents time-series analyses of the public's views in different QPs. This transforms the analysis from a single long-exposure photograph of the public to a motion picture of the public's movement over a four year period.

The remaining sections also present aggregate and time-series analyses, but they take advantage of another strength of large samples. From a sample of 8,800, it is possible to look at how different subgroups of the New Mexico population view LANL. Breaking down a smaller sample is more difficult because the subsample sizes can become intolerably small. A large sample, however, can be divided into subsamples that each have adequate statistical power.

Using the strategy, Section 3 compares the views of different ethnic groups. Section 4 divides respondents according to their different views of the problems New Mexico faces. Section 5 examines regional variations, and Section 6 looks at age differences. Section 7 combines many of these demographic variables with selected political variables and conducts multiple regression analyses of the public's views of LANL.

Finally, Section 8 conducts similar analyses with the Native American subset of the overall sample. This final section was added because previous QPs had usually lacked sufficient sample size to look carefully at the views of LANL held by Native Americans as a distinct subgroup of the New Mexico population.

Section 2: Overall Perceptions of LANL

2.1 General Favorability of Views toward LANL

Overall, the public has overwhelmingly favorable views of the LANL. Percentages of respondents with "very favorable" or "somewhat favorable" views of LANL have consistently hovered between eighty and ninety percent. Figure 1 shows the mean responses for LANL favorability broken down by each QP. A high mean score indicates that the respondents view the lab more favorably. The horizontal line represents the overall mean average of the aggregate of all QPs (3.12). The scale for the question was from 1 ("very unfavorable") to 4 ("very favorable"); therefore, the higher the mean score, the more favorable the responses.

The responses of the November 1991 QP had the lowest favorability rating with a mean of 2.97, which is equivalent to an average response of "somewhat favorable." The August 190 and May 1993 QPs share the highest favorability rating with mean scores of 3.24. Over time, the extremes for mean responses for the general favorability question span only one-quarter of one point on a four point scale. This indicates that general favorability toward LANL has remained stable.

Figure 1: General Favorability Mean Score for LANL over Time

To discuss percentages of favorable and unfavorable responses, we will focus on statistically significant changes over the time periods for each QP. Table 1 shows the mean difference and significance levels for each statistically significant change in favorability ratings. The mean differences are produced by simply subtracting the mean for time 1 from the mean for time 2. The significance of this difference then depends upon sample size, which largely determines the degrees of freedom, and the standard deviations of the sample means.

The most recent significant difference of overall perceptions of the Lab was between the May and August 1993 QPs. During this period, there was a decrease of .13 points on a four point scale. This is reflected in Table 2, which shows a drop in the percentage of respondents who view LANL "very favorably" from 38% to 30%. The number of people perceiving LANL as "somewhat favorable" increased (by 6%), as did the "somewhat unfavorable" category (by 4%).

Between the February and May 1993 QPs, there was a significant increase in favorability for LANL with mean difference of .121 points. This change is reflected in the increase of "very favorable" responses from 32% to 38%. "Somewhat favorable" responses held constant with about 51% of respondents choosing this view of LANL. Both the "somewhat unfavorable" and "very unfavorable" categories decreased slightly.

The largest increase in LANL's favorable perceptions was between August and November 1992, where there was a mean increase of .142 points on the four point scale.

The increase in "very favorable" responses from 29% to 34% and decreases in "somewhat unfavorable" (down 3%) and "very unfavorable" (down 2%) reflect this change.

From November 1991 to February 1992, there was a slight increase of .109 points in the mean score for LANL. During this period, "very favorable" responses increased by four percentage points, while "somewhat favorable" responses decreased by three points. The "somewhat unfavorable" responses remained constant at almost 15%, and the "very unfavorable" category dropped from six to four percent.

The first significant change in responses came between the first and second quarterlies in which we asked respondents the general favorability question, which was between the August and November 190 QPs. This change was a decrease in favorability of .129 points.

Table 1: Statistically Significant Changes of LANL Favorability between QPs

QP Dates	Mean Difference	df	t-Value	P-Value
May-93 to August-93	-.130	400	-2.717	.0069
February-93 to May-93	.121	404	2.260	.0244
August-92 to November-92	.142	400	2.629	.0089
November-91 to February-92	.109	410	2.014	.0447
August-90 to November-90	-.129	363	-2.321	.0208

**Table 2: Response Percentages for General Favorability
Towards LANL for Individual QPs**

	Very Unfavorable	Somewhat Unfavorable	Somewhat Favorable	Very Favorable	Totals
Aug-90	3.896	8.874	46.970	40.260	100.000
Nov-90	5.227	7.273	53.409	34.091	100.000
Feb-91	5.977	6.437	48.736	38.851	100.000
May-91	4.511	8.521	52.632	34.336	100.000
Aug-91	4.358	15.138	48.624	31.881	100.000
Nov-91	5.806	14.839	55.699	23.656	100.000
Feb-92	3.878	14.694	53.061	28.367	100.000
May-92	4.321	12.551	53.498	29.630	100.000
Aug-92	5.061	13.968	52.227	28.745	100.000
Nov-92	3.063	10.503	52.079	34.354	100.000
Feb-93	5.010	11.946	51.060	31.985	100.000
May-93	3.419	7.479	51.282	37.821	100.000
Aug-93	2.610	11.044	56.827	29.518	100.000
Nov-93	3.854	11.349	53.961	30.835	100.000
Feb-94	5.400	11.200	55.600	27.800	100.000
Totals	4.418	11.132	52.437	32.013	100.000

In summary, the average support for LANL was close to the "somewhat favorable" response. The highest mean score was 3.24 for the August 190 and the May 1993 QPs. The lowest score was recorded during the November 1991 QP, when the mean dipped to 2.97. The range of means during this four year period was only .27 points on a four point scale, and this shows a generally stable favorable perception of LANL by the New Mexican public.

2.2 Perceived Environmental Responsibility of LANL

In trying to assess the public's view of the Lab's environmental responsibility, respondents were asked to place LANL on a scale that ranged from 1 ("not at all responsible") to 5 ("very responsible"). A higher mean score indicates that respondents view the lab as environmentally responsible.¹

Figure 2 is a graphical representation of the environmental responsibility mean scores broken down for each QP. The horizontal straight line is the overall mean score of 3.11 on a five point scale. Table 3 shows the significant differences between individual QPs. (Due to a variation in wording for the environmental responsibility question, the November 190 QP is excluded from this analysis.)

¹Specifically, respondents were asked: "Now thinking about environmental issues, how environmentally responsible would you say Los Alamos National Lab has been? On a scale of one to five where one is very environmentally responsible and five is not at all responsible, where would you place Los Alamos National Laboratory?"

As was done with favorability ratings, we analyzed the differences in mean scores over time. We found two significant changes in the public's perceptions of LANL's environmental responsibility. Most recently, the most recent change in perceptions occurred between the November 1993 and the February 1994 QPs. The mean difference for these QPs decreased .159 points on the five point scale. The percentage of respondents who perceived LANL as environmentally responsible during this period fell from 31% to 25%. "Not at all responsible" responses increased from 25% to 30%. The percentage of respondents that gave a neutral response remained constant at 44%.

The other significant change occurred between August 1991 and November 1991: the mean difference was -.183. During this period the percentage of respondents perceiving LANL as responsible dropped from 41% to 35%. The "not at all responsible" responses increased from 20% to 24%, and neutral responses increased from 39% to 42%.

Figure 2: Mean Score for Environmental Responsibility of LANL

Table 3: ANOVA Results Comparing Individual QPs for Significant Changes

Compared QPs	Mean Diff.	DF	t-Value	P-Value
Nov.-93 & Feb.-94	.159	369	1.982	.0482
May-91 & Aug.-91	.183	326	2.175	.0304

The public's perception of the Lab as environmentally responsible has remained fairly constant throughout the time period under investigation. The difference of the extreme means is less than one-half of one point (.489) on the five point scale. The overall environmental responsibility average score of 3.1 leans only slightly towards the perception that LANL is environmentally responsible.

Section 3: Ethnicity, Race, & Perceptions of LANL

3.1 Overall Perceptions of LANL by Different Ethnic Groups

This section compares how respondents of different ethnic and racial backgrounds perceive LANL in terms of general favorability and environmental responsibility. The analysis was done using Analysis of Variance (ANOVA). The results indicated that respondents who classified themselves as white, non-Hispanic tended to favor LANL significantly more than all other groups, excluding Asians. Asians, because of their small numbers in our sample, had a variance too great to be seen as significantly different from any of the other groups.

Table 4 illustrates the significant differences in how people of different ethnicities favor LANL. American Indians had the lowest mean support for LANL at 2.846, which was .328 points less than that of whites. This is the largest difference between any two groups. Respondents who classified themselves as blacks, Hispanics, or "other" were also significantly different from whites, with mean differences of .232, .166 and .130, respectively. Respondents who classified themselves as black, Hispanic or "other" showed lower favorability ratings of LANL than did whites. American Indians were significantly different from Hispanics and "others", with less favorability for LANL by .162 and .198 points, respectively.

**Table 4: ANOVA Results Comparing Groups of
Different Ethnic Groups and their General View of
LANL**

Compared Groups	Mean Diff.	Crit. Diff.	P-Value
white/black	.232	.166	.0060
white/Hispanic	.166	.042	<.0001
white/American Indian	.328	.095	<.0001
Hispanic/American Indian	.162	.099	.0013
American Indian/other	-.198	.138	.0054

Figure 3 illustrates the ANOVA comparing different racial groups and their favorability towards LANL. Whites show the highest general favorability for LANL, while American Indians have the lowest favorable perceptions for the lab. However, the difference was only .328 points on a four point scale for these two groups. The 95% error bars around some of the smaller minority populations, like Asian and blacks, reflects the greater variance due to smaller subgroup sample size.

Figure 3: ANOVA Results of Different Ethnicities and Their General Support for LANL (Mean Score)

3.2 Favorability of LANL over Time by Ethnicity

As with the general population, favorability ratings of LANL have remained relatively stable for each of the different ethnic groups studied (see Figure 4). Although American Indians show a wider variation in responses over time, the variation could be attributed to a lower number of respondents in each QP (see Section 8).

Overall, whites view the Laboratory most favorably. Responses ranged between a high of 91.1% in May, 1991 and a low of 81.8% in February, 1992. The responses are as follows: in August of 1990, 89.1% of whites viewed the Laboratory favorably; in November of 1990, 87.7%; in February of 1991, 88.5%; and in May of 1991, 91.1%. Favorable perceptions among whites slipped a little in the latter half of 1991 and beginning of 1992: (August of 1991, 82.8%; November of 1991, 82.7%) reaching its lowest point in February of 1992 at 81.8%. White favorability rose in May and August of 1992 to 84.9% and 87.8%, respectively, then declined to 85.8% and 85.7% in November, 1992 and February, 1993. In May, 1993, favorability rose again (90.4%) and has steadily

declined since: in August of 1993, it was 89%; in November of 1993, it was 88.1%; and in February of 1994, favorability was at 85.9%.

Percentages of Hispanic respondents with favorable views of LANL varied slightly more than whites' percentages over time: a high of 91.5% in February of 1991 and a low of 74.8% in November of 1991 viewed the Lab favorably. In August of 1990, 81.7% of Hispanics viewed the Lab favorably. This percentage climbed in November, 1990 and February, 1992 to 90.6% and 91.5%, respectively. In May of 1991, there was a sharp decline to 78% favorability, and again in August and November of 1991 to 77.1% and 74.8%, respectively. In February of 1992, favorability for Hispanics rose slightly to 82.5%, then dropped again to 77.1% and 77.6% in May and August of 1992. By November of the 1992 year, favorability rose to 85.8%. In February of 1993, favorability dipped to 79% then rose to 88.5% in May, then plateaued in August, 1993 (81.2%); November, 1993 (82%) and February of 1994 (84%).

As stated earlier, American Indians showed a wide variation in their responses over time. In August and November of 1990, American Indians fell between Whites and Hispanics with 83.3% and 88.2%, respectively. Favorability declined sharply in February of 1991 reaching its lowest point at 58.8%. This percentage rose in May of 1991 but remained lower than the percentages for Hispanics and Whites at 73.3%. Eighty percent of American Indians held favorable views of LANL in August, 1991. This percentage fell in November, 1991 to 71.4% and again in February, 1992 to only 65%. In May of 1992, fully 100% of the respondents surveyed viewed the Lab favorably. Nearly 30% fewer respondents viewed the Lab favorably in August, 1992 (70.8%); November, 1992 (76.5%); and February, 1993 (72%). In May of 1993, 66.7% indicated favorable views of the Lab. This number rose to 83.3% in August of 1993, then declined by nearly ten percentage points in November 1993 to 73.7% and ten more percentage points in February of 1994 to 63.7%. The lowest percentage of American Indian respondents holding favorable views of the Laboratory occurred in February of 1991 with 58.8%, and the highest occurred in May of 1992 with 100% holding favorable views. Once again, these fluctuations in American Indian views is probably more to small subsample sizes in individual QPs than significant changes in the target population's attitudes.

Figure 4: Percentage of Respondents with Favorable Views toward LANL

3.3 Perceptions of LANL's Environmental Responsibility by Ethnicity

There appear to have been three significant differences among respondents of different ethnic backgrounds in how they view LANL's environmental responsibility. Table 5 indicates the significant differences between the individual ethnic groups. Whites were significantly different from American Indians with a mean difference of .149. This indicates that American Indians tend to perceive LANL as less environmentally responsible than whites. Another difference was between Hispanics and American Indians with Hispanics seeing LANL as more responsible (by .142 points on a five point scale). Whites perceived LANL as more environmentally responsible than the "other" group, with a statistically significant mean difference of .158 points. This was the largest difference among all ethnic groups. Also, while the general favorability means for whites, blacks, and Hispanics were significantly different, the mean scores for environmental responsibility for these groups ranged only from 3.091 to 3.098 (a difference of only .007 points on a five-point scale).

**Figure 5: Anova Results for LANL's
Environmental Responsibility by Ethnicity
(Mean Score)**

**Table 5: Significant Differences for Perceptions of
LANL's Environmental Responsibility by Ethnicity**

Compared Groups	Mean Diff.	Crit. Diff.	P-Value
white/American Indian	.149	.131	.0257
white/other	.158	.152	.0418
Hispanic/American Indian	.142	.137	.0413

In summary, when comparing racial differences in perceptions of LANL, significant differences are much more prevalent in the general favorability item than in the environmental responsibility question. In terms of general favorability, white respondents tended to be more favorable towards LANL than other ethnic groups, with American Indians less favorable towards LANL than all other groups.

3.4 Changes over Time in Different Ethnic Groups' Views of LANL's Environmental Responsibility

Figure 6 shows that for whites, Hispanics, and American Indians, there was a noticeable decline in the percentage of respondents viewing the Lab as environmentally responsible. As before, American Indian respondents showed large variation in views held over time, partly due to smaller subsample sizes. It should be noted that a large number of respondents answered neutral to this question rather than giving a response that the Lab has not been responsible.

White respondents were fairly stable in their assessments of the Lab's environmental responsibility over time. In May of 1990, 43.3% of whites indicated they believed the Lab was environmentally responsible. This amount dropped to 40.1% in August of 1990, then rose to 43.7% in February of 1991, and then dropped again to 41.4% in May of 1991. This percentage then dropped nearly ten percentage points never to regain a position higher than 36%. The percentage of whites who viewed LANL as environmentally responsible hovered around 30% over the next six surveys: August, 1991 was 32.9%; November, 1991 was 29.6%; February, 1992 was 32%; May, 1992 was 30.3%; August, 1992 was 31%, and November of 1992 was 31.5%. The percentages rose over the next two surveys (February, 1993 was 33.7% and May, 1993 was 35.5%) then steadily fell (August, 1993 was 34.9% and November, 1993 was 29.4%) until it reached its lowest point at 25.4% in February, 1994.

Hispanic respondents showed a little more variation than Whites; however, each year's percentages were always within ten percentage points of other years, except in May of 1992. Beginning in May of 1990, 48.5% of Hispanics viewed the Lab as environmentally responsible. This percentage sank to 37.1% in August, 1990, rose to 44.6% in February of 1991, fell to 42% in May of 1991 and fell again to 37.6% in August 1991. In November, 1991, there was a steep decline to 28.8% then a slight raise to 32.8% in February of 1992 and then another sharp decline to a low of 20.2% in May of 1992. The percentage of Hispanic respondents who viewed the Lab as environmentally responsible moved up and down between 25% and 35% over the course of the remaining surveys. In August of 1992 the percentage was 26.6%, in November of that year it rose to 35.6%, in February of 1993 it fell to 25.8%, in May of 1993 it rose to 30.7% then fell again in August to 29.3%, rose again to 34.2% in November of 1993 and fell once again in February of 1994 to 25.6%.

There are three instances in which a larger percentage of American Indians viewed the Lab as more environmentally responsible than either whites or Hispanics (in two cases a much higher percentage responded this way). For most part, however, American Indians

were less likely than whites and Hispanics to view the Lab as environmentally responsible. In May of 1990, fully 64.3% of American Indians viewed the Lab as responsible. This is more than 20% higher than whites and over 15% higher than Hispanics. In August of 1990, the percentage of American Indian respondents remained higher than whites or Hispanics, though there was less difference with 46.2% indicating that they thought the Lab was environmentally responsible. In May, 1991 this percentage dropped considerably to 28.6% and then nearly doubled itself in August of 1991 with 50% of respondents indicating a belief that the Lab was environmentally responsible. In November of 1991, the percentage returned to the exact amount as in May of that year at 28.6 %. In February of 1992, the percentage dropped to 23.8%, dropping again to 20% in May of 1992, and then reached its lowest point of 12.5% in August of 1992. In November of 1992, the percentage began leveling out with 25% of American Indian respondents indicated that they believed the Lab to be environmentally responsible, this trend continued with 24% in February, 1993, 31.25% in May, 1993, 24.9% in August, 27.8% in November, and 33.4% in February.

**Figure 6 Environmental Responsibility by Race
Broken Down by Quarterly**

3.5 Summary

Significant differences among ethnic groups that were present in the general favorability question were not evident for the environmentally responsible question. American Indians and the "other" category perceive LANL as being less responsible in their environmental actions than do other groups. American Indians varied in their views more than any other group; they ranged from a high of 64% in May 1990 to a low of 12.5% in August 1992.

Section 4: Perceived Problems Facing New Mexico & Perceptions of LANL

4.1 Perceptions of LANL and New Mexico's Biggest Perceived Problems

We investigated the correlation between what respondents felt was the biggest problem facing New Mexicans and their view of the Laboratory.² The response categories were as follows: jobs and the economy, crime, public education, drug abuse, environmental quality, and health care. To see if there were any significant differences between respondents' "biggest problem" choices and their views on LANL, we ran an ANOVA (see Table 6 and Figure 7).

Table 6 shows the significantly different relations between the people who feel differently about the problems facing New Mexico and how they perceive LANL. Respondents who believe that environmental quality is the biggest problem facing New Mexico's citizens are significantly different from all other groups: this subgroups of respondents had the least favorable views of LANL of any group. Figure 7 shows that the environmental quality respondents have a mean favorability score of 2.764, with the next closest group being Health Care with a mean of 3.038. This reflects a difference of .274 points on a four-point scale. The largest difference, however, is between the respondents who perceive crime as the biggest problem and those who see environmental quality as the main problem: those naming crime as the biggest problem perceive LANL .395 points more favorably than the environmental quality respondents. Respondents who chose health care as the biggest problem facing New Mexicans showed a statistically significant difference in how favorably they viewed LANL than all other groups except those who chose drug abuse. Excluding environmental quality and health care, there were no other significant differences between pairs of problem pairs.

²Respondents were asked; "If you had to chose from the following categories, what would you say is the single biggest problem facing New Mexico today?"

Table 6: ANOVA Results for New Mexico's Biggest Problem with General Favorability

Compared Problems	Mean Diff.	Crit. Diff.	P-Value
Jobs & Econ./Environ. Qual.	.358	.119	<.0001
Jobs & Econ./Health Care	.083	.074	.0280
Crime/Environ. Qual.	.395	.123	<.0001
Crime/Health Care	.121	.079	.0028
Public Educ./Environ. Qual.	.356	.123	<.0001
Public Educ./Health Care	.082	.080	.0460
Drug Abuse/Environ. Qual.	.341	.127	<.0001
Environ. Qual./Health Care	-.274	.131	<.0001

Figure 7: ANOVA Graph for Big Problem and General Favorability Towards LANL (Mean Score)

4.2 Perceived Environmental Responsibility of LANL and New Mexico's Biggest Perceived Problems

We investigated the correlation between respondents' biggest perceived problem and how respondents view LANL in terms of environmental responsibility. Figure 8 shows how the respondents most concerned about environmental quality and health care also tend to believe LANL is less environmentally responsible than do other subgroups. Table 7 lists these significant differences in numerical terms. As with general favorability towards LANL, environmental quality and health care respondents tend to be significantly different from respondents who choose other big problems.

The only exception to this involves respondents who perceive public education and drug abuse as New Mexico's biggest problems. Respondents who selected public education as the state's biggest problem viewed the Lab as -.149 points less responsible than did those who selected drug abuse.

The largest difference among respondent groups is between the problems of drug abuse and environmental quality, with a mean difference of .362 points on the five point scale. What this demonstrates is that respondents who see drug abuse as New Mexico's largest problem also perceive LANL to be more environmentally responsible than do their environmental quality counterparts.

Figure 8: ANOVA Graph for Big Problem and Environmental Responsibility (Mean Score)

Table 7 ANOVA Results for Big Problem and Environmental Responsibility

Compared Problems	Mean Diff.	Crit. Diff.	P-Value
Jobs & Econ./Environ. Quality	.279	.164	.0008
Jobs & Econ./Health Care	.133	.103	.0114
Crime/Environ. Quality	.292	.168	.0007
Crime/Health Care	.146	.111	.0095
Public Educ./Drug Abuse	-.149	.099	.0034
Public Educ./Environ. Quality	.214	.169	.0132
Drug Abuse/Environ. Quality	.362	.173	<.0001
Drug Abuse/Health Care	.217	.118	.0003

4.3 Summary

Perceptions of LANL varied in accordance with what respondents viewed as the biggest problem New Mexico faces. Respondents who viewed environmental quality as the biggest problem facing the state viewed LANL less favorably than did respondents who chose other problems. Respondents who view health care as the biggest problem had the second least favorable view of LANL.

The group that had the highest favorable view of LANL was the group of those respondents who perceived crime as New Mexico's biggest problem; however, their view of LANL was not significantly different from those of people most concerned about jobs and economy, public education, and drug abuse.

When considering LANL's environmental responsibility, the trend was the same with environmental quality and health care groups having the lowest perceived LANL environmental responsibility scores. The only other significant difference was between public education and drug abuse groups; public education respondents perceived LANL as less environmentally responsible.

Overall, though, there was not wide variation in views toward LANL among the different groups of respondents, as categorized by problem perceptions. Though there were some significant differences, the range of means was only .395 points on the four-point general favorability scale and .362 points on the five-point environmental responsibility scale.

Section 5: Regional Differences in Perceptions of LANL

5.1 Regional Variation in Favorability of Views toward LANL

During previous surveys, respondents from the different geographic regions of New Mexico have exhibited small differences the way they perceived LANL. Figure 8 shows the mean scores for general favorability of LANL for these regions for each QP. The respondents from the Southern region, Northern region, and six-county region (SCR)³ were very similar in their mean scores towards LANL, with the largest difference being .357 points. Respondents from Santa Fe county gave the lowest mean score for LANL in most QPs, except for August 1991 and February 1992, in which the respondents from the

³The SCR is the six counties that surround LANL, including Los Alamos, Taos, Rio Arriba, San Miguel, Mora, and Sandoval.

SCR gave scores slightly less than those of Santa Fe by difference of .102 and .038, respectively.⁴

**Figure 9: Mean Scores for Favorability of LANL
by Region over Time**

5.2 Regional Variation in the Perceived Environmental Responsibility of LANL

When examining the same comparisons for environmental responsibility, we find the same differences as in the general favorability. Figure 9 illustrates the mean responses for the individual regions of New Mexico as broken down by QPs. Respondents from the Southern region perceive the Lab as more environmentally responsible than do other regions, with Santa Fe respondents tending to perceive LANL in a more negative light. In

⁴In order to disaggregate the points in the graph, the scale has been enlarged. Therefore what might seem as a significant decrease or increase in favorability may only be a result of the scale change.

fact, mean scores from Santa Fe county were the lowest scores for all regions in the time series.⁵

⁵ Once again, the results from the November 1990 QP are excluded from this analysis because they are not directly comparable with other QPs.

Figure 10: Mean Scores for Environmental Responsibility by Region over Time

Section 6: Age Differences & Perceptions of LANL

6.1 Age Cohorts and General Favorability towards LANL

To see whether age was associated with views toward LANL, we separated our respondents into groups of 5-year increments. The lowest mean score for an age group was 3.0, which is equivalent to a "somewhat favorable" perception of the Lab, and favorability toward the Lab was similar among all age groups. Nonetheless, there were some statistically significant differences.

Table 8 lists the mean scores for the five-year age cohorts on the favorability item. Figure 11 is an illustration of the mean scores with 95% confidence interval bars surrounding each one. The lowest favorability scores were for the group of respondents

who were 33-37 years old. Before this low point there is slight decline between all age groups before the low score of 3.0. After the low point of the 33-37 year olds there is a consistent rise in favorability towards LANL as age increases. There is a slight dip between the age groups of the 48-52 year old respondents and the 53-57 year olds, which is a decrease of .04 points on a four-point scale. Another slight decrease of .07 points occurs between the 58-62 year age group and the 63-67 year olds. The mean score then increases to the highest favorable rating, 3.34, for the 68 and older group.

**Table 8: Mean Scores for General Favorability
towards LANL by Age Cohorts**

Age Cohort	Mean Score
ages 18-22	3.07
ages 23-27	3.07
ages 28-32	3.07
ages 33-37	3.00
ages 38-42	3.04
ages 43-47	3.09
ages 48-52	3.16
ages 52-57	3.12
ages 58-62	3.30
ages 63-67	3.23
ages 68 and older	3.34

Figure 11: Illustration of Means Scores for General Favorability of LANL by Age Cohorts

6.2 Age Cohorts and Perceptions of LANL's Environmental Responsibility

The slight dip among the middle age groups that was present in the general favorability question was more profound for the environmental question. Table 11 lists the mean scores for perceptions of environmental responsibility of the Lab broken down by 5-year age cohorts. Figure 12 is a graphical representation of these responsibility ratings on a five-point scale. The 18-22 year old category, our youngest grouping, had a mean rating of 3.17. There follows a decrease for the next two age groups to a score of 3.02. This is followed by a slight increase of .03 points for the 33-37 year old group. The next two groups, ages 38-42 and 43-47, are the only two groups to have mean scores below the neutral response of 3.0. These scores are 2.97 for both of these age categories. After these two age groups, there are consistent increases in perceived responsibility as age increases, until the highest rating (mean = 3.28), in the oldest category of 68 and older, is reached.

Table 9: Mean Scores for Perceived Environmental Responsibility of LANL by Age Cohorts

Age Cohort	Mean Score
ages 18-22	3.17
ages 23-27	3.10
ages 28-32	3.02
ages 33-37	3.06
ages 38-42	2.97
ages 43-47	2.97
ages 48-52	3.06
ages 53-57	3.07
ages 58-62	3.13
ages 63-67	3.16
ages 68 and older	3.28

Figure 12: Illustration of Means Scores for Environmental Responsibility of LANL by Age Cohorts

6.3 Summary

In summary, middle-aged respondents (basically the "Baby Boomer Generation") was more critical of LANL than were their younger or older counterparts. After the lowest favorability rating among the 33-37 year olds, there were mostly increases in favorability as age increases. Despite these differences, the range for all age groups was only 0.3 points on a four-point scale.

The effects of age on respondents' perceptions of LANL's environmental responsibility seemed to be curvilinear in nature. The oldest respondents gave LANL the highest responsibility rating, while the youngest age group showed the second highest rating. Once again, it seems that the "Baby Boomers" were more critical than both older and younger respondents.

Section 7: The Political and Demographic Correlates of Perceptions of LANL

To determine the interplay among the many factors that shape New Mexicans' perceptions of LANL, the independent effects of different demographic and political variables were analyzed using Ordinary Least Squares (OLS) regression, which allows one to estimate statistical relationships among multiple variables. The previous analyses showed that ethnicity, age, and other variables are related to views of LANL, but this section asks whether these effects remain when controlling for other variables that could influence the public's perception of LANL. This section also provides information on demographic and political variables not discussed in previous sections.

7.1 Regression Analysis of Favorability toward LANL

Table 10 shows the variables that influence the favorability of respondents' views toward the Laboratory. The first two variables, "Say in Government" and "Voting," measure political efficacy. Respondents were asked whether they thought that they had a say in what government does and whether they believed that voting was the only way to influence government. The coefficients listed demonstrate that those who feel that they *do* have a say in government are more likely to view LANL favorably, and those who believe that voting is the only way to influence government perceive the Lab in less favorable terms.

As has been found in most other surveys, self-identified conservatives tend to view LANL more favorably than do liberals. Similarly, our analysis indicates that partisanship does affect perceptions of the Laboratory: Democrats were more likely to view the Lab less favorably than were respondents with other party affiliations.

Regarding demographics, the longer a New Mexican has lived in the state, the more likely s/he is to hold favorable views of the Lab (Years in NM). Both age and income have independent effects on perceptions of the Laboratory; higher age and income levels are associated with more favorable views of LANL. Also, Hispanic residents of New Mexico tend to view the Lab less favorably than do other ethnic groups.

Table 10: Regression Results for General Favorability toward LANL

	Coefficient	Std. Coeff.	P-value*
Intercept	2.45	2.45	<.0001
Say in Government	0.47	0.56	.0006
Voting	-.05	-.06	.0005
Ideology	.07	.15	<.0001
Years in NM	.003	.07	.0003
Age	.002	.05	.0106
Income	.03	.07	<.0001
Hispanic	-.11	-.06	.0004
Democrat	-.14	-.09	<.0001

* $p < .01$.

Dependent Variable: General View of LANL.

$R^2=.075$; Adjusted $R^2=.072$.

7.2 Regression Analysis of the Perceived Environmental Responsibility of LANL

Factors contributing to how respondents perceive LANL's environmental responsibility were also assessed using OLS regression. Table 11 shows that respondents who disagreed with the statement, "Voting is the only way people like me can have any say in how the government runs things," were inclined to view LANL as less environmentally responsible than were those who agreed with the statement. In other words, higher levels of political efficacy were associated with more critical views of LANL's environmental responsibility.

Once again, self-identified liberal respondents were more likely to perceive the Lab as less environmentally responsible than were conservatives, and Democrats were more likely than other parties to perceive LANL as not environmentally responsible.

Additionally, the longer one had lived in New Mexico, the more likely s/he was to view LANL as environmentally responsible. Higher levels of education tended to be associated with views that the Lab is not environmentally responsible. Finally, men were more likely than women to view the Lab as responsible.

Table 11: Regression Results for LANL's Environmental Responsibility and Demographic Variables

	Coefficient	Std. Coeff.	P-value*
Intercept	2.45	2.45	<.0001
Voting	-.04	-.04	.0174
Ideology	.10	.15	<.0001
Years in NM	.004	.07	<.0001
Education	-.04	-.05	.0013
Male	.09	.04	.0047
Democrat	-.11	-.05	.0010

* $p < .01$.

Dependent Variable: Perception of LANL's Environmental Responsibility.
 $R^2 = .044$; Adjusted $R^2 = .043$.

Section 8: American Indian Perceptions of LANL

Throughout the QP series, the American Indian population of New Mexico has often been more critical of LANL than other ethnic groups. However, due to the limited number of American Indian respondents in a single QP, we were able to make only limited statistical inferences about their views. The aggregate sample of 343 American Indian respondents is not as statistically powerful of the overall sample of 8,800 individual, but it is sufficiently large to permit relatively careful statistical analysis of both the American Indian population of New Mexico and some of the larger subgroups *within* the American Indian population.

8.1 American Indian Views of LANL Broken Down by New Mexico's Biggest Perceived Problems

Native American respondents perceived "jobs and the economy" and "crime" to be the biggest problems with 29.9% and 22.1% of them respectively selecting these response. These were followed by drug abuse (20.3%), public education (15.5%), and health care (8.9%). Only 3.3% of our Native American respondents believed environmental quality was the biggest problems facing New Mexico.

Table 12 shows the average favorability of LANL broken out by "big problem" groups. On the same four-point scale discussed above, mean favorability ratings ranged from a high of 3.1 (for those respondents who believe public education is New Mexico's biggest problem) to a low of 2.4 (environmental quality perceived as biggest problem). Those respondents who perceived crime to be the biggest problem facing New Mexico had the second highest mean score (3.0) for general favorability of LANL. Drug abuse, jobs and the economy and public health care followed with mean scores of 2.9, 2.8 and 2.7, respectively. The mean score for the entire American Indian population in our sample was 2.9; this is equivalent to a response of slightly below "somewhat favorable."

Table 12 Big Problem General Favorability Mean Scores for the American Indian Population

Big Problem for New Mexico	Mean Score
Jobs and the Economy	2.8
Crime	3.0
Public Education	3.1
Drug Abuse	2.9
Environmental Quality	2.4
Health Care	2.7

To investigate any significant differences between the "big problem" groups and how they perceived LANL, we ran an ANOVA (see Figure 13). The only significant difference was between those selecting public education and environmental quality as the biggest problems New Mexico faces. The mean difference between these groups was .69 points on the four-point scale.

Figure 13: Illustration of ANOVA Mean Scores and 95% Confidence Intervals

When assessing environmental responsibility, American Indians who perceived public education and drug abuse as the main problems facing New Mexico had the highest mean response rate of 3.2 (see Table 13). The low mean score of 2.3 was found among those respondents who believed environmental quality to be New Mexico's biggest problem. Respondents who thought crime and health care were the biggest problems facing New Mexico had mean scores of 3.0. The mean score among respondents selecting jobs and the economy was 2.7 on the five-point scale. The mean score for the entire American Indian population in our sample was 3.0; this is equivalent to a neutral response concerning LANL's environmental responsibility.

Table 13: Big Problem Environmental Responsibility Mean Scores for the American Indian Population

Big Problem for New Mexico	Mean Score
Jobs and the Economy	2.7
Crime	3.0

Public Education	3.2
Drug Abuse	3.2
Environmental Quality	2.3
Health Care	3.0

Do American Indian respondents who choose different "most important problems" vary in how they perceive LANL's environmental responsibility? To investigate this question we again analyze the data using Analysis of Variance. The results, illustrated in Figure 14, show the mean scores and the 95% confidence intervals for the Lab's environmental responsibility. Two significant differences were found (each of these differences included the respondents who believe public education is New Mexico's biggest problem).

The first significant difference was between "jobs and the economy" and "public education" with a mean difference of .52 points on the five-point scale. "Jobs and the economy" respondents tended to perceive LANL to be less environmentally responsible than did their public education counterparts. The second significant difference was between the "environmental quality" respondents and "public education" respondents with a mean difference of .98 points on a five-point scale. Those in the environmental quality group perceive LANL to be less environmentally responsible.

Figure 14: ANOVA Mean Scores and 95% Confidence Intervals for LANL's Environmental Responsibility and New Mexico's "Biggest Problem"

When trying to predict Native Americans' overall perceptions of the Lab and their perception of LANL's environmental responsibility, relatively few differences were found across respondents who chose different "most pressing problems" facing the state. However, the respondents who believe environmental quality is the biggest problem gave much lower scores than respondents who chose other "most pressing problems."⁶

⁶ The fact that there are so few of these "environmental responsibility" respondents increases the variance in the confidence interval making it very difficult to distinguish them as significantly different from other "big problem" groups.

8.2 Effects of Age on Favorability of Views toward LANL

The effects of age on respondents' overall perceptions of LANL have been noted earlier. Specifically, as one's age increases, their general favorability towards LANL also tends to increase. To see whether this pattern was also true for American Indians, we broke this sample population into six groups of ten year increments and compared age cohorts.

Table 14 shows the mean scores for these age groups. The first three age groups (ranging in ages from 18 to 47) all have mean scores at or below 2.8, with the highest score found among respondents between the ages of 18-27 years old at 2.8. The other three groups (ages 48 and over) all had mean scores of 3.0 or higher, with the highest being 3.3 for the "68 and over" category. Because of this interesting division among the Native American population, we aggregated our sample into two categories of ages "47 and younger" and "48 and older." The mean scores for general favorability towards LANL were 2.8 for the "47 and younger" group and 3.2 for the "48 and older" group.

Figure 16 illustrates the results of an Analysis of Variance for age groups and favorability of the Lab. These two groups had a significant difference of .46 points on a four-point scale, with the older respondents tending to be more favorable towards LANL.

Table 14: General Favorability Mean Scores by Age Cohorts

Age Group	Mean Score
age 18-27	2.8
age 28-37	2.8
age 38-47	2.7
age 48-57	3.3
age 58-67	3.1
age 68 and over	3.3

Figure 16: ANOVA Mean Scores for Age and General Favorability Towards LANL

Do higher age levels have a similar positive effect Native Americans' perceptions of LANL's environmental responsibility? Table 15 shows mean scores for perceptions of environmental responsibility for each age group. The lowest mean score was found among the 58-67 year old age group at 2.6. Respondents from the 68 and older category show the highest mean score (3.5). This demonstrates that the perception that LANL is environmentally responsible does not necessarily increase with age for American Indians.

Table 15: Mean Scores for Environmental Responsibility for Age Groups

Age Group	Mean Score
age 18-27	3.2
age 28-37	2.7
age 38-47	3.1
age 48-57	3.0
age 58-67	2.6
age 68 and over	3.5

Since this trend is absent, respondents could not be grouped into two general categories as was done above. Consequently, we had to use all six age groups in the ANOVA, which reduces the size of each subset in the analysis. Nonetheless, Figure 17 and Table 16 shows that the ANOVA found several significant differences.

The first significant difference for the American Indian population was for the 18-27 and the 28-37 year old age groups. The mean difference was .48 points on a five-point scale, with the 18-27 year old category perceiving LANL as being *more* environmentally responsible. The second significant difference again included the 18-27 age group, this time in comparison to the 58-67 year old group. The 18-27 year olds once again view LANL as *more* environmentally responsible (by a mean difference of .6 points on a five-point scale). Another significant difference was between the 28-37 year olds and the 68 and older group. The mean difference here was 0.8 points, with the older respondents believing the Lab to be more environmentally responsible than do the younger respondents. The final significant difference was between the two oldest groups of "58-67 years olds" and the "68 and older" group. The 58-67 year old group view LANL as being *less* environmentally responsible (by a mean difference of .9 points) than does the oldest group.

Table 16: Significant Differences for Age and LANL's Environmental Responsibility

Age Groups	Mean Diff.	P-Value
age 18-27/age 28-37	.478	.0093
age 18-27/age 58-67	.596	.0499
age 28-37/age 68 and over	-.803	.0284
age 58-67/age 68 and over	-.921	.0361

Figure 17: ANOVA Mean Scores for Age and LANL's Environmental Responsibility

In sum, age does have an affect on how American Indian respondents perceive LANL: an increase in age is associated with an increase in one's favorability towards LANL. The results of our analysis show a divisive split among Native American respondents younger than 47 and those who are older than 47. This division, however, was not present in perceptions of LANL's environmental responsibility.

8.3 Time Series of American Indian Views of LANL

How have Native American perceptions of LANL changed over the last four years? If these perceptions have changed do they reflect significant changes? To examine American Indian perceptions over this time span, we separated our sample into four one-year categories. This created suitable subsample sizes for examination of changes over time in perceptions of overall favorability and environmental responsibility.

Table 17 lists the mean scores for the time increments for the general favorability question. The means ranged from the high score of 3.0 for the Aug-91 to May-92 category, to a low of 2.8 for the Aug-90 to May 91 grouping. This is a difference of less than .2 points on a four-point scale. When we analyzed the data using ANOVA for these

time series groupings, there were no significant differences. Figure 18 illustrates the results of the ANOVA which shows the mean scores and the 95% confidence intervals.

Table 17: Mean Score for American Indian Respondents in Terms of General Favorability Over Time

Time Period	Mean Score
Aug-90 to May-91	2.8
Aug-91 to May-92	3.0
Aug-92 to May-93	2.9
Aug-93 to May-94	2.9

Figure 18: ANOVA Mean Scores and 95% Confidence Intervals for General Favorability Towards LANL by Time Period for Native American Respondents

The time series mean scores for perceptions of the Lab's environmental responsibility are listed in Table 18. The range for these four one-year periods is less than 0.1 point on the five-point scale, from 2.9 to almost 3.0. An ANOVA analysis yielded no

significant changes in the time series data for the American Indian population on this issue. Figure 19 illustrates the results from the ANOVA.

Table 18: Mean Scores for Environmental Responsibility by American Indians Over Time

Time Period	Mean Score
Aug-90 to May-91	2.9
Aug-91 to May-92	2.9
Aug-92 to May-93	2.9
Aug-93 to May-94	3.0

Figure 19: ANOVA Results for LANL's Environmental Responsibility by Time Period; Mean Scores and 95% Confidence Intervals

In summary, it appears that there has been no significant increase or decrease over time in the general favorability or environmental responsibility assessments of LANL by the American Indian population. In other words, American Indian views of LANL appear relatively stable over time. As hypothesized in previous sections, the apparent fluctuation

in American Indian views from quarter-to-quarter probably reflected small subsample sizes in individual QPs, rather than actual changes in views over time.

8.4 Regression Analysis of the Demographic and Political Correlates of American Indians' General Favorability toward LANL

As with the general population, we concluded our examination of the data with a regression analysis of the unique effects of different demographic and political variables. Table 19 shows the results of this analysis for the American Indian subsample. The only demographic variable found to be significantly correlated with a respondents' overall favorability toward LANL was political ideology. This correlation shows a coefficient of .068 ($p < .0481$). This means that for every one-point increase on the ideology scale, which runs from 1 ("very liberal") to 7 ("very conservative"), the average respondent's general favorability towards LANL increases by .068 points on the four-point favorability scale. No other variables in our model proved to be significant.

Table 19: Regression Model for the Native American population of New Mexico and General Favorability Towards LANL

Regression Summary					
Favorability Towards LANL vs. 5 Independents					
Count	230				
Num. Missing	113				
R	.213				
R Squared	.045				
Adjusted R Squared	.024				
RMS Residual	.812				

Regression Coefficients					
General Favorability Towards LANL vs. 5 Independents					
	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	2.708	.243	2.708	11.140	<.0001
Ideology	.068	.034	.131	1.987	.0481
%Life in NM	-.175	.157	-.074	-1.114	.2665
Education	-.045	.043	-.076	-1.052	.2938
Income	.036	.039	.069	.943	.3467
Gender	.173	.110	.105	1.573	.1172

8.5 Regression Analysis of the Demographic and Political Correlates of American Indians' Perceptions of LANL's Environmental Responsibility

Conducting a similar regression analysis of American Indian's perceptions of LANL's environmental responsibility, we found only one significant relationship. Table 20 shows that education had a significant coefficient of $-.120$ ($p < .0465$). This means that as a Native American respondent's education increases by one point, his or her perception of the Lab's environmental responsibility decreases by .120 points on the five-point scale. That is, higher education was associated with perceiving the Lab as *less* environmentally responsible.

Table 20: Regression Model for the Native American population of New Mexico and Environmental Responsibility of LANL

Regression Summary					
LANL's Environmental Responsibility vs. 5 Independents					
Count	242				
Num. Missing	101				
R	.165				
R Squared	.027				
Adjusted R Squared	6.583E-3				
RMS Residual	1.147				

Regression Coefficients					
LANL's Environmental Responsibility vs. 5 Independents					
	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	3.182	.343	3.182	9.271	<.0001
Ideology	.056	.048	.075	1.161	.2468
%Life in NM	-.177	.215	-.053	-.820	.4132
Education	-.120	.060	-.144	-2.001	.0465
Income	7.894E-3	.052	.011	.152	.8796
Gender	.059	.150	.025	.391	.6963

To summarize, the demographic variables that usually prove to be significant predictors of the general population's views of LANL were not significant attitude predictors within the American Indian population. Each regression model found only one significant variable correlated with perceptions of LANL: Political ideology was found to be significant in predicting a respondent's general favorability of the Lab, and education was the demographic variable found to be significant in predicting perceptions of LANL's environmental responsibility.

Nevertheless, this difference between the American Indian and overall samples could be due to actual differences in the populations, but it could also be attributable to the smaller sample size used to analyze Native American views. The correlations found within the general population were usually small and, consequently, more difficult to detect with a subsample of less than five hundred.