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June 24, 2019

Mr. Doug Hintze, Manager
Environmental Management Los Alamos Field Office
3747 West Jemez Road, MS A316
Los Alamos, NM 87544

Dear Mr. Hintze,

I am pleased to enclose Recommendation 2019-02, "Improving the Utility of the Consent Order with Supplementary Information," which was approved by the Northern New Mexico Citizens' Advisory Board during its meeting on June 19, 2019.

Please contact me if you have questions regarding this recommendation. We look forward to the response from the Department of Energy.

Sincerely,

Stanley Riveles
Chair, NNMCAB

Enclosure: a/s

Cc w/encl:

U. S. Senator Tom Udall
U. S. Senator Martin Heinrich
U. S. Congressman Ben R. Lujan
Secretary James Kenney, NMED
Neelam Dhawan, NMED (via e-mail)
David Borak, DFO (via e-mail)
David Rhodes, EM-LA (via e-mail)
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NORTHERN NEW MEXICO CITIZENS' ADVISORY BOARD
Recommendation to the Department of Energy
No. 2019-02

Improving the Utility of the Consent Order with Supplementary Information
Drafted by: Ad Hoc Group on Consent Order of the NNM CAB

Background

This Recommendation suggests steps to use the “Los Alamos National Laboratory (LANL) Compliance Order on Consent” (Consent Order) and its annual work planning process to increase public understanding and support of LANL Environmental Management; advance completion of cleanup goals; and promote greater public funding for cleanup. In designing these steps, the Northern New Mexico Citizens’ Advisory Board (NNMCAB) believes it is consistent with the format and structure of the Consent Order and with policy objectives endorsed by the Department of Energy (DOE) Headquarters leadership. The Recommendation is intended to be a timely contribution to the annual Department of Energy Environmental Management Los Alamos Field Office (EM-LA)/New Mexico Environmental Department (NMED) Consent Order update, with supplementary information provided.

In June 2016, NMED and DOE approved the Consent Order setting forth a plan and a process for cleaning up dangerous and contaminated areas at LANL. A principal purpose of the Consent Order is to establish the basic framework and structure “for accomplishing work on a priority basis through clean-up campaigns with achievable milestones and targets.” The Consent Order has two important Appendices to fulfill this purpose. Appendix C, “Future Campaigns,” enumerates the 17 major projects listed in current priority order that will be accomplished along the road to the comprehensive cleanup of LANL in the future. Each Campaign aggregates many related areas; they represent the “strategic” cleanup challenges. Appendix B, “Milestones and Targets,” charts the annual goals and deliverables for each Campaign (plus two years into the future). Both Appendices are subject to annual updates. Campaign priorities (Appendix C) were established in the 2016 Consent Order and have not changed. Appendix B is more responsive to changing budgets, conditions, and accomplishments, though the process for making such changes might be difficult.

The annual review process goes along the following lines: Sometime in July 2019, NMED and EM-LA will begin expert staff discussions to review Appendix B for Fiscal Year (FY) 2020. These discussions will review the work accomplished during the previous year; identify new problems and opportunities; and arrive at a new set of goals and deliverables. As has been described to the NNM CAB, EM-LA will present a proposed set of changes to NMED. NMED staff will discuss and respond to the proposals, while raising concerns, and suggesting changes of its own. The resulting mark-up of Appendix B will be resolved at policy levels during the Fall, taking into account final Congressional FY 2020 funding levels. Once completed, the FY 2020 update will be presented at open public hearings.

The Consent Order Appendices in their present form provide a method of accountability for achieving stipulated deadlines and milestones. They provide a rolling mechanism for annual reevaluation and update, along with a forum for improving execution and resolving disputes. But, they could be more helpful and transparent in connecting Campaign outcomes with intermediate milestones and the resources needed for completion. The formats of these Appendices are not fixed in concrete. Routine annual changes are expected and anticipated. Consistent with its mission to promote collaborative

47 dialogue among the diverse multicultural communities of Northern New Mexico, DOE, EM-LA, and
48 State and Federal regulatory agencies, the NNM CAB urges that the Consent Order Appendices be given
49 a second look. One option is to supplement them with additional explanatory information that can be
50 readily found on the N3B and NNM CAB websites.

51
52 A higher-level push to accelerate the cleanup schedules and goals is provided by new policy initiatives
53 out of DOE Environmental Management in Washington, D.C. Recent DOE policy statements have
54 drawn attention to the connection between drawn out cleanup schedules and higher costs. Cleanup cost
55 liabilities climb without defined commitments to completion of environmental remediation objectives.
56 Faster cleanup means lower taxpayer costs. DOE has adopted a policy to promote a completion mindset;
57 it has also instructed sites to develop 10-year strategic plans and to determine the resources that would
58 be needed to achieve cleanup in a decade. The EM-LA Field Office has informed the NNM CAB that
59 such a strategic 10-year plan has been developed internally. We understand that such a plan cannot be
60 legislated or imposed. However, we believe that this plan and the costs associated with it should be
61 shared with the public as a strategic vision—as a “best case” scenario, if funding were available. A 10-
62 year plan could be a baseline to generate public support for higher funding and provide incentives for
63 political engagement. The implications of such a commitment are examined below in the NNM CAB’s
64 recommendations.

65
66 **Comments and Observations**

67
68 In engaging the public on environmental issues, NNM CAB Members often encounter criticism and
69 skepticism toward the Consent Order. Some criticize the pace of cleanup and wish to see faster progress.
70 Others criticize the 2016 Consent Order itself because it does not contain enforceable clean-up
71 deadlines. Needless to say, environmental mitigation at LANL poses complicated technological,
72 engineering, and management challenges. Aside from these considerations, federal funding is a key
73 variable in determining the pace of progress and the duration of Campaigns. Benchmarking a 10-year
74 strategic clean-up plan and identifying the average annual dollars associated with it would have a
75 number of positive effects. It would reassure the public that comprehensive cleanup represents a
76 concrete and attainable objective. It would give legislators a yardstick to measure desirable levels of
77 funding. Finally, it would spur public engagement on behalf of the cleanup program.

78
79 In addition to the Appendices of the Consent Order, more information to supplement them could be
80 presented and used to track progress toward completion of the various Campaigns. Appendix C
81 Campaigns are presented in the form of narrative descriptions, along with the approximate duration of
82 each effort. Campaign information could be supplemented in an information document outside of the
83 Consent Order with a Program Evaluation Review Technique (PERT) chart showing the significant
84 points on the road to completion. Along with this information, the estimated life-cycle costs required to
85 reach completion of each campaign could be presented.

86
87 In addition, it would be helpful if the milestones listed for each Campaign in Appendix C were expanded
88 in a supplementary document to include details of progress toward completion. This information may be
89 available in detail elsewhere in the Consent Order. However, for the public thumbnail progress reports
90 would be a useful aid to understanding.

91

92 The detailed Targets and Milestones of Appendix B, which are essential to the oversight functions of
93 NMED, would be more comprehensible in the context of the bigger picture depicted in Appendix C.
94 EM-LA has indicated that the Milestones and Targets could be extended to include three or four out-
95 years (instead of two at present). This expansion would also be useful in tracking progress.

96
97 In its briefings to the NNMCAB and the public, EM-LA has shared limited life-cycle information on the
98 duration of Campaigns. The NNMCAB believes that life-cycle information and completion benchmarks
99 should be part of the systematic picture provided by EM-LA in its annual updates as a complement to
100 the Appendices in the Consent Order and can be located on the N3B and NNMCAB’s websites.
101 Moreover, cost information is an essential part of the picture. Federal funding for cleanup can vary in
102 ways that are difficult to anticipate. Thus, life-cycle cost information should be presented at different
103 funding levels, in \$10-20 million increments or decrements. Comparison could be depicted between
104 Executive Branch funding requests, actual prior year appropriations, and average 5-year funding.

105
106 The NNMCAB believes that steps such as these in the presentation of information supplementing the
107 Consent Order Appendices can lead to great transparency and public support for the process. Such data
108 will help legislators argue on behalf of greater cleanup funding because the goals will be clear and the
109 steps leading to completion will be finite.

110
111 **Risk Management: Proposed Risk/Issues Criteria and Relative Risk Ranking Prioritization**
112 **Process**

113
114 The Consent Order is replete with references to “risk” with respect to clean-up planning and
115 implementation. Thus, among the purposes of the Consent Order is to “...set forth a process for
116 characterizing the nature and extent of Contaminant releases, characterizing the risks to human health
117 and the environment resulting from these releases, and mitigating unacceptable risks.” (II.D.1) Further is
118 the directive that risk should be a principal determinant in the prioritization of Campaigns: Section VIII
119 of the Consent Order (Campaign Approach), Subsection A. states that “this Consent Order will be
120 organized into campaigns, generally based upon a risk-based approach to grouping, prioritizing, and
121 accomplishing corrective action activities at SWMUs and AOCs.” Section IX of the Consent Order
122 (Cleanup Objectives and Cleanup Levels), Subsection A states that “Corrective actions shall be
123 conducted under this Consent Order so that contamination due to releases from SWMUs and AOCs does
124 not result in unacceptable risk to human health and ecological receptors based on current and reasonably
125 foreseeable land use.” This section goes on to identify the established NMED human health target risk
126 level for carcinogens, and a hazard index threshold for non-carcinogens. The need for cleanup is
127 triggered by potential unacceptable risk and not by exceedance of screening levels.

128
129 Per the Consent Order, these target risk and hazard index levels are used to determine whether site-
130 related contamination poses an unacceptable risk to human health and requires corrective action or
131 whether implemented corrective actions sufficiently protect human health and the environment. It is
132 understood that LANL has, over the years, conducted many human health and ecological “risk
133 assessments” for solid waste management units (SWMU) and areas of concern (AOC) under the
134 Environmental Protection Agency and NMED methodologies. The NNMCAB doesn’t have the time nor
135 the expertise to review the individual risk assessments done for all the SWMUs and AOCs. What the
136 NNMCAB needs to understand is how risk-based approaches mentioned in the Consent Order as stated

137 above have been used to determine the prioritization of cleanup actions, as represented in Appendix C,
138 and for this current fiscal year, and how they will be used in the coming years.

139
140 In lieu of a comprehensive review, the Recommendation is that the NNM CAB provides EM-LA with a
141 “relative ranking” of our concerns/issues that we want them to take into consideration when prioritizing
142 targets and milestones for the coming fiscal year. This Recommendation is for the 2020-2022 fiscal year
143 planning only at this time, with the possibility of expanding and extending it to future years.

144
145 Currently the environmental restoration program prioritization of activities is based upon a variety of
146 factors affecting EM-LA, the site contractor N3B, and NMED. These could be based upon a number of
147 factors including: physical access to sites (i.e., controlled by N3B or TRIAD), the logistics of paperwork
148 and approvals to proceed at a site, the National Environmental Policy Act (NEPA) process completion
149 or not, and money/staff availability. Due to time and lack of detailed program knowledge, the
150 NNM CAB cannot realistically address these issues. All it can address are our “relative” concerns – the
151 rest of the “how to achieve this” is up to EM-LA, N3B and, for the Consent Order, NMED.

152
153 In addition to the NNM CAB reviewing and considering the “risk assessment” approach that was used in
154 determining campaign priorities, the prioritization process we recommend for this year includes four (4)
155 risks or issue categories; these categories were culled from a list of about 22 presented on April 18 in the
156 Ad Hoc Committee Meeting. These have since been grouped to facilitate this ranking process and
157 whittled down to those risks/issues that can reasonably affect work prioritization. Neither the order in
158 which they are shown nor the numbering have significance. It is understood that both EM-LA and the
159 State would evaluate these risks in accordance with the most stringent State or federal water quality and
160 health risk standards.

161
162 We also believe that risks to human health and the environment are the most important considerations to
163 us and our communities. The risk factors that were the basis for the Campaign priorities in the 2016
164 Consent Order were not shared with the public. It would be appropriate for the documentation forming
165 the baseline risk analysis be reviewed periodically, with a determination as to whether the current
166 Campaign priorities be retained or reprioritized based on updated evaluation. We therefore recommend
167 that major Campaign projects should be explicitly graded based on the following four (4) risk/issue
168 categories and their elements, utilizing and approach:

- 169
170 1. **Minimize Human Health Risk** - Minimize human health risk now and during clean-up activities
171 from hazardous/radioactive materials in waters, waste, soils, sediments, biota, and air to:
172 a. Involved/non-involved workers
173 b. Members of the public on- and off-site in Los Alamos and northern New Mexico counties
174 c. Native Americans on- and off-site through all possible exposure scenarios from use of lands
175 within and adjacent to the LANL site boundary
176 2. **Remediate Contaminated Groundwater** - Remediate groundwater contamination in accordance
177 with the most stringent State and federal standards for contamination that was caused by LANL
178 operations as identified in the LANL Annual Site Environmental Reports, and in on-going site
179 investigations in “waters of the state” within the:
180 a. Main Aquifer
181 b. Alluvial Waters
182 c. Perched Zones

- 183 3. **Minimize Ecological Health Risk** - Minimize ecological health risk, and aid in the recovery of
184 species listed by the State of New Mexico as threatened or endangered [17-2-40.1 NMSA 1978]
185 currently listed on the Biota Information System of New Mexico (BISON-M) ([http://www.bison-
187 m.org/BisonReportView.aspx](http://www.bison-
186 m.org/BisonReportView.aspx)) (i.e. the 535 species listed)
188 4. **Characterize All Potentially Contaminated Sites**- Characterize “Deferred Sites,” any other known
189 or suspected contamination sites, and heretofore unknown sites yet to be identified during EM-LA
190 investigations that have not been characterized to determine risks (i.e. human health, ecological
191 health, etc.)

192 Information on the health and ecological risks associated with the Campaigns should, for the most part,
193 be available to EM and the Contractor. If so, the levels of relative risk should be presented to the public
194 in a form that can be easily reviewed. The NNM CAB has been given the opportunity to review
195 Appendices B and C on the basis of risk, as noted above. But the NNM CAB is unable to make an
196 informed evaluation of its own, because of lack of time and expertise and therefore, requests that those
197 explicit risk assessments be shared.

198 Recommendations

- 200
- 201 1. The NNM CAB recommends that EM-LA develop and publicly share a 10-year strategic
202 cleanup plan including the level of total and annualized resources needed to achieve that
203 comprehensive goal.
 - 204 2. Along with this plan, the NNM CAB recommends that EM-LA show the estimated duration
205 of the various Campaigns at the current and 10-year funding levels with significant
206 benchmarks along the way—in PERT form if possible.
 - 207 3. The NNM CAB recommends that EM-LA consider employing the flexibility implicit in the
208 design of Appendices B and C, if possible, to reformat them along the lines of the
209 Recommendation 2 above, or to provide supplementary information as described
210 complementing the Appendices.
 - 211 4. The NNM CAB recommends that annual progress toward achieving Campaign milestones
212 listed in Appendix C, as well as information found in recommendations 1, 2 and 6, be
213 recorded and summarized in a supplementary document that would be maintained on the
214 N3B and NNM CAB’s websites and updated annually. This will provide a public overview
215 of accomplishments and strengthen the sense of progress toward cleanup completion.
 - 216 5. The NNM CAB recommends that EM-LA consider including within Appendix B additional
217 out-years beyond the two currently shown.
 - 218 6. The NNM CAB recommends that EM-LA provide it with how risk-based approaches
219 mentioned in the Consent Order, as stated above, have been used to determine the
220 prioritization of cleanup actions for this current fiscal year, and how they will be used in
221 the coming years.
 - 222 7. The NNM CAB recommends that it provides EM-LA with a “relative risk ranking” of our
223 concerns for it to take into consideration when prioritizing targets and milestones for this
224 coming fiscal year update (see attached). Additionally, the NNM CAB recommends a
225 risk/issues prioritization methodology to be utilized by the NNM CAB to provide that
226 ranking of relative importance.
 - 227 8. The NNM CAB by consensus, advises EM-LA that, in its negotiations with NMED, and in
228 spending resources on all waste cleanup actions (including those not covered by the

- 229 Consent Order), that the priority of our relative-ranked risks/issues should be strongly
230 considered. This risk-based approach should, in time, be applied to the full scope of the EM
231 Program.
- 232 9. Accelerate Clean-up to Meet Stipulated Long-term Campaign Goals - Expedite
233 hazardous/radioactive waste cleanup in terms of long-term timelines at all material disposal
234 areas, SWMUs, AOCs, etc. (see References No. 2, and No. 3)
- 235 10. In general, the NNMCAB recommends that EM-LA consider ways in which to improve the
236 public transparency of its risk assessments, project management, and cost planning.
- 237

238 **Intent**

239

240 It is the intent of the NNMCAB to promote transparency with regard to both life-cycle planning and
241 programming, as well as risk analysis, in order to accelerate cleanup and strengthen public support for
242 EM-LA. Our recommendations to EM-LA are intended to help make better and more clearly informed
243 decisions about how to prioritize Campaigns. They are also intended to inform the public and stimulate
244 feedback on what risks/issues are of greatest concern to the communities it represents.

245

246 **References**

- 247
- 248 1. *Compliance Order on Consent*, between the State of New Mexico and the U.S. Department of
249 Energy, Los Alamos National Laboratory, June 2016, II.b.2. The Consent Order has six
250 Appendices, but only B and C are considered relevant to this Recommendation. The Consent
251 order was modified in February 2017.
 - 252 2. “DOE Cleanup Chief Hopes to Move Past ‘Plateau,’ Focus on Completion,” Exchange Monitor,
253 September 7, 2018. <https://www.exchangemonitor.com/doe-cleanup-chief-hopes-move-past-plateau-focus-completion/> See also, “EM Assistant Secretary White Outlines Plans to
254 Invigorate ‘Completion Mindset’,” Speech to the National Cleanup Workshop, September 18,
255 2018. [https://www.energy.gov/em/articles/em-assistant-secretary-white-outlines-plans-
256 invigorate-completion-mindset](https://www.energy.gov/em/articles/em-assistant-secretary-white-outlines-plans-invigorate-completion-mindset)
 - 257 3. “Modification to End State Contracting Model,” Department of Energy, Office of Environmental
258 Management, Special Notice, December 12, 2018.
259 https://www.emcbc.doe.gov/SEB/em_escm/News%20and%20Announcements.php
 - 260 4. Biota Information System of New Mexico (BISON-M), Natural Heritage New Mexico,
261 developed by the New Mexico Department of Game & Fish, and the Fish & Wildlife Information
262 Exchange (<http://www.bison-m.org/>) (undated website)
 - 263 5. New Mexico Wildlife Conservation Act (WCA), listing for threatened or endangered species
264 [17-2-40.1 NMSA 1978].
265

Relative Risk Ranking as Voted on by NNMCAB Membership

Put Only One Check Mark for Each Risk/Issue Category

Risk/Issue Category	Abbreviated Description	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Priority 6
1. Minimize Human Health Risk	Minimize human health risk now and during clean-up activities from hazardous or radioactive materials in waters, waste, soils, sediments, biota, and air.	IIIIII (7)	II (2)	II (2)			
2. Remediate Contaminated Groundwater	Remediate groundwater contamination caused by LANL operations as identified in the LANL Annual Site Environmental Reports, and in on-going site investigations in "waters of the state."	III** (3)	III (3)	IIII (4)	I (1)		
3. Minimize Ecological Health Risk	Minimize ecological health risk, and aid in the recovery of species listed by the State of New Mexico as threatened or endangered [17-2-40.1 NMSA 1978] currently listed on the Biota Information System of New Mexico (BISON-M)		IIII (4)	II (2)	IIII (4)	I (1)	
4. Characterize All Potentially Contaminated Sites	Characterize "Deferred Sites," any other known or suspected contamination sites, and heretofore unknown sites yet to be identified during DOE EM-LA investigations that have not been characterized to determine risks (i.e. human health, ecological health, etc.)	I (1)	II (2)	II (2)	IIIIII (6)		I (1)
5. Compliance with Consent Order				I (1)			
6. Expedite Cleanup Actions					I (1)		

** B. Beloff noted: "I see human health risk & remediation of contam. groundwater as linked."