Acid/Pueblo Canyon, New Mexico, Site



This Site Certification Summary sheet provides information about the **Acid/Pueblo Canyon, New Mexico, Site**. The U.S. Department of Energy Office of Legacy Management is responsible for long-term stewardship of the site under the **Formerly Utilized Sites Remedial Action Program**.

Site Description and History 🚺 💵

The Acid/Pueblo Canyon, New Mexico, Site, also known as Technical Area 45 (TA-45), is located on a mesa that forms the southern rim of Acid Canyon. Beginning in 1943, the Los Alamos National Laboratory (LANL) discharged untreated liquid wastes — residual from process-chemistry, radiochemistry, and general laboratory operations — into the main sewer lines, which then drained into the Acid and Pueblo canyons. From June 1951 to May 1964, the TA-45 treatment plant treated the liquid waste.

The U.S. Atomic Energy Commission (AEC) decommissioned TA-45 in late 1966 and continued decontamination work in Acid Canyon into 1967. During this time, AEC took all contaminated equipment, plumbing, and removable fixtures to solid-radioactive-waste burial areas on the LANL site. AEC demolished the treatment plant's and building's superstructures and concrete foundations and the vehiclecontamination facility's concrete slab. AEC removed and transferred all debris to the disposal areas.

By July 1967, the treatment plant site and Acid Canyon were deemed sufficiently free of contamination to be released from AEC control without restriction. Remaining residual radioactivity was confined to generally inaccessible spots and was not considered to be a health hazard. The property was then transferred to Los Alamos County. Resurveys of the site in 1976 and 1980 indicated that some near-surface contamination exceeding the remedial-action criteria remained near the location of the former industrial waste discharge line, near the former vehicle industrial waste discharge line, and on the canyon floor just below the former industrial wastedischarge line.

Site Remediation Timeline 🥖

 $\ensuremath{\textbf{1951}}\xspace - \ensuremath{\textbf{LANL}}\xspace$ constructed the TA-45 treatment plant to treat its liquid wastes.

1966 — AEC decommissioned and demolished the site.

1967 — The site was transferred to Los Alamos County.

1976 — The site was resurveyed for possible inclusion in the Formerly Utilized Site Remedial Action Program (FUSRAP).

Legacy

Management

May 1981 — The U.S. Department of Energy (DOE) determined the Acid/Pueblo Canyon site to be eligible for FUSRAP.

August 2, 1982 — Remedial action began at the site.

September 30, 1982 — DOE completed remedial action.

October 29, 1984 — DOE published the notice of cleanup certification for the site in the Federal Register.



Pueblo Canyon (2006).

Certification Docket Contents 💳

The Certification Docket consists of documents supporting the certification that the radiological conditions at the former TA-45 treatment plant site and Acid, Pueblo, and Los Alamos canyons are in compliance with radiological guidelines and standards determined to apply to this site and that unrestricted use of these areas will not results in any measurable radiological hazard to the general public.

Remedial Action 불

LANL conducted a radiological survey between 1976 and 1977, which defined areas requiring remedial action. DOE performed remedial activities at the Acid/Pueblo Canyon site from August 1982 to September 1982. The decontamination and restoration scenario, approved by DOE, specified that two general areas required decontamination. See Fact Sheet for details.

Post-Remediation Sampling \blacksquare

Post-remediation survey techniques included surface gamma measurements, near-surface gamma measurements, and surface beta-gamma measurements. DOE used the same techniques to detect hot spots and to determine postremedial action compliance with release criteria.

Untreated Waste Outfall Area

Within the untreated waste outfall area, the remedial action covered an area of approximately 100 square meters (m²) and averaged the data over the remedial action area to determine criteria compliance. The average plutonium-239 concentration in soil in the remedial action area was 36 picocuries per gram (pCi/g); the soil-cleanup criteria is 100 pCi/g average concentration per 100 m² area. The maximum plutonium-239 concentration in soil was 370 pCi/g. Five samples, collected from a small area in the ravine, exceeded the criterion for plutonium-239, based on the more stringent food cultivation/ingestion pathway. In this area, the average concentration of plutonium contamination was 226 pCi/g. Using the more appropriate resuspension/ inhalation pathway, all soil sample data were less than 5% of the criterion (7,600 pCi/g). In view of the small size of this area relative to the site as a whole and the average concentration of plutonium-239 in the entire remedial action area, DOE concluded that no additional remedial action was warranted based on plutonium-239 concentrations.

Plutonium-238 concentrations over the remedial action area were insignificant at less than 2 pCi/g, or less than 2% of the food cultivation/ingestion pathway criterion for plutonium-238 (100 pCi/g).

DOE analyzed post-remedial samples for americium-241, cesium-247, and strontium-90. Concentrations of these radionuclides were less than 1% of the applicable guide. Therefore, DOE analyzed soil samples collected after hot-spot excavation for only plutonium-238 and -239.

Post-remedial action external exposure rates near the untreated waste outfall was 17 microroentgens per hour (μ R/h), compared to the Los Alamos area average range of 9.4 μ R/h to 17.4 μ R/h. The radiation-exposure rate criterion was 20 μ R/h above background.

Former Vehicle Decontamination Facility

Within the former vehicle-decontamination facility area, verification of the adequacy of the remedial action was based on soil sample analysis for the primary contaminants, cesium-137 and strontium-90, and external exposure rates. Based on two soil samples taken in this area, the concentration of cesium-137 after remedial action was less than 10% of the criterion.

While the primary contaminants were cesium-137 and strontium-90, spotty plutonium-239 contamination also existed in the area, as evidenced by one of 10 pre-remedial action samples. However, based on these 10 samples, the maximum permissible area averaged concentration of plutonium-239 (100 pCi/g) was not exceeded.

The external exposure rate near the former vehicledecontamination facility was 23 μ R/h, which is below the radiation-exposure rate criterion. For more detailed results of the post-remediation sampling, see the attached Site Certification Data Summary Worksheet. For a map of the site see the attached Site Overview Map.

Current Site Conditions 🌲

Based on the analyses and measurements, both the untreated waste outfall and the former vehicle-decontamination facility were in compliance with remedial action criteria for food cultivation/ingestion or resuspension/inhalation pathways. The LANL Environmental Surveillance Group confirmed compliance. DOE has been responsible for long-term stewardship of the Acid/Pueblo Canyon site since 1985. The stewardship requirements and protocols are captured in the Long-Term Stewardship Plan for Completed FUSRAP Sites, which is available on the DOE Office of Legacy Management website (www.energy.gov/lm/acidpueblo-canyon-new-mexico-site).

 Image: Additional information

Documents related to FUSRAP activities at the Acid/ Pueblo Canyon, New Mexico, Site are available on the LM website at Impublicsearch.Im.doe.gov/SitePages /ConsideredSites.aspx?sitename=Acid_Pueblo.

For other information on site history or current long-term stewardship activities, please contact us at: U.S. Department of Energy Office of Legacy Management 2597 Legacy Way Grand Junction, CO 81503

Email: FUSRAPinfo@lm.doe.gov public.affairs@lm.doe.gov

DOE Office of Legacy Management (970) 248-6070

💻 www.energy.gov/lm

f www.facebook.com/OfficeofLegacyManagement

in www.linkedin.com/showcase/office-of-legacymanagement

Acid/Pueblo Canyon, New Mexico, Site Certification Data Summary Worksheet

Four tables referenced in the Acid/Pueblo Canyon Certification Docket provide the evidence used to certify the site as clean.

When the tables refer to the "Final Report," that is the "Final Report on Remedial Action at the Acid/Pueblo Canyon Site, Los Alamos, New Mexico" (dated October 1984).

When the tables refer to the "Radiological Survey," that is the "Radiological Survey Following Decontamination Activities Near the TA-45 Site" (dated July 1983).

Acid Canyon Post-Remedial Action Soil Sample Data						
Table 5-1 from Final Report						
Coordi	Coordinates pCi/g					
Х	Y	Plutonium 239	Plutonium 238	Americium 241	Cesium 137	Strontium 90
40	35	N/A	N/A	5.4 ± 0.5	8.5 ± 0.9	N/A
60	30	N/A	N/A	0.4 ± 0.1	1.2 ± 0.1	N/A
123	63	140 ± 10	0.7 ± 0.6	N/A	N/A	N/A
125	60	200 ± 10	2 ± 1	N/A	N/A	N/A
125	65	230 ± 10	1.2 ± 0.6	N/A	N/A	N/A
125	70	1.9 ± 0.6	0.3 ± 0.3	N/A	N/A	N/A
130	50	18 ± 2	0.2 ± 0.3	N/A	N/A	N/A
130	55	82 ± 3	0.5 ± 0.2	N/A	N/A	N/A
130	60	77 ± 4	0.2 ± 0.3	N/A	N/A	N/A
130	65	190 ± 30	0.5 ± 0.5	N/A	N/A	N/A
130	70	370 ± 10	1.4 ± 0.6	N/A	N/A	N/A
135	45	2 ± 1	0.1 ± 0.1	N/A	N/A	N/A
135	50	11 ± 2	0.1 ± 0.3	N/A	N/A	N/A
135	55	31 ± 3	0.2 ± 0.3	N/A	N/A	N/A
135	60	7 ± 1	0.2 ± 0.4	N/A	N/A	N/A
135	65	2 ± 1	0.1 ± 0.2	N/A	N/A	N/A
135	70	4 ± 1	0.0 ± 0.1	N/A	N/A	N/A
140	45	2 ± 1	0.0 ± 0.3	N/A	N/A	N/A
140	50	6 ± 1	0.1 ± 0.2	N/A	N/A	N/A
140	55	21 ± 3	0.2 ± 0.3	N/A	N/A	N/A
140	60	17 ± 2	0.4 ± 0.3	N/A	N/A	N/A
140	65	0.4 ± 0.3	0.1 ± 0.1	N/A	N/A	N/A
140	70	0.3 ± 0.3	0.0 ± 0.1	N/A	N/A	N/A
145	50	11 ± 1	< 0.1	N/A	N/A	N/A
145	55	6 ± 1	0.5 ± 0.5	N/A	N/A	N/A
145	60	7 ± 1	0.1 ± 0.1	N/A	N/A	N/A
145	65	5 ± 1	0.4 ± 0.4	N/A	N/A	N/A
145	70	2.4 ± 0.4	0.1 ± 0.1	N/A	N/A	N/A
150	45	40 ± 2	0.8 ± 0.3	< 1	<1	< 0.9
150	50	17 ± 2	< 0.2	N/A	N/A	N/A
150	55	20 ± 3	0.6 ± 0.5	N/A	N/A	N/A
150	60	5 ± 1	0.0 ± 0.1	N/A	N/A	N/A
150	65	3 ± 1	0.2 ± 0.3	N/A	N/A	N/A
150	70	0.5 ± 0.2	0.0 ± 0.1	N/A	N/A	N/A
150	75	16 ± 1.5	0.07 ± 0.15	< 1	2.3 ± 0.2	1.2 ± 0.5
150	0	0.9 ± 0.3	0.06 ± 0.08	< 1	< 1	< 1
150	15	0.6 ± 0.3	0.003 ± 0.009	< 1	0.1 ± 0.1	0.6
150	30	2.2 ± 0.5	0.4 ± 0.2	0.3 ± 0.3	0.6 ± 0.1	< 0.6
155	50	24 ± 1	0.1 ± 0.1	N/A	N/A	N/A
155	55	11 ± 1	0.1 ± 0.1	N/A	N/A	N/A
155	60	0.5 ± 0.2	0.0 ± 0.1	N/A	N/A	N/A
155	65	5 ± 1	0.1 ± 0.2	N/A	N/A	N/A
165	0	0.09 ± 0.13	0.05 ± 0.09	< 1	0.1 ± 0.1	< 0.7
165	15	2 ± 0.5	0.08 ± 0.13	< 1	0.3 ± 0.1	< 0.9
165	30	6 ± 0.8	0.4 ± 0.2	< 1	< 1	< 0.6
165	45	2.5 ± 0.5	0.3 ± 0.2	0.3 ± 0.1	0.3 ± 0.1	< 0.6
180	50	0.3 ± 0.2	0.2 ± 0.2	< 1	< 1	< 0.7
N/A Not a	V/A Not analyzed					

XYJS:3032353032403003245440354545453534545356035936041050410604106041060411454154151507015101521611531701503515031615031615030150301503015060015160015260015360015470155300160300160300160300 <tr<< th=""><th colspan="5">Coordinates Exposure Rate (µR/h)</th></tr<<>	Coordinates Exposure Rate (µR/h)				
3830324003002245044502150450215045021504502114050191405519140551914055191405519150001715055161501001715055161502001715025161502001715025171503001815035171504401715065171505517150551715065171506517150501715050171555017155501715530171555017155601715550171556017155601715560171556017155601715560171556017155601715660171576017158601716	х	Y			
35303240302245402245459504521504521eated Wase23eated Wase1360135601814055191406017151014150014150017150151615001715025171502517150251715025171502517150251715030181503017150501715050171505017150551715075175150751751553017155201715530171553017155451715545171553017155301715545171554517155451715545171554517155451715545171554517155451715545<	F	ormer Vehicle Decont	amination Facility		
40302245402245459504521Average 23celet-Water Water	35	30	32		
4544022450450915045023eated Waste Untal1356018140550919140600171454501071454501011500141505010115015010115020017150200181503501011503501715035017150600171506001715060017150600171506001715060017150551011507501701506001715055101155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170155350170160350170160350170<	40	30	22		
43431350Averag23eated Wase31356001814050019140600171500141500.5161500.0171500.151701502.00171502.00171500.20171503.00181503.501.011503.501.011503.501.011503.501.011503.501.011503.501.011500.551.011500.551.011503.501.011503.501.011503.501.011503.501.011503.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011553.501.011603.501.011603.501.011603.501.011603.501.01160 <td>45</td> <td>40</td> <td>22</td>	45	40	22		
NormalNerage23Average23135601814055191405519140551914055191405510150014150516150101715020177150201771502017715020177150201771503018150501771505017715050177150501771505017715050177150501771505017715050177155100177155250181155250181155300177155440177155500181155500161155500181155500181155500170155400177155500181155500181155500170160201611602016116055181160551611605516116150170162 <td>45</td> <td>45</td> <td>19</td>	45	45	19		
Notice 22 ender Wase Unit 135 600 18 140 550 19 140 600 77 145 450 17 150 0 14 150 100 17 150 200 17 150 200 17 150 200 17 150 300 18 150 30 18 150 350 17 150 350 17 150 550 17 150 550 17 150 550 17 150 600 17 150 50 17 155 100 17 155 100 17 155 100 17 155 100 17 155 200 17 155 200 17	50	45	21		
135 60 18 140 550 19 140 550 19 140 60 17 145 450 17 150 5 16 150 5 16 150 20 17 150 20 17 150 20 17 150 30 18 150 35 18 150 35 17 150 55 17 150 60 17 150 60 17 150 60 17 150 60 17 150 60 17 150 60 17 150 77 18 155 10 17 155 10 17 155 10 17 155 10 17 155 1	eated Waste	Outfall	23		
1405091405591406077150601415051615010771502077150207715025177150358150351815035771504077150457715055771506677150657715065771507081507517715065771507517715575177155351771552518155251771552517715525181553517715525181553517715525181556017715560177155601771556017715560177155601771556017715560177155601771556017716035181601516160601771606017716060177	135	60	18		
14055191406017150014150014150516150151715020171502517150301815035181504017150451771505517150551715055171505517150551715060171505517150551715055171505517155101715515171552518155251815530171552518155301715525181555018155501815560171556017155601716001516015161602518160301716030171603518160551816055181606017160601716150161652016 <trr< td=""><t< td=""><td>140</td><td>50</td><td>19</td></t<></trr<>	140	50	19		
1406017145451715001415051615015171502017150251715030181503518150351715055171505517150551715055171505517150551715060171506517150551715055171507018155017155516155101715525181553017155351615535171555018155301715550181553518155600171555018160015160151601516030171603518160351816035181603516160351616055181605518160551616520161652016	140	55	19		
14544517150014150516150151715020171502517150301815035181503517150501715050171505517150551715055171506617150551715055171506517150551515551515551515551715520171553017155301715530171553017155301715535161553017155501815560171555018155601716001516015160351815550181603017160301716035181603518160551816055181605518161501616520161653516	140	60	17		
150014150516150101715020171502517150351815035181504017150551715055171505517150551715065171506517150551715055171505517150551715551515551515551715555171553017155351715535171553517155351715535171553517155351715555181553517155551815555161605151600151601716035181603518160351816055181605518160551816055161653017165301716555181655518 </td <td>145</td> <td>45</td> <td>17</td>	145	45	17		
15051615010171502501771502511771503301815035017115044017715045517715055517715055517715066017715065517715065517715065517715065517715555177155551771555517715555177155551771555517715555177155551771553351771553551771553551771553551771553551771553551771553551771553501815560017015560716116055181603551816035518160355181603551661611601611623501611653501611653501611653501611653501611653501611653501	150	0	14		
150101715015171502501715030181503518150351715044017715055177150551771506001771506001771505517715055177150600177150600177150770181551001771555517015555170155100177155225181553351771553501771553501771553501771553501771553501771553501815560017715535015916050159160501611603501771603501771603501771603501816035018160551661605516616055166160551661605516616055166160551661615516616235166<	150	5	16		
1501517150201715030181503518150351715040177150551715055171506017715065177150551715055171505517150551715055171550171551017715510177155151015510177155225181553501771553501771554017715550181556017715550181555018155601771553501501601515016010151160201616035177160351771603518160351661605518160551816055161615016162301716530171653516165151616515161653516 </td <td>150</td> <td>10</td> <td>17</td>	150	10	17		
15020171502517150350181504017150451715055171506517150651715065171506517150651715055171506517150651715065171557018155551615520171552201715522017155201715550181555017155601715560171556017155601715560171556017155601715560171556017160151616025181603517160351616060171605518160551616115161622016165201616550181655016165201616550161655016165 <td>150</td> <td>15</td> <td>17</td>	150	15	17		
1502517150301815040171504517150551715060171506517150651715075171507517150751715075171507517155101715512517155225181552517155251715525181553017155501715551171555517155551715550171556017155601715560171556017155601715560171556017156151616025181603017160601716060171606017160601716060171606017160601716060171606017160601716520161651016165 <td>150</td> <td>20</td> <td>17</td>	150	20	17		
150301815035181504517150501715055171506017150651715065171507517150751715075171507517150751715501515510171552518155251815530171553517155351715536171553517155361715536171553518155360171554451715556018160015160151616020161603518160351716035181603518160551816060171605516165101516510151652016165201616535161655518165551816555181655518165	150	25	17		
150351815040	150	30	18		
15040171504577150557715060771506577150701815070181507015150701515551715551715551715520771552518155307715525181553077155357715535771553577155357715535771553577155357715550181556075160515160516160357716035171603517160351716035181603518160551816055161615516162351616535161653516165351616535161653516165351616535161653516165551816555	150	35	18		
150 45 17 150 55 17 150 60 17 150 60 17 150 60 17 150 60 17 150 70 18 150 75 17 155 0 15 155 10 17 155 10 17 155 10 17 155 20 17 155 25 18 155 30 17 155 35 17 155 35 17 155 35 17 155 35 17 155 35 17 155 40 17 155 45 17 155 50 18 150 50 15 160 25 16 160 25<	150	40	17		
150 50 17 150 60 17 150 65 17 150 65 17 150 70 18 150 75 17 150 75 17 155 0 15 155 10 17 155 10 17 155 15 17 155 20 17 155 30 17 155 35 17 155 40 17 155 40 17 155 40 17 155 40 17 155 40 17 155 40 17 155 40 17 155 40 17 155 50 18 160 15 16 160 25 18 160 50<	150	45	17		
150 55 17 150 665 17 150 77 18 150 77 18 150 75 17 155 0 15 155 5 15 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 30 17 155 30 17 155 40 17 155 50 18 155 50 18 155 50 18 155 50 15 160 0 15 160 25 18 160 25 18 160 45 17 160 55 16 160 25 </td <td>150</td> <td>50</td> <td>17</td>	150	50	17		
150 600 17 150 70 18 150 75 17 155 0 15 155 0 15 155 10 17 155 10 17 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 20 17 155 40 17 155 50 18 155 60 17 155 60 17 160 0 15 160 25 18 160 25 18 160 45 17 160 55 18 160 60 </td <td>150</td> <td>55</td> <td>17</td>	150	55	17		
150 000 17 150 775 17 155 0 15 155 10 17 155 10 17 155 10 17 155 15 17 155 25 18 155 25 18 155 25 18 155 25 17 155 25 18 155 25 17 155 40 17 155 40 17 155 60 17 155 60 17 150 0 15 160 0 15 160 15 16 160 20 16 160 20 17 160 30 17 160 25 18 160 60 17 160 60<	150	65	1/		
1.50 7.50 1.7 150 7.5 1.7 155 0 1.5 155 10 1.7 155 10 1.7 155 1.5 1.7 155 2.5 1.8 155 2.5 1.8 155 2.5 1.7 155 2.5 1.8 155 3.5 1.7 155 2.5 1.8 155 3.5 1.7 155 4.0 1.7 155 5.60 1.7 155 5.60 1.7 160 0 1.5 160 0 1.5 160 1.5 1.6 160 3.5 1.8 160 3.5 1.7 160 3.5 1.7 160 5.5 1.8 160 5.5 1.8 160 6.5 1.6 <td>150</td> <td>70</td> <td>17</td>	150	70	17		
1.5 0 1.5 155 0 15 155 10 17 155 10 17 155 15 17 155 20 17 155 20 17 155 20 17 155 30 17 155 35 17 155 36 17 155 36 17 155 40 17 155 50 18 155 60 17 150 0 15 160 0 15 160 10 15 160 20 16 160 20 16 160 30 17 160 30 17 160 30 17 160 30 17 160 55 18 160 55 <td>150</td> <td>75</td> <td>17</td>	150	75	17		
15 5 15 155 5 15 155 10 17 155 20 17 155 20 17 155 20 17 155 20 17 155 30 17 155 35 17 155 35 17 155 40 17 155 50 18 155 60 17 150 0 15 160 0 15 160 10 15 160 10 15 160 20 16 160 25 18 160 35 17 160 40 16 160 55 18 160 55 18 160 55 16 165 10 15 165 15	155	0	15		
15 10 17 155 10 17 155 15 17 155 20 17 155 25 18 155 25 18 155 30 17 155 35 17 155 40 17 155 45 17 155 40 17 155 50 18 155 60 17 160 0 15 160 15 16 160 15 16 160 20 16 160 25 18 160 25 17 160 35 17 160 45 17 160 55 18 160 55 18 160 55 16 165 5 16 165 10 <td>155</td> <td>5</td> <td>15</td>	155	5	15		
155 15 17 155 20 17 155 25 18 155 30 17 155 35 17 155 40 17 155 40 17 155 40 17 155 40 17 155 50 18 155 60 17 160 5 15 160 15 16 160 15 16 160 20 16 160 25 18 160 25 18 160 35 17 160 45 17 160 45 17 160 55 18 160 55 18 160 55 16 165 0 15 165 55 16 165 20 </td <td>155</td> <td>10</td> <td>17</td>	155	10	17		
155 20 17 155 25 18 155 30 17 155 35 17 155 45 17 155 45 17 155 50 18 155 50 18 155 50 15 160 0 15 160 10 15 160 10 15 160 22 16 160 25 18 160 25 18 160 25 18 160 25 18 160 30 17 160 30 17 160 40 16 160 55 18 160 55 18 160 55 16 165 5 16 165 5 16 165 30 <td>155</td> <td>15</td> <td>17</td>	155	15	17		
155 25 18 155 30 17 155 35 17 155 40 17 155 40 17 155 40 17 155 50 18 155 60 17 160 0 15 160 5 15 160 10 15 160 15 16 160 25 18 160 25 18 160 25 18 160 30 17 160 30 17 160 45 17 160 55 18 160 50 18 160 55 18 160 55 16 165 5 16 165 20 16 165 20 16 165 30 <td>155</td> <td>20</td> <td>17</td>	155	20	17		
155 30 17 155 35 17 155 40 17 155 40 17 155 45 17 155 50 18 155 60 17 160 0 15 160 10 15 160 15 16 160 20 16 160 25 18 160 35 17 160 35 17 160 35 17 160 35 17 160 35 17 160 45 17 160 55 18 160 60 17 160 60 17 160 55 16 165 0 15 165 10 15 165 20 16 165 25 </td <td>155</td> <td>25</td> <td>18</td>	155	25	18		
155 35 17 155 40 17 155 45 17 155 50 18 155 60 17 156 60 17 160 0 15 160 10 15 160 15 16 160 25 18 160 25 18 160 25 18 160 35 17 160 35 17 160 35 17 160 35 17 160 35 17 160 45 17 160 50 18 160 60 17 160 60 17 160 60 17 165 10 15 165 10 15 165 20 16 165 20<	155	30	17		
155 40 17 155 45 17 155 50 18 155 50 17 155 50 17 160 0 15 160 0 15 160 10 15 160 20 16 160 20 16 160 20 16 160 20 16 160 30 177 160 35 177 160 35 177 160 35 177 160 55 18 160 55 18 160 60 177 160 60 177 160 60 177 165 10 15 165 20 16 165 20 16 165 20 17 165 <	155	35	17		
155 45 17 155 50 18 155 60 17 160 50 15 160 5 15 160 10 15 160 20 16 160 20 16 160 20 16 160 25 18 160 25 17 160 35 177 160 35 177 160 35 177 160 35 177 160 55 18 160 55 18 160 55 18 160 75 166 165 10 15 165 10 15 165 25 16 165 25 16 165 30 17 165 35 16 165 <t< td=""><td>155</td><td>40</td><td>17</td></t<>	155	40	17		
155 50 18 155 60 17 160 0 15 160 5 15 160 10 15 160 12 16 160 20 16 160 20 16 160 20 16 160 20 16 160 25 18 160 35 17 160 45 17 160 45 17 160 45 17 160 55 18 160 55 18 160 55 16 165 0 15 165 55 16 165 25 17 165 25 17 165 30 17 165 35 16 165 35 16 165 55 <td>155</td> <td>45</td> <td>17</td>	155	45	17		
155 60 17 160 0 15 160 5 15 160 10 15 160 15 160 160 15 160 160 20 16 160 25 18 160 25 17 160 35 17 160 45 177 160 55 18 160 55 18 160 55 18 160 55 18 160 55 18 160 55 18 160 55 18 165 0 15 165 10 15 165 15 16 165 20 16 165 30 17 165 35 16 165 55 18 165 55	155	50	18		
160 0 15 160 5 15 160 15 16 160 20 16 160 25 18 160 25 18 160 25 18 160 30 17 160 35 17 160 40 16 160 45 17 160 55 18 160 55 18 160 55 18 160 55 18 160 55 16 165 0 15 165 5 16 165 55 16 165 30 17 165 35 16 165 35 16 165 35 17 165 55 18 165 55 18 165 55 <td>155</td> <td>60</td> <td>17</td>	155	60	17		
160 5 15 160 10 15 160 15 16 160 20 16 160 25 18 160 25 18 160 30 17 160 35 17 160 40 16 160 45 17 160 45 17 160 45 17 160 55 18 160 55 18 160 55 16 165 0 15 165 5 16 165 10 15 165 20 16 165 30 17 165 30 17 165 30 17 165 40 17 165 50 18 165 55 18 165 55 <td>160</td> <td>0</td> <td>15</td>	160	0	15		
160 10 15 160 15 16 160 20 16 160 25 18 160 30 17 160 35 17 160 35 17 160 40 16 160 45 17 160 45 17 160 45 17 160 55 18 160 60 17 160 60 17 160 60 17 165 0 15 165 10 15 165 5 16 165 20 16 165 30 17 165 30 17 165 40 17 165 50 18 165 50 18 165 55 18 170 60 </td <td>160</td> <td>5</td> <td>15</td>	160	5	15		
160 15 16 160 20 16 160 25 18 160 30 17 160 35 17 160 35 17 160 40 16 160 40 16 160 45 17 160 50 18 160 55 18 160 60 17 160 60 17 160 60 17 160 55 16 165 10 15 165 20 16 165 20 16 165 20 16 165 20 16 165 20 16 165 20 16 165 20 17 165 30 17 165 55 18 165 55	160	10	15		
160 20 16 160 25 18 160 30 17 160 35 17 160 35 17 160 35 17 160 40 16 150 45 17 160 55 18 160 55 18 160 60 17 160 60 17 160 60 17 160 75 16 165 10 15 165 10 15 165 20 16 165 20 16 165 20 16 165 20 17 165 30 17 165 40 17 165 55 18 170 60 17 165 55 18 170 0<	160	15	16		
160 25 18 160 30 17 160 35 17 160 40 16 160 45 17 160 45 17 160 45 17 160 45 17 160 50 18 160 55 18 160 55 18 160 75 16 165 0 15 165 5 16 165 10 15 165 25 17 165 25 17 165 25 17 165 35 16 165 35 18 165 45 17 165 55 18 170 60 17 165 55 18 170 0 16 170 30 <td>160</td> <td>20</td> <td>16</td>	160	20	16		
160 30 17 160 35 17 160 40 16 160 45 17 160 45 17 160 45 17 160 50 18 160 55 18 160 60 17 160 75 16 165 0 15 165 5 16 165 10 15 165 20 16 165 20 16 165 30 17 165 35 16 165 30 17 165 35 16 165 45 17 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 40 <td>160</td> <td>25</td> <td>18</td>	160	25	18		
160 3 s 1 / 1 160 4 s 16 160 4 s 17 160 50 18 160 50 18 160 55 18 160 60 17 160 60 17 160 60 17 160 75 16 165 0 15 165 10 15 165 10 15 165 10 15 165 20 16 165 20 16 165 30 17 165 35 16 165 35 16 165 45 17 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 <t< td=""><td>160</td><td>30</td><td>17</td></t<>	160	30	17		
160 40 16 160 40 17 160 50 18 160 55 18 160 55 18 160 55 18 160 60 17 160 55 18 160 75 16 165 0 15 165 5 16 165 15 16 165 15 16 165 20 16 165 20 16 165 30 17 165 30 17 165 35 16 165 45 17 165 550 18 165 55 18 165 55 16 170 0 16 170 30 16 170 40 17 170 45 </td <td>160</td> <td>35</td> <td>1/</td>	160	35	1/		
1.0. 1.0. 1.0. 160 550 18 160 555 18 160 55 16 160 75 16 160 75 16 165 0 15 165 5 16 165 5 16 165 10 15 165 5 16 165 20 16 165 20 16 165 30 17 165 35 16 165 35 16 165 35 17 165 55 18 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 40 17 170 40 17 170	160	40	16		
150 150 18 160 55 18 160 60 17 160 75 16 165 0 15 165 5 16 165 10 15 165 20 16 165 20 16 165 20 16 165 20 16 165 20 16 165 20 16 165 20 17 165 30 177 165 40 17 165 50 18 165 50 18 165 55 18 170 0 16 170 30 16 170 40 17 170 40 17 170 50 17 180 50 17 180 50<	160	45 E0	1/		
100 100 100 160 60 177 160 75 16 165 0 15 165 5 16 165 10 15 165 10 15 165 20 16 165 25 17 165 25 17 165 30 17 165 30 17 165 40 17 165 55 18 165 55 18 165 55 18 170 60 17 170 30 16 170 30 16 170 40 17 170 40 17 170 50 17 180 50 17 185 50 16	160	55	10		
160 75 16 160 75 16 165 0 15 165 5 16 165 10 15 165 10 15 165 15 16 165 25 17 165 25 17 165 30 17 165 35 16 165 40 17 165 45 17 165 55 18 170 60 17 165 55 18 170 0 16 170 30 16 170 40 17 170 40 17 170 50 17 180 50 17 185 50 17	160	60	17		
165 0 15 165 5 16 165 10 15 165 10 15 165 15 16 165 20 16 165 20 16 165 25 17 165 30 17 165 35 16 165 40 17 165 45 17 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 45 17 170 45 17 170 50 17 170 50 17 180 50 17 185 50 16	160	75	16		
165 16 165 5 16 165 10 15 165 15 16 165 20 16 165 20 16 165 20 16 165 25 17 165 30 17 165 35 16 165 40 17 165 45 17 165 55 18 170 60 17 170 60 17 170 0 16 170 30 16 170 40 17 170 45 17 170 45 17 170 50 17 180 50 17 185 50 16	165	0	15		
165 10 15 165 15 16 165 20 16 165 20 16 165 25 17 165 30 17 165 35 16 165 40 17 165 45 17 165 50 18 165 55 18 170 60 17 170 0 16 170 0 16 170 30 16 170 40 177 170 45 17 170 45 17 170 50 17 170 50 17 180 50 17 185 50 16	165	5	16		
165 15 16 165 20 16 165 25 17 165 25 17 165 30 17 165 36 16 165 35 16 165 45 17 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 30 17 170 40 17 170 40 17 170 50 17 170 50 17 180 50 17 180 50 17	165	10	15		
165 20 16 165 25 17 165 30 17 165 30 17 165 35 16 165 35 16 165 45 17 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 30 17 170 40 17 175 50 17 180 50 17 185 50 16	165	15	16		
165 25 17 165 30 17 165 35 16 165 40 17 165 40 17 165 45 17 165 50 18 165 55 18 170 60 17 170 0 16 170 30 16 170 30 16 170 30 17 170 40 17 175 50 17 180 50 17 180 50 16	165	20	16		
165 30 17 165 35 16 165 40 17 165 40 17 165 45 17 165 55 18 170 60 17 170 0 16 170 30 16 170 30 17 170 40 17 170 45 17 175 50 17 180 50 17 180 50 16	165	25	17		
165 35 16 165 40 17 165 45 17 165 50 18 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	165	30	17		
165 40 17 165 45 17 165 50 18 165 55 18 165 55 18 165 55 18 170 60 17 170 0 16 170 30 16 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	165	35	16		
165 45 17 165 50 18 165 55 18 170 60 17 170 60 16 170 0 16 170 30 16 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	165	40	17		
165 50 18 165 55 18 170 60 17 170 0 16 170 30 16 170 40 177 170 45 17 175 50 17 180 50 17 185 50 16	165	45	17		
165 55 18 170 60 17 170 0 16 170 30 16 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	165	50	18		
170 60 17 170 0 16 170 30 16 170 30 17 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	165	55	18		
170 0 16 170 30 16 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	170	60	17		
170 30 16 170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	170	0	16		
170 40 17 170 45 17 175 50 17 180 50 17 185 50 16	170	30	16		
170 45 17 175 50 17 180 50 17 185 50 16	170	40	17		
175 50 17 180 50 17 185 50 16	170	45	17		
180 50 17 185 50 16	175	50	17		
185 50 16	180	50	17		
	105	50	16		

Acid/Pueblo Canyon, New Mexico, Site Certification Data Summary Worksheet

Results of Radiological Surface Soil Survey Done on August 16, 1982							
Table III in Radiological Survey							
Sample Number	Gross Alpha (pCi/g)	Gross Beta (pCi/g)	²³⁸ Pu (pCi/g)	^{239, 240} Pu (pCi/g)	²⁴¹ Am (pCi/g)	⁹⁰ Sr (pCi/g)	¹³⁷ Cs (pCi/g)
Minimum Detectable Limit	25	8	0.002	0.002	0.01	0.01	0.01
			Are	ea 3			
Typical Background ^a	10 ± 13		0.003 ± 0.007	0.028 ± 0.058	-	0.29 ± 0.33	0.44 ± 0.89
1	-	-					
2	-	-	0.001 ± 0.002	0.23 ± 0.02	0.5 ± 0.2		0.003 ± 0.001
3	-	-	0.004 ± 0.004	0.48 ± 0.04	0.7 ± 0.2		0.003 ± 0.001
4	-	-					
5	-	-					
6	-	-					
7	230 ± 40	-	0.51 ± 0.06	133 ± 12	8.2 ± 0.4		0.04 ± 0.009
8	270 ± 60	-	0.47 ± 0.04	130 ± 6	4.5 ± 0.3		0.004 ± 0.001
9	230 ± 60	-	0.52 ± 0.04	120 ± 6	2.8 ± 0.2		0.002 ± 0.001
10	-	-					
11	-	-					
12	-	-					
13	-	-	0.22 + 0.02	77 4	22102		0.004 0.001
14	400 ± 70	-	0.32 ± 0.03	77 ± 4	2.2 ± 0.2		0.004 ± 0.001
15							
17		-					
18							
19	-	-					
20	-						
Area 1							
21							
22	-	-					
23	-	-					
24	-	-					
25	-	-					
26	-	-					
27	-	-	İ				
Area 2							
28	-	212 ± 12				88 ± 6	17 ± 1
29	-	258 ± 14				101 ± 8	5.3 ± 0.5
30	-	106 ± 10				46 ± 4	5.5 ± 0.4
31	-	106 ± 10				59 ± 4	3.5 ± 0.3
32	-	60 ± 10				26 ± 1	2.0 ± 0.3
33	-	212 ± 12					
34	-	-					
35	-	-					
^a Typical backgro and central New	ound radionuclide / Mexico during 19	concentrations ir 981.	soils are average	es of samples take	en at six regional s	ampling locations	s in northern

Untreated Waste Line Discharge Area			
Sample Number	Gross Alpha (pCi/g)		
1	a		
2	а		
3	120 ± 40 ^b		
4	а		
5			
6	70 ± 50		
7	а		
8	а		
9	а		
10	а		
11	100 ± 50		
12	а		
13	а		
14	а		
15	а		
16	а		
17	65 ± 38		
18	а		
19	а		
20	а		
21	46 ± 48		
22	а		
23	а		
24	а		
25	65 ± 38		
26	а		
27	а		
28	а		
29	410 ± 60		
30	120 ± 60		
31	a		
32	a		
33	410 ± 60		
34	53 ± 49		
35	a		

Results of Radiological Surface Soil Survey Done on November 1, 1982 Table IV in Radiological Survey

^aSample activity is less than the minimum detectable limit of about 25 pCi/g.

 $^{\text{b}}\text{All}$ results reported as X \pm 2s.

Note: All samples analyzed for gross-beta activity were less than minimum detectable limit, except for Sample Number 33, which had a gross beta concentration of 23 ± 2 pCi/g.

Notes:

(1) Gross-beta counting system was only calibrated for $^{\rm 90}{\rm Sr.}$

(2) Results reported with \pm two standard deviations.

(3) - Means sample activity was less than the minimum detectable limit. No entry means no analysis was made on the sample.

(4) The ²³⁸Pu, ²⁴¹Am, ⁹⁰Sr, and ¹³⁷Cs analyses were done using chemical dissolution and instrumental counting techniques. The gross-alpha and gross-beta analyses were counted with ZnS and plastic scintillator counting systems, respectively, on dried soil samples.

Acid/Pueblo Canyon, New Mexico, Site Map

