Appendix D

Well Plugging Plans of Operations



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER SANTA FE

Tom Blaine, P.E. State Engineer

CONCHA ORTIZ Y PINO BLDG. POST OFFICE BOX 25102 130 SOUTH CAPITOL SANTA FE, NEW MEXICO 87504-5102 (505) 827-6091 FAX: (505) 827-3806

December 12, 2016

U.S Department of Energy/ Los Alamos National Laboratory C/O Mark Everett P.O Box 1663 Los Alamos, NM 87545

Re: Plugging Plans of Operation, LANL Wells RG-96461 PODs 1-10

Greetings:

After a review of the Well Plugging Plan of Operations submitted on September 27, 2016, The Office of the Engineer is returning a favorable approval with specific Plugging Conditions and has accepted the Plugging Plan submitted for filing.

Please return a completed Well Plugging Report that itemizes the actual abandonment process and materials used within 20 days after completion of well plugging. In addition, please include a copy of the approved Plugging Conditions enclosed.

Please address any questions via- telephone to Ramona Martinez at 505.827.6120 or via e-mail at Ramona.Martinez2@state.nm.us.

Sincerely.

Ramona Martinez

Northern Rio Grande Basin Manager

Water Rights Division

ENGINAL STATES

Enclosure cc: file



STATE OF NEW MEXICO OFFICE OF THE STATE ENGINEER

Tom Blaine, P.E. District 6 Office, Santa Fe, NM

Well Plugging Plan of Operations Conditions of Approval for RG-96461 PODs 1-10

The U.S. Department of Energy / Los Alamos National Laboratory has identified 10 Monitoring Wells as tabulated below. On the Well Plugging Plan of Operations received September 27, 2016, the applicant stated that the wells are no longer needed as the study is completed. The applicant has requested that the wells be plugged and abandoned by hand without the use of a drill rig. The applicant states that the protective casing and surface pad will be removed. If possible, the PVC casing will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled it will be cut off below ground surface and cemented in place. There are no OSE records available for these wells. The wells were used to monitor the performance of a permeable reactive barrier used to remove high explosives from surface/alluvial water. Existing active wells that are in close proximity to the wells that are to be abandoned could possibly have communication during cementing operations. To reduce the likelihood of this scenario, the water to cement ratio can be reduced to 5.2 gallons of water per 94 pound sack of Portland Cement.

Location: Los Alamos, New Mexico.

Approximate well coordinates: See tabulated data.

Well Name	Water Static Level	Inside diameter (inches)	Total depth (feet)	Latitude North	Longitude West
RG-96461 POD 1 (CdV-16-611935)	Dry	2'	12.0'	35°84′93.022	-106°33′52.163
RG-96461 POD 2 (CdV-16-611929)	9.2	2'	13.25	35°84′92.956	-106°33′53.336
RG-96461 POD 3 (CdV-16-611930)	7.3	2'	13.0	35°84′93.394	-106°33′53.245
RG-96461 POD 4 (CdV-16-611931)	7.4	2'	12.0	35°84′94.072	-106°33′52.964
RG-96461 POD 5 (CdV-16-611935)	8.0	2'	9,0	35°84′93.957	-106°33′51.898
RG-96461 POD 6 (CdV-16-611935)	Dry	2'	13.0	35°84′92.474	-106°33′53.537
RG-96461 POD 7 (CdV-16-611935)	Dry	2'	8.5	35°84′94.343	-106°33′54.014
RG-96461 POD 8 (CdV-16-611935)	Dry	2'	12.5	35°84′92.039	-106°33′54.671
RG-96461 POD 9 (CdV-16-611935)	Dry	2'	13.0	35°84′93.022	-106°33′54.368
RG-96461 POD 10 (CdV-16-611935)	Dry	2'	9.0	35°84′94.022	-106°33′52.163

Specific Plugging Conditions of Approval for 10 monitoring wells for the U.S. Department of Energy / Los Alamos National Laboratory, Los Alamos County, New Mexico

- Water well drilling and well drilling activities, including well plugging, are regulated under 19.27.4 NMAC, which requires any person engaged in the business of well drilling within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall perform the well plugging.
- Placement of the sealant within the well shall be by pumping through a tremie pipe extended to near well bottom (based on sounding depth), and kept below top of the slurry column as the well is plugged from bottom-upwards in a manner that displaces the standing water column.
- 3. The use of up to 6% pure bentonite powder ("90 barrel yield") as an additive in cement is allowed under NMOSE/AWWA guidelines. Neither granular bentonite nor extended yield bentonite shall be mixed with cement. When supplementing a cement slurry with bentonite powder as requested, water demand for the mix increases at a rate of 0.65 gallons of water for each 1% increment of bentonite bdwc (by dry weight cement) above fundamental water demand of 5.2 gallons water per 94-lb. sack of cement. A 5% bentonite/cement slurry may therefore contain up to 8.5 gallons of water total per 94-lb. sack of cement / approximate 5-lb. bentonite increment, provided appropriate mixing order is maintained. The bentonite shall be properly hydrated separately with its required increment of water, prior to being added into the cement mixture. If water is otherwise added to the combination of dry ingredients or the dry bentonite blended into wet cement, the hardness and alkalinity imparted to the mix water by the cement will restrict the ability of the bentonite powder to yield as expected, resulting in excess free water in the slurry and enhanced cement shrinkage upon curing.
- 4. Theoretical volume of sealant required for abandonment of the 2-inch (inside) diameter well is approximately .16 gallons per foot. Total theoretical volume of sealant required to fill the well is tabulated below. All cement mixture will contain no more than 5.2 gallons of water per 94 pound sack of cement. Total minimum amount of required sealant will be based on the sounding depth inside casing.

Well Name	Inside Diameter (Inches)	Total Depth (feet)	Volume (Cubic Feet)	Volume (Gallons)
RG-96461 POD 1	2	12	0.26	2.0
RG-96461 POD 2	2	13.25	0.29	2.2
RG-96461 POD 3	2	13	0.28	2.1
RG-96461 POD 4	2	12	0.26	2.0
RG-96461 POD 5	2	9	0.20	1.5
RG-96461 POD 6	2	13	0.28	2.1
RG-96461 POD 7	2	8.5	0.19	1.4
RG-96461 POD 8	2	12.5	0.27	2.0
RG-96461 POD 9	2	13	0.28	2.1
RG-96461 POD 10	2	9	0.20	1.5
Totals:		_	2.51	18.8

- 5. All surface completions (vaults) will be removed, if applicable. An attempt shall be made to pull the casing and backfill the upper 1'-2' bgs with concrete. Casing that is not pulled will be terminated 1'-2' bgs and the remaining hole will be backfilled with concrete to surface.
- 6. All pumping appurtenance shall be removed from the well prior to decommissioning.

- 7. The total quantity of all materials and sealants used to complete the decommissioning shall be noted on the plugging record.
- 8. Should the NMED, or another regulatory agency sharing jurisdiction of the project authorize, or by regulation require a more stringent well plugging procedure than herein acknowledged, the more-stringent procedure should be followed. This, in part, includes provisions regarding pre-authorization to proceed, contaminant remediation, inspection, pulling/perforating of casing, or prohibition of free discharge of any fluid from the borehole during or related to the plugging process.
- NMOSE witnessing of the plugging will not be required, but shall be facilitated if a NMOSE observer
 is onsite. NMOSE witnessing may be requested during normal work hours by calling the District 6
 NMOSE Office at 505-827-6120, at least 48-hours in advance. NMOSE inspection will occur
 dependant on personnel availability.
- A Well Plugging Record (available at: http://www.ose.state.nm.us/STST/Forms/WD-11.pdf) itemizing actual abandonment process and materials used shall be filed with the State Engineer (NMOSE, P.O. Box 25102 407 Galisteo Street Room 102, Santa Fe, NM 87504-5102), within 20 days after completion of well plugging. Please attach a copy of these plugging conditions.

The NMOSE Well Plugging Plan of Operations dated September 27, 2016, with annotation, is hereby approved with the aforesaid conditions applied, when signed by an authorized designee of the State Engineer:

Date: 12/19/16

Ramona Martinez, NMOSE District 6, Water Rights Division

3





5.50 2 7	GENERAL/WELL OWNERSHIP:
	ing Office of the State Engineer POD Number (Well Number) for well to be plugged: CdV-16-611933 126-
	e of well owner: Los Alamos National Laboratory, Contact: Mark Everett
	ing address: P.O. Box 1663, MS: M992
	Los Alamos State: NM Zip code: 87545
Phon	e number: _(505) 667-5931
П.	WELL DRILLER INFORMATION:
Vell	Driller contracted to provide plugging services: not contracted yet Yellow Jacket Drilli
New	Mexico Well Driller License No.: WD-1458 Expiration Date: 10/3/18
V.	WELL INFORMATION:
Vote:	A copy of the existing Well Record for the well to be plugged should be attached to this plan.
)	GPS Well Location: Latitude: 35.8493957 deg,min,sec Longitude:-106.3351898 deg,min,sec, NAD 83
!)	Reason(s) for plugging well: Well is no longer needed.
)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please us section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be
	required prior to plugging.
)	
)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail
)	
)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail including analytical results and/or laboratory report(s):
)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail including analytical results and/or laboratory report(s):
)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail including analytical results and/or laboratory report(s):

7)	Inside diameter of innermost casing: inches.			
8)	Casing material: PVC			
9)	The well was constructed with:			
	an open-hole production interval, state the open interval:			
	X a well screen or perforated pipe, state the screened interval(s): 3.0-8.0			
10)	What annular interval surrounding the artesian casing of this well is cement-grouted? N/A			
11) Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface cas				
	otherwise sealed?yes If yes, please describe:cement 0-0.5 ft, bentonite 0.5-2.0 ft			
12)	Has all pumping equipment and associated piping been removed from the well? ves If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.			
V. DES	SCRIPTION OF PLANNED WELL PLUGGING;			
pipe, a	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional al information, such as geophysical logs, that are necessary to adequately describe the proposal.			
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing			
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled			
	it will be cut off below ground surface and cemented in place.			
2)	Will well head be cut-off below land surface after plugging?			
VI. PL	UGGING AND SEALING MATERIALS:			
Note: T	he plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant			
1)	For plugging intervals that employ cement grout, complete and attach Table A.			
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.			
3)	Theoretical volume of grout required to plug the well to land surface: 1.5 gal.			
4)	Type of Cement proposed:cement with up to 5% bentonite			
5)	Proposed cement grout mix:8.5gallons of water per 94 pound sack of Portland cement.			
6)	Will the grout be:batch-mixed and delivered to the site			
	X mixed on site			

7)	Grout additives requested, and percent by dry weight	ght relative to cement:	Bentonite up to 5%	6	
8)	Additional notes and calculations:				
					_
<u>VII.</u>	ADDITIONAL INFORMATION: List additional in				
_	Well was installed to monitor the performance of high explosives from surface/alluvial water.				_
	mgn explosives from surface/anuvial water.				
			The state of the s		
			V-804		
Opera Engin	Mark Everett , say to attachments, which are a part hereof; the neer pertaining to the plugging of wells and will complying Plan of Operations and attachments are true to the	at I am familiar with the rule y with them, and that each ar best of my knowledge and be	s and regulations of t nd all of the statemen	he State	
		Signature of Applicant		Date	
IX. A	ACTION OF THE STATE ENGINEER:				
This V	Well Plugging Plan of Operations is:				
	Approved subject to the attached condition			2	SS
	Not approved for the reasons provided on	the attached letter.		910	AHE
	Witness my hand and official seal this	_day ofday of	pr . 20	165	777
		Tom Blaine P.E., New Me	xico State Engineer	27	
		Tom Blaine P.E., New Mer	xico State Engineer	27	HEW I
		P	xico State Engineer	AH 10:	HEW MEXI
		P	ENGINERA	27 AM 10: 10	HEW HEXICO
ſrn. N	10 599956	By: Romer	ENGINERA	lyging Plan January 21, 20	HEW MEXICO
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ſrn. N	10 599956	P	ENGINERA		HEW HEXICO

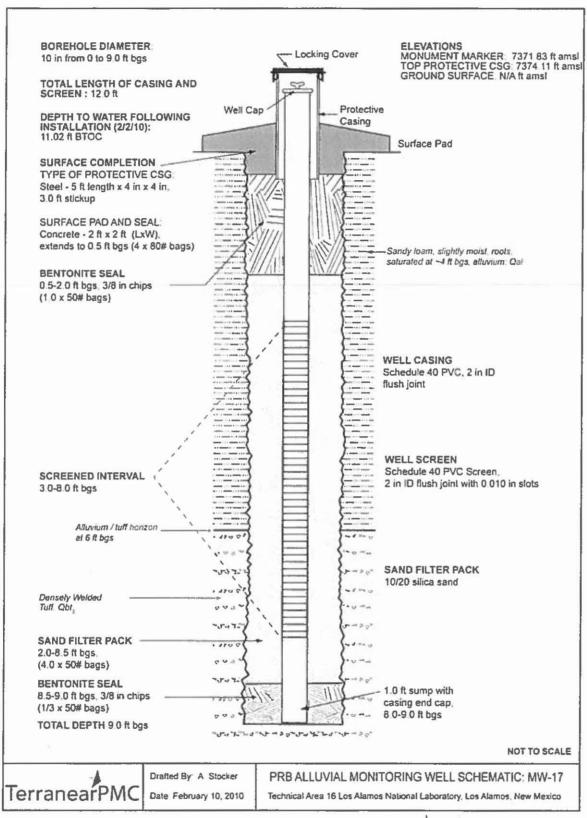
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (fi bgl)			9.0
Theoretical volume of grout required per interval (gallons)			1.5 gal.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive I requested			Bentonite
Additive I percent by dry weight relative to cement			up to 5%
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement		-	

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TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 - deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



CdV-16-611933





l owner: Los Ala ess: P.O. Box lamos r: (505) 667-593 DRILLER INFORM ontracted to provide Well Driller License	1663, MS: M992	State: E-	NM			87545
lamos r: _(505) 667-593 DRILLER INFORM ontracted to provide	1 IATION:	State: E-				87545
PRILLER INFORM	1 IATION:	E-				87545
DRILLER INFORM	1ATION:		-mail: <u>meve</u>	rett@lanl.gov		
ontracted to provide	1ATION:					
	No.: WD-	14/58	ntracted yet	Expiration Date:	Jackst 10/3/	Dal
NFORMATION:						
of the existing Well						
Well Location:	Latitude: 35.84 Longitude: 106.	192474 deg 3353537 deg	<u> </u>	min, min,	_sec _sec, NAD 83	
on(s) for plugging w	ell: <u>Well is no l</u>	onger neede	ed.			
on VII of this form tor contaminated or	to detail what I poor quality wat	ydrogeologic	parameters	were monitored.	If the well v	vas used t
s the well tap brackis	sh, saline, or other	wise poor qua	ality water?	No If yo	es, provide addi	tional detai
ding analytical result	s and/or laboratory	y report(s):				
: water level: _dry	(feet belo	ow land surface	ce) feet above	land surface (ci	rcle one)	2016 SE
of the well: 13.0	feet					EP 2
	well used for any ty on VII of this form tor contaminated or red prior to plugging s the well tap bracki ding analytical result	Well Location: Latitude: 35.84 Longitude:-106. on(s) for plugging well: Well is no lead to the well used for any type of monitoring on VII of this form to detail what he tor contaminated or poor quality watered prior to plugging. Is the well tap brackish, saline, or other ding analytical results and/or laboratory to the water level:	Well Location: Latitude: 35.8492474 deg Longitude:-106.3353537 deg on(s) for plugging well: Well is no longer neede well used for any type of monitoring program or en on VII of this form to detail what hydrogeologic tor contaminated or poor quality water, authorizat red prior to plugging. s the well tap brackish, saline, or otherwise poor quality analytical results and/or laboratory report(s):	Well Location: Latitude: 35.8492474 deg, Longitude:-106.3353537 deg, on(s) for plugging well: Well is no longer needed. well used for any type of monitoring program or environmental a on VII of this form to detail what hydrogeologic parameters of tor contaminated or poor quality water, authorization from the Nored prior to plugging. Is the well tap brackish, saline, or otherwise poor quality water?	Well Location: Latitude: 35.8492474 deg,min, Longitude:-106.3353537 deg,min, on(s) for plugging well: Well is no longer needed. Well used for any type of monitoring program or environmental assessment? Yellor VII of this form to detail what hydrogeologic parameters were monitored. For contaminated or poor quality water, authorization from the New Mexico Environmental prior to plugging. If you do not need to the state of the state	Longitude:-106.3353537 deg,min,sec, NAD 83 on(s) for plugging well:Well is no longer needed

7)	Inside diameter of innermost casing: inches.
8)	Casing material: PVC
9)	The well was constructed with: an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 6.0-11.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted?N/A
11)	Was the well built with surface casing?If yes, is the annulus surrounding the surface casing grouted or otherwise sealed?If yes, please describe:
12)	Has all pumping equipment and associated piping been removed from the well? <u>yes</u> If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DES	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a c	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional il information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled.
	it will be cut off below ground surface and cemented in place.
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: T	the plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.1 gal.
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the site
	X mixed on site

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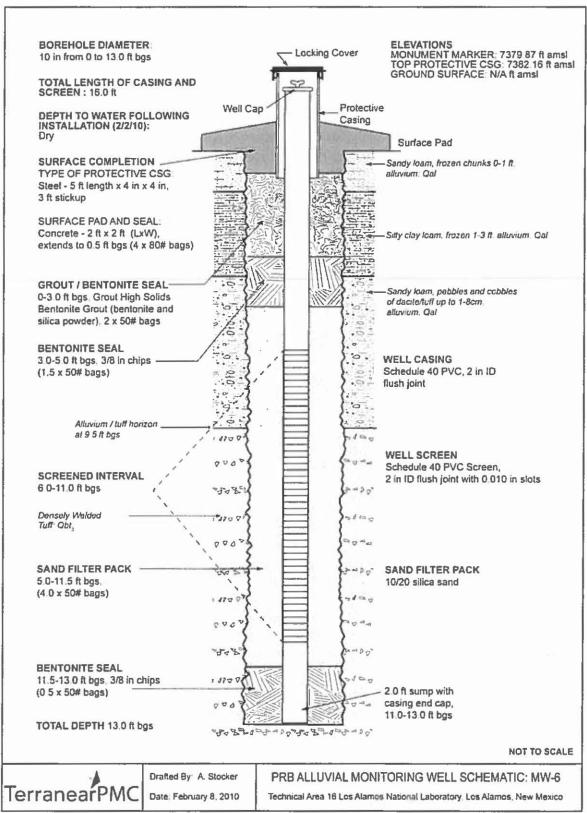
7)	Grout additives requested, and percent by dry weight relative to cement:Bentonite up to 5%
8)	Additional notes and calculations:
VII.	ADDITIONAL INFORMATION; List additional information below, or on separate sheet(s):
	Well was installed to monitor the performance of a permeable reactive barrier used to remove
	high explosives from surface/alluvial water.
Opera Engin	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well ing Plan of Operations and attachments are true to the best of my knowledge and belief. Signature of Applicant
IX. A	CTION OF THE STATE ENGINEER:
This V	Vell Plugging Plan of Operations is:
	Approved subject to the attached conditions. Not approved for the reasons provided on the attached letter.
	Witness my hand and official seal this 12 day of December , 206
	Tom Blaine P.E., New Mexico State Engineer By: Damma Da
	ENG/N Well-lugging Plans
řrn. N	o 599956

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 - most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			13.0
Theoretical volume of grout required per interval (gallons)			2.1 gal.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive 1 percent by dry weight relative to cement			up to 5%
Grout additive 2 requested			¢
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 - most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)		-	
Bottom of proposed sealant of grout placement (ft bgl)	•		
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)	of a		







	ENERAL/WELL OWNERSHIP:
	ing Office of the State Engineer POD Number (Well Number) for well to be plugged: _CdV-16-611922/36- C
Name	e of well owner: Los Alamos National Laboratory, Contact: Mark Everett
Maili	ng address: P.O. Box 1663, MS: M992
City:	<u>Los Alamos</u> State: <u>NM</u> Zip code: <u>87545</u>
Phone	e number: (505) 667-5931 E-mail: meverett@lanl.gov
ш. У	VELL DRILLER INFORMATION:
Well	Driller contracted to provide plugging services: not contracted yet Yellow Tocket Drill
New I	Mexico Well Driller License No.: 1458 Expiration Date: 104/18
IV. V	VELL INFORMATION:
	A copy of the existing Well Record for the well to be plugged should be attached to this plan.
	Apple 1
1)	GPS Well Location: Latitude: 35.84947343 deg,min,sec Longitude: 106.3354014 deg,min,sec, NAD 83
	200,000 (00,000)
2)	Reason(s) for plugging well:Well is no longer needed.
3)	
3)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used
3)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging.
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	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detaincluding analytical results and/or laboratory report(s):
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4)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta including analytical results and/or laboratory report(s):
3)4)5)6)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta including analytical results and/or laboratory report(s):

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 2.0-7.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted? N/A
11)	Was the well built with surface casing?If yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed? If yes, please describe: cement 0-0.5 ft, bentonite 0.5-1.5 ft
12)	Has all pumping equipment and associated piping been removed from the well?If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DE	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a	If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremis detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional al information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled,
	it will be cut off below ground surface and cemented in place
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: 7	The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 1.4 gal.
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the site
	X mixed on site

7)	Grout additives requested, and percent by dry weigh	ht relative to cement:	Bentonite up	to 5%	
8)	Additional notes and calculations:				
VII.	ADDITIONAL INFORMATION: List additional inf	formation below, or on	separate sheet(s):		
	Well was installed to monitor the performance of	a permeable reactive	barrier used to re	move	
	high explosives from surface/alluvial water.		-		
			- 277		
	, , , , , , , , , , , , , , , , , , , ,				
				-	
I,I Opera Engin	Mark Everett , say the tions and any attachments, which are a part hereof; that eer pertaining to the plugging of wells and will comply ing Plan of Operations and attachments are true to the bull to	t I am familiar with the with them, and that ea test of my knowledge a	rules and regulation chand all of the stand belief.	ns of the State tements in the W	/ell
		Signature of Applica	nt	Date	
X. A	CTION OF THE STATE ENGINEER:				
This V	Vell Plugging Plan of Operations is:				
	Approved subject to the attached condition Not approved for the reasons provided on the				
	Witness my hand and official seal this	_day of	embo.	20/6 65	SANTA
		Tom Blaine D.E. Nov.	Mexico State Engli	neer / 📆	-11
		By: Name	an John State of the State of t	N. E.	E. HEWITE

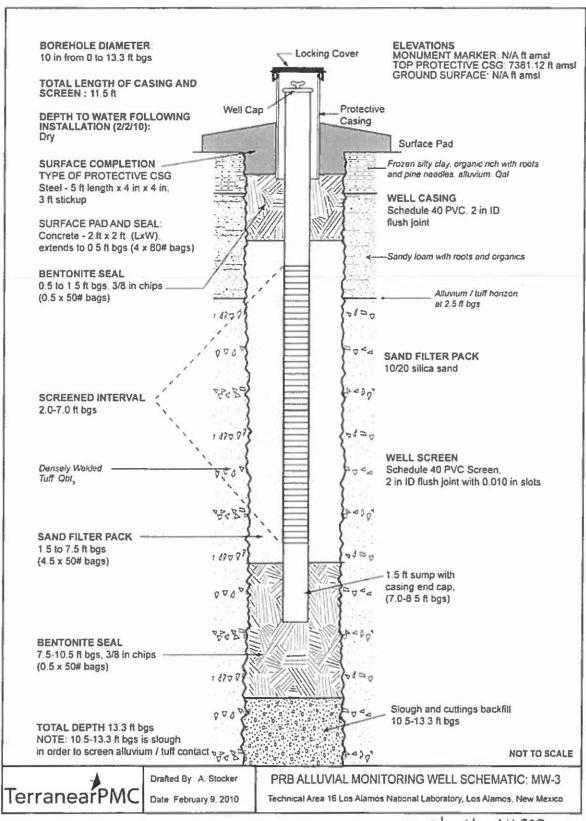
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			8.5
Theoretical volume of grout required per interval (gallons)			1.4 gal.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive 1 percent by dry weight relative to cement			up to 5%
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			î î

Trn.	No			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



Cdv-16-611922





NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

1. FILING FEE: There is no filing fee for this form.

	ng Office of the State Engineer POD Number (ed:Cav-16-6119	20 14 6-
	of well owner: Los Alamos National Labora	atory, Contact	:: Mark Everett		
Mailin	g address: P.O. Box 1663, MS: M992				
	Los Alamos	0. 0. 0.			
Phone	number:(505) 667-5931	E-mail:	meverett@lanl.go	OV .	
					C
ш. w	VELL DRILLER INFORMATION:		1 00	- 1.	n
	Oriller contracted to provide plugging services:				
New M	Aexico Well Driller License No.:	458	Expiration [Date: 10/31/	18
IV. W	ELL INFORMATION:				
Note:	A copy of the existing Well Record for the well to	he plugged sh	ould be attached to thi	is plan.	
1)	GPS Well Location: Latitude: _35.8492	039_deg,	min,	sec	
	Longitude:-106.335	4671 deg,	min,	sec, NAD 83	
2)	Reason(s) for plugging well: Well is no long	er needed.			
	9				
3)	Was well used for any type of monitoring prog	gram or enviror	nmental assessment? _	Yes If yes	, please us
	section VII of this form to detail what hydr	ogeologic para	ameters were monitor	red. If the well	was used t
	monitor contaminated or poor quality water, a required prior to plugging.	iuthorization fr	om the New Mexico E	environment Departi	ment may b
45			a No		
4)	Does the well tap brackish, saline, or otherwise				
	including analytical results and/or laboratory rep	iort(s):			
					20
				a resource of the control of	SEP
5)	Static water level: dry (feet below le	and surface) fe	et above land surface	(circle one)	O
5) 5)	Static water level: dry feet below le Depth of the well: 12.5 feet	and surface) fe	et above land surface	(circle one)	P 27

7)	Inside diameter of innermost casing: inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 6.3-11.3
10)	What annular interval surrounding the artesian casing of this well is cement-grouted?N/A
11)	Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed? If yes, please describe:cement 0-1 ft, bentonite 1-4 ft
12)	Has all pumping equipment and associated piping been removed from the well?If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DES	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional al information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology
	proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled,
	it will be cut off below ground surface and cemented in place.
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: T	he plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.0 gal.
4)	Type of Cement proposed: cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the siteX mixed on site

7)				
8)	Additional notes and calculations:		91-99).	
	ADDITIONAL INFORMATION: List additional Well was installed to monitor the performa high explosives from surface/alluvial water.	nce of a permeable rea	ctive barrier used	
I, Opera Engin	Mark Everett , say tions and any attachments, which are a part hereof; the pertaining to the plugging of wells and will compare the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and attachments are true to the plant of Operations and Operations and Operations are true to the plant of Operations and Operations are true to the Operations and Operations are true to the Opera	hat I am familiar with the r ply with them, and that eac e best of my knowledge an	rules and regulations o h and all of the statem	of the State ents in the Well
I, Opera Engin	Mark Everett , say tions and any attachments, which are a part hereof; the present the plugging of wells and will compare the plugging of the plugging Plan of Operations and attachments are true to the	hat I am familiar with the roly with them, and that eac	rules and regulations o h and all of the statem d belief.	of the State
I, Opera Engin Plugg	Mark Everett , say tions and any attachments, which are a part hereof; the present the plugging of wells and will compare the plugging of the plugging Plan of Operations and attachments are true to the	hat I am familiar with the roly with them, and that eace best of my knowledge an	rules and regulations o h and all of the statem d belief.	of the State ents in the Well $\frac{9/27/16}{}$
I, Opera Engin Plugg	Mark Everett, say tions and any attachments, which are a part hereof; the plugging of wells and will comping Plan of Operations and attachments are true to the state of the plugging of wells and will compine the plugging of wells are true to the state of the plugging of wells are true to the plugging of wells are true to the plugging of the plugging of wells are true to the plugging of the plugging of wells are true to the plugging of the plugging of wells are true to the plugging of the plugging of wells and will compine the plugging of the plugging of wells and will compine the plugging of wells and will compine the plugging of the plugging of wells and will compine the plugging of the plugging of wells and will compine the plugging of the pluggin	hat I am familiar with the roly with them, and that eace best of my knowledge an	rules and regulations o h and all of the statem d belief.	of the State ents in the Well $\frac{9/27/16}{}$
I, Opera Engin Plugg	Mark Everett, say tions and any attachments, which are a part hereof; the pertaining to the plugging of wells and will comping Plan of Operations and attachments are true to the	hat I am familiar with the rolly with them, and that each best of my knowledge an Signature of Applican ions.	rules and regulations o h and all of the statem d belief.	of the State ents in the Well $\frac{9/27/16}{}$
I, Opera Engin Plugg	Mark Everett	hat I am familiar with the rolly with them, and that each best of my knowledge an Signature of Applican ions.	rules and regulations o h and all of the statem d belief. t	of the State ents in the Well 9/27/16 Date

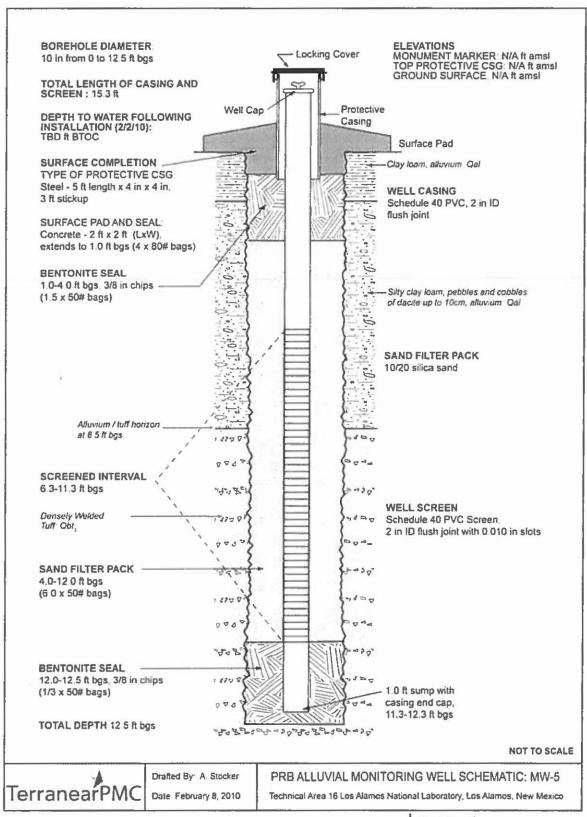
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 - deepest	Interval 2	Interval 3 - most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)	:		12.5
Theoretical volume of grout required per interval (gallons)			2 gal.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive 1 percent by dry weight relative to cement		700	up to 5%
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

Trn.	. No			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



CdV-16-611920





Existi	ENERAL / WELL OWNERSHIP: ng Office of the State Engineer POD Number (Well Number) for well to be plugged:CdV-16-611921	
	of well owner: Los Alamos National Laboratory, Contact: Mark Everett	
Maili	ng address: P.O. Box 1663, MS: M992	
City:	Los Alamos State: NM Zip code: 8754	5
Phone	number: (505) 667-5931	
Well	Driller contracted to provide plugging services: Mexico Well Driller License No.:	<u>ئ</u>
IV \	VELL INFORMATION:	
	A copy of the existing Well Record for the well to be plugged should be attached to this plan.	
1)	GPS Well Location: Latitude: <u>35.849350935</u> deg,min,sec Longitude:- <u>106.3354368</u> deg,min,sec, NAD 83	
2)	Reason(s) for plugging well: Well is no longer needed.	
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging.	ed
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may	ed ay b
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department marrequired prior to plugging.	ed ay b
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department marrequired prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional discounties and/or laboratory report(s):	ed ay b
3)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department marrequired prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional distribution including analytical results and/or laboratory report(s):	ay Son H
4)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department marrequired prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional discounting analytical results and/or laboratory report(s):	ed ay b

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 6.0-11.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted?N/A
11)	Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface casing grouted or otherwise sealed?yesIf yes, please describe:cement 0-0.5 ft, bentonite 0.5-3.3 ft
12)	Has all pumping equipment and associated piping been removed from the well?
Note: I	CRIPTION OF PLANNED WELL PLUGGING: f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie letailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional l information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled,
	it will be cut off below ground surface and cemented in place
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: T	he plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.0 gal
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the site
	X mixed on site

Well Plugging Plan
Version: January 1, 2018 MEXICO
Page 2 of 5

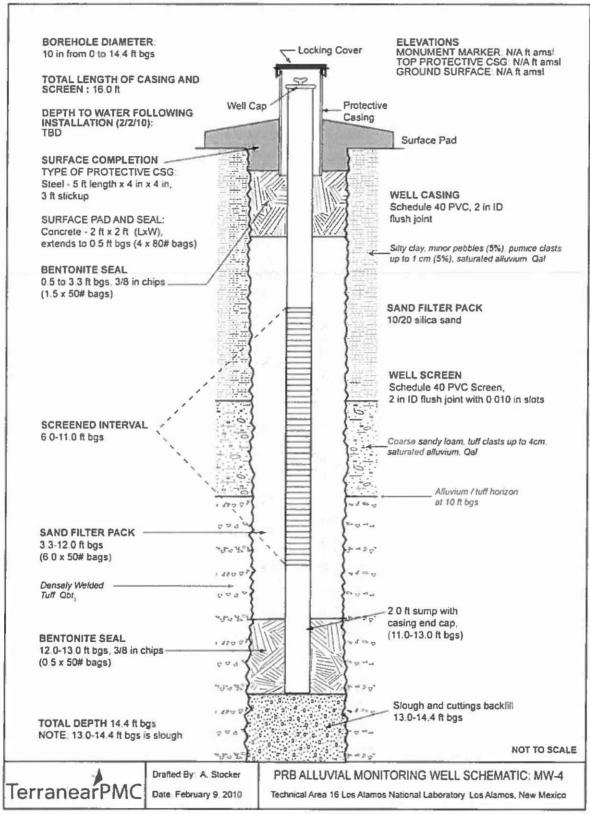
7)	Grout additives requested, and percent by dry wei	ght relative to cement:	Bentonite up to	5%	
					_
8)	Additional notes and calculations:				
			4	,,,,	_
VII.	ADDITIONAL INFORMATION: List additional i Well was installed to monitor the performance of			nve	
_	1:1 1: 6 6 7 11 11 1				_
	mgn explosives from surface, and via water.			VIII. 4.1	
				1.00	
	SIGNATURE: Mark Everett , say	that I have carefully read t	he foregoing Well Pl	ugging Plan of	
Opera	tions and any attachments, which are a part hereof; the	nat I am familiar with the n	ules and regulations	of the State	
Engin Plugg	eer pertaining to the plugging of wells and will comp ing Plan of Operations and attachments are true to the	best of my knowledge and	i and all of the staten I belief.	ients in the Wei	i t
	Ula	ils limet		9/27/11	/_
		Signature of Applicant	·	Date	2_
IX. A	CTION OF THE STATE ENGINEER:				
This \	Vell Plugging Plan of Operations is:				
	Approved subject to the attached condition Not approved for the reasons provided or				
	Witness my hand and official seal this	day ofDecem	nper . 2.	2/6	
		Tom Blaine P.E., New N	Mexico State Enginee	20	STAT
		By: James	- Jack	6 SEF	A FEE
		22.22	ENGIN	27	
		15/6		Plugging Plan	1600
rn. N	0599956	SEAL SEAL	Page	of 5	EX P
		303/4	3/8/2	0	5 T

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval I – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			13.0
Theoretical volume of grout required per interval (gallons)			2 gal.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive 1 percent by dry weight relative to cement			up to 5%
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



CdU-16-611921





	GENERAL / WELL OWNERSHIP:	OD Number (Well Number) for well to	ha plugged: CdV-16-611032 72 C- 0
		ational Laboratory, Contact: Mark Ever	
	ing address: P.O. Box 1663, N		
		State: NM	Zin code: 87545
		E-mail: _meverett(
			i i
Щ	WELL DRILLER INFORMATION	N:	
Well	Driller contracted to provide plugging	g services: <u>not contracted yet</u>	ellow Jacket Drilli
New	Mexico Well Driller License No.: <a>	WD-1458 Ex	piration Date: 10/18/3/
<u>IV. '</u>	WELL INFORMATION:		
Note	A copy of the existing Well Record	for the well to be plugged should be attack	hed to this plan.
1)	GPS Well Location: Latitud	de: 35.8494644 deg, mir	1,sec
	Longito	tude:-106.3352809 deg,min	,sec, NAD 83
2)	Reason(s) for plugging well: W	/ell is no longer needed	
/	reason(s) for pragging wentvv	reit is no jonger needed	
		2000	
3)		nonitoring program or environmental assess ail what hydrogeologic parameters were	
		uality water, authorization from the New l	
	required prior to plugging.		
4)	Does the well tap brackish, saling	e, or otherwise poor quality water? No	If yes, provide additional detail
	including analytical results and/or	r laboratory report(s);	
			N G
		7	2016
			SE TA
	. Drv		
5)	Static water level: Dry	(feet below land surface) feet above land	I surface (circle one)

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 2.0-7.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted? N/A
11)	Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed?yes If yes, please describe:cement 0-0.5 ft, bentonite 0.5-1.7 ft
12)	Has all pumping equipment and associated piping been removed from the well?If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DES	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a c	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremic letailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional il information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled.
	it will be cut off below ground surface and cemented in place.
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: T	he plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 1.5 gal.
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the siteX mixed on site

7)	Grout additives requested, and percent by dry weight relat	tive to cement: Bentonite up to	5%
8)	Additional notes and calculations:		
<u>УН.</u>	ADDITIONAL INFORMATION: List additional information with the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor the performance of a period was installed to monitor which was installed to monitor was installed to monitor was a period was installed to monitor was a period was a	70 mar () 10 mar () 20 mar ()	ove
	high explosives from surface/alluvial water.		9
I,	SIGNATURE: Mark Everett tions and any attachments, which are a part hereof; that I am eer pertaining to the plugging of wells and will comply with the plugging of the plugging of wells and will comply with the plugging of wells are a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; that I have been also as a part hereof; the part hereof as a part hereof as	familiar with the rules and regulations	of the State
	ing Plan of Operations and attachments are true to the best of		9/27/16
	Sign	nature of Applicant	Date
IX. A	CTION OF THE STATE ENGINEER:		
This V	Vell Plugging Plan of Operations is:		
	Approved subject to the attached conditions. Not approved for the reasons provided on the attached.	ached letter.	2 100
	Witness my hand and official seal thisday	of Decamper, 2	2016 51
	By:	Blaine P.E., New Mexico State Enginee	EP 27 AM IO: OF
Trn. N	0.5999.56	Service of the servic	sion: January 27, 2016 24 43-015

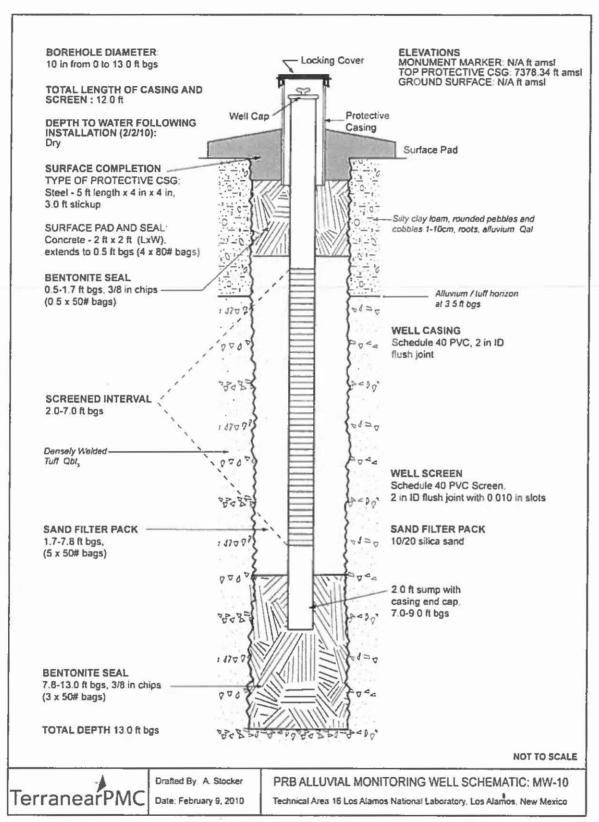
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow	
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.	
Top of proposed interval of grout placement (ft bgl)			0	
Bottom of proposed interval of grout placement (ft bgl)			9.0	
Theoretical volume of grout required per interval (gallons)			1.5 gal.	
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.	
Mixed on-site or batch- mixed and delivered?			on-site	
Grout additive I requested			Bentonite	
Additive 1 percent by dry weight relative to cement	077		up to 5%	
Grout additive 2 requested				
Additive 2 percent by dry weight relative to cement	:e .			

	1	
Trn. No		

TABLE B - For plugging intervals that will employ approved non-cement based scalant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 - most shallow		
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.		
Top of proposed interval of sealant placement (ft bgl)					
Bottom of proposed sealant of grout placement (ft bgl)					
Theoretical volume of sealant required per interval (gallons)					
Proposed abandonment sealant (manufacturer and trade name)					





WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

Delta-	ENERAL/WELL OWNERSHIP:
	ing Office of the State Engineer POD Number (Well Number) for well to be plugged:CdV-16-611931 36-1
	ng address: P.O. Box 1663, MS: M992
	Los Alamos State: NM Zip code: 87545
	e number:(505) 667-5931
Щ	WELL DRILLER INFORMATION:
Well	Driller contracted to provide plugging services: not contracted yet \ellow \Jacket Drill
New	Mexico Well Driller License No.: WO- 1458 Expiration Date: 10/31/18
	WELL INFORMATION:
Note:	A copy of the existing Well Record for the well to be plugged should be attached to this plan.
1)	GPS Well Location: Latitude: 35.84940 x2 deg,min,sec, NAD 83
	Longhade100.5552504 deg,nin,sec, NAD 65
2)	Reason(s) for plugging well: Well is no longer needed
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please u.
3)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used
	monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.
4)	200
4)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta
4)	200
4)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta
	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta including analytical results and/or laboratory report(s):
4)	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta including analytical results and/or laboratory report(s):

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 5.0-10.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted?N/A
11)	Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed? If yes, please describe: cement 0-1.0 ft, bentonite 1.0-3.0 ft
12)	Has all pumping equipment and associated piping been removed from the well? <u>yes</u> If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DE	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a	If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremic detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additiona al information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology
	proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	_will_be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled
	it will be cut off below ground surface and cemented in place.
2)	Will well head be cut-off below land surface after plugging?yes
VI. PL	UGGING AND SEALING MATERIALS:
Note: 7	The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.0 gal.
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the siteX mixed on site

7)	Grout additives requested, and percent by dry weight relative to cement:Bentonite up to 5%
8)	Additional notes and calculations:
	ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s): Well was installed to monitor the performance of a permeable reactive barrier used to remove
	high explosives from surface/alluvial water.
_	night explosives from surface/anuviar water.
I, Opera Engin	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of ations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State deer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well ing Plan of Operations and attachments are true to the best of my knowledge and belief. Mark Everett
	Signature of Applicant Date
IX. A	CTION OF THE STATE ENGINEER:
This V	Well Plugging Plan of Operations is:
	Approved subject to the attached conditions. Not approved for the reasons provided on the attached letter.
	Witness my hand and official seal this 12 day of December, 2016
10.000	By: By: By: By: By: By: By: By:
Trn. N	10 599956 Version: January & 2016 19 19 19 19 19 19 19 19 19 19 19 19 19

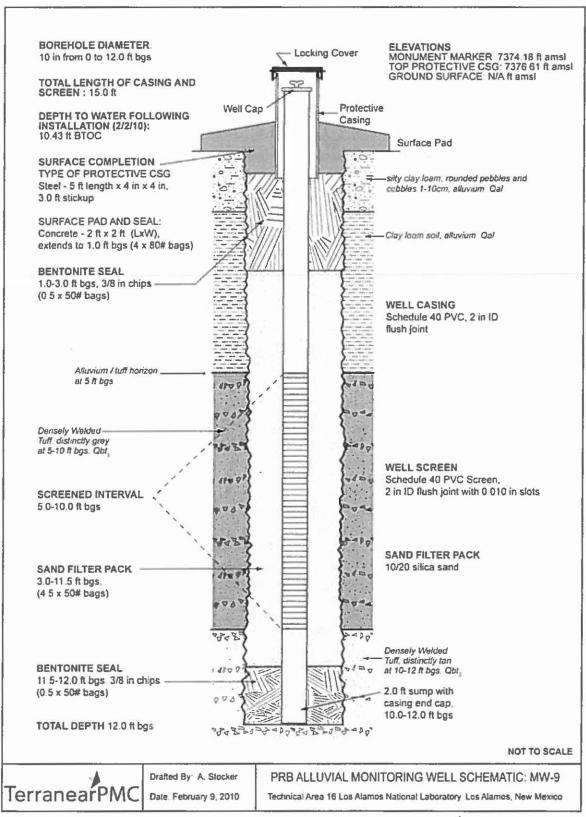
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 - most shallow	
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.	
Top of proposed interval of grout placement (ft bgl)			0	
Bottom of proposed interval of grout placement (ft bgl)			12.0	
Theoretical volume of grout required per interval (gallons)			2.0 gal.	
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.	
Mixed on-site or batch- mixed and delivered?			on-site	
Grout additive 1 requested			Bentonite	
Additive 1 percent by dry weight relative to cement			up to 5%	
Grout additive 2 requested				
Additive 2 percent by dry weight relative to cement				

Trn.	No			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



cdv-16-611931

EP2010-0069 G-9 March 2010



WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

1 Autilia	ing Office of the State Engineer POD Number (Well Number) for well to be plugged: CdV-16-611930 AG- e of well owner: Los Alamos National Laboratory, Contact: Mark Everett
Maili	ing address: P.O. Box 1663, MS: M992
City:	Los Alamos State: NM Zip code: 87545
Phone	e number:(505) 667-5931
Щ.	WELL DRILLER INFORMATION: Driller contracted to provide plugging services: not contracted yet e low Jacket Driller
New	Mexico Well Driller License No.: 1458 Expiration Date: 10/31/18
V. 1	WELL INFORMATION:
Note:	A copy of the existing Well Record for the well to be plugged should be attached to this plan.
1)	GPS Well Location: Latitude: 35.84933910 deg, min, sec
	Longitude:-106.3353245 deg,min,sec, NAD 83
•	
2)	Reason(s) for plugging well:Well is no longer needed.
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please us
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used
	monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.
0	Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional deta
1)	including analytical results and/or laboratory report(s):
	metading analytical results and/or laboratory report(s).
	D (/
5)	
i)	

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s):
10)	What annular interval surrounding the artesian casing of this well is cement-grouted? N/A
11)	Was the well built with surface casing?If yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed? If yes, please describe: cement 0-0.5 ft, bentonite 0.5-5.0 ft
12)	Has all pumping equipment and associated piping been removed from the well? If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DE	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional al information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled,
	it will be cut off below ground surface and cemented in place.
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: 1	The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.1 gal.
4)	Type of Cement proposed: cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the siteX mixed on site

	Grout additives requested, and percent by dry weight relative to cement: Bentonite up to 5%
8)	Additional notes and calculations:
УЦ	ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s): Well was installed to monitor the performance of a permeable reactive barrier used to remove
	high explosives from surface/alluvial water.
7	
VIII.	SIGNATURE:
l, Opera Engin	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well ing Plan of Operations and attachments are true to the best of my knowledge and belief. Wattach Wattach Charles Ch
l, Opera Engin	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well
I, Opera Engin Plugg	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well ing Plan of Operations and attachments are true to the best of my knowledge and belief. Mark Everett
I, Opera Engin Plugg	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Welling Plan of Operations and attachments are true to the best of my knowledge and belief. Signature of Applicant Date
I, Opera Engin Plugg	Mark Everett, say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Welling Plan of Operations and attachments are true to the best of my knowledge and belief. Signature of Applicant Date CTION OF THE STATE ENGINEER:
I, Opera Engin Plugg	Mark Everett
I, Opera Engin Plugg	Mark Everett

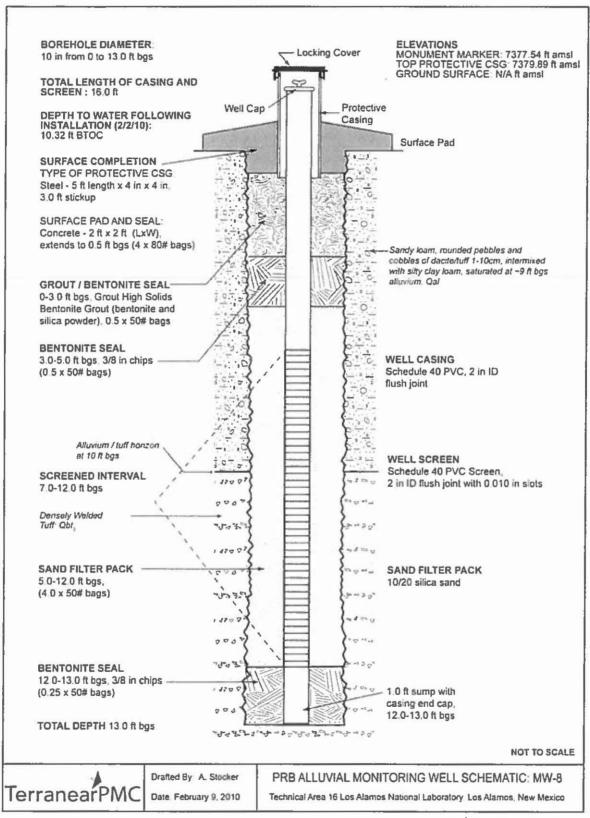
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

PART OF STREET	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			13.0
Theoretical volume of grout required per interval (gallons)			2.1 gal.
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive I percent by dry weight relative to cement		V 100 A 10 B 10 B	up to 5%
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

Trn.	No			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 - most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			





WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior

-	GENERAL/WELL OWNERSHIP:
	ing Office of the State Engineer POD Number (Well Number) for well to be plugged: CdV-16-611929 [6-1] e of well owner: Los Alamos National Laboratory, Contact: Mark Everett
	V 2001 244421 1 54444 1 5444 1
	ing address: P.O. Box 1663, MS: M992
- 3	Los Alamos State: NM Zip code: 87545
Phone	e number:(505) 667-5931
ш	WELL DRILLER INFORMATION: Driller contracted to provide plugging services: not contracted yet /ellow Jacket Drilli
New	Mexico Well Driller License No.: WD - 1458 Expiration Date: 10/31/18
	WELL INFORMATION:
Note:	A copy of the existing Well Record for the well to be plugged should be attached to this plan.
1)	GPS Well Location: Latitude: 35.8492936 deg,min,sec
	Longitude:- <u>106.3353336</u> deg,min,sec, NAD 83
2)	Reason(s) for plugging well:Well is no longer needed.
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please to
3)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used
3)	
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging.
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? NO If yes, provide additional details to the provide additional details.
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detaincluding analytical results and/or laboratory report(s):
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detaincluding analytical results and/or laboratory report(s):
	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detaincluding analytical results and/or laboratory report(s):
4)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detaincluding analytical results and/or laboratory report(s):
3) 4) 5)	section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detaincluding analytical results and/or laboratory report(s):

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 7.0-12.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted?N/A
11)	Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed? If yes, please describe: cement 0-0.5 ft, bentonite 0.5-5.3 ft
12)	Has all pumping equipment and associated piping been removed from the well? <u>yes</u> If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DES	CRIPTION OF PLANNED WELL PLUGGING:
pipe, a c	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie letailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional l information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled.
	it will be cut off below ground surface and cemented in place
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: T	he plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.1 gal.
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix:gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the site
	X_ mixed on site

7)	Grout additives requested, and percent by dry weight relative to cement:Bentonite up to 5%
8)	Additional notes and calculations:
VII.	ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s): Well was installed to monitor the performance of a permeable reactive barrier used to remove
_	high explosives from surface/alluvial water.
l, Opera Engin	Mark Everett , say that I have carefully read the foregoing Well Plugging Plan of tions and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State eer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well ing Plan of Operations and attachments are true to the best of my knowledge and belief. Mark Everett
	Signature of Applicant Date
IX. A	CTION OF THE STATE ENGINEER:
This \	Vell Plugging Plan of Operations is:
	Approved subject to the attached conditions. Not approved for the reasons provided on the attached letter.
	Witness my hand and official seal this 12 day of December, 20/6
	By: Panana New Mexico State Engineer By: SARA STATE S
Trn. N	o 599956

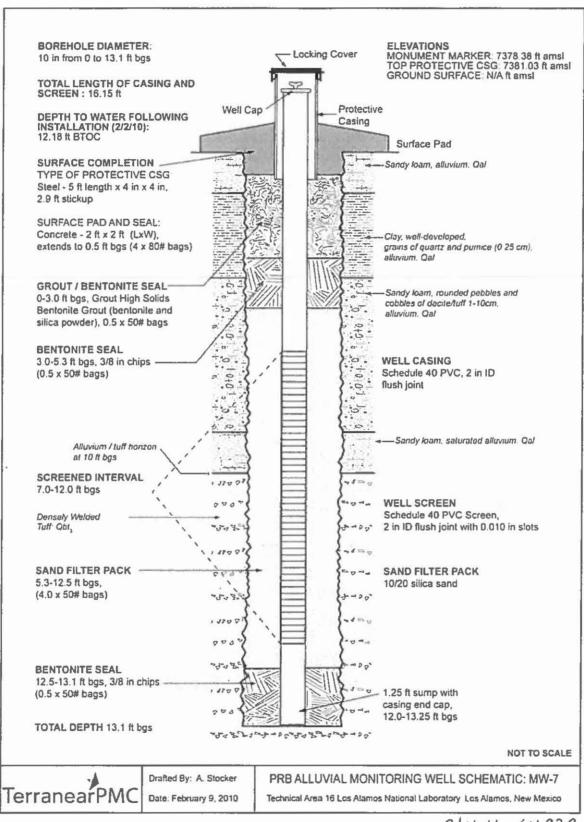
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			13.25
Theoretical volume of grout required per interval (gallons)			2.1 gal.
Proposed cement grout mix gallons of water per 94-lb, sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive 1 percent by dry weight relative to cement			up to 5%
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

Well Plugging Plan
Version: January 21, 2016
Page 4 of 5

TABLE B - For plugging intervals that will employ approved non-cement based scalant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



CdV-16-611929



WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

	ing address: P.O. Box 1663, MS: M992
100	Los Alamos State: NM Zip code: 8754
Phon	e number:(505) 667-5931
ш. '	WELL DRILLER INFORMATION:
Well	Driller contracted to provide plugging services: not contracted yet Tollow Jacket Drill
New	Mexico Well Driller License No.: WD-1458 Expiration Date: 10/31/18
IV. V	WELL INFORMATION:
Note:	A copy of the existing Well Record for the well to be plugged should be attached to this plan.
1)	GPS Well Location: Latitude: 35.8493022 deg,min,sec
	Longitude:-106.3352163 deg,min,sec, NAD 83
2)	Reason(s) for plugging well:
00.00	
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may
3)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging.
	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional descriptions.
	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging.
	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional descriptions.
	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department marequired prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional dincluding analytical results and/or laboratory report(s):
3)4)5)	Was well used for any type of monitoring program or environmental assessment? Yes If yes, please section VII of this form to detail what hydrogeologic parameters were monitored. If the well was use monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may required prior to plugging. Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional descriptions.

7)	Inside diameter of innermost casing:inches.
8)	Casing material: PVC
9)	The well was constructed with:
	an open-hole production interval, state the open interval:
	X a well screen or perforated pipe, state the screened interval(s): 6.0-11.0
10)	What annular interval surrounding the artesian casing of this well is cement-grouted? N/A
11)	Was the well built with surface casing?yesIf yes, is the annulus surrounding the surface casing grouted or
	otherwise sealed? If yes, please describe: cement 0-0.5 ft, bentonite 0.5-4.0 ft
12)	Has all pumping equipment and associated piping been removed from the well? <u>yes</u> If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.
V. DES	SCRIPTION OF PLANNED WELL PLUGGING:
pipe, a	f this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie letailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional I information, such as geophysical logs, that are necessary to adequately describe the proposal.
1)	Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Protective casing and surface pad will be removed. If possible, the PVC casing
	will be pulled by hand and the hole filled with cement to ground surface. If the PVC cannot be pulled
	it will be cut off below ground surface and cemented in place
2)	Will well head be cut-off below land surface after plugging?
VI. PL	UGGING AND SEALING MATERIALS:
Note: T	he plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant
1)	For plugging intervals that employ cement grout, complete and attach Table A.
2)	For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
3)	Theoretical volume of grout required to plug the well to land surface: 2.0 gal.
4)	Type of Cement proposed:cement with up to 5% bentonite
5)	Proposed cement grout mix: 8.5 gallons of water per 94 pound sack of Portland cement.
6)	Will the grout be:batch-mixed and delivered to the siteX mixed on site

7)	Grout additives requested, and percent by dry weight rela				
8)	Additional notes and calculations:		· · · · · · · · · · · · · · · · · · ·		
<u>VII.</u>	ADDITIONAL INFORMATION: List additional informat Well was installed to monitor the performance of a per-	10 10		move	
-	high explosives from surface/alluvial water.	**			
I, Opera Engin	SIGNATURE: Mark Everett, say that I had ations and any attachments, which are a part hereof; that I am neer pertaining to the plugging of wells and will comply with the plugging of the plugging of the best of the b	familiar with the rul hem, and that each	les and regulation and all of the stat	ns of the State	
I, Opera Engin	Mark Everett, say that I had attachments, which are a part hereof; that I am neer pertaining to the plugging of wells and will comply with the plugging of the plugging of the plugging Plan of Operations and attachments are true to the best of the best of the plugging Plan of Operations and attachments are true to the best of the plugging Plan of Operations and attachments are true to the best of the plugging Plan of Operations and attachments are true to the best of the plugging Plan of Operations and attachments are true to the best of the plugging of the plug	familiar with the rul hem, and that each	les and regulation and all of the stat	ns of the State	well 7/16
I, Opera Engin Pluggi	Mark Everett, say that I had attachments, which are a part hereof; that I am neer pertaining to the plugging of wells and will comply with the plugging of the plugging of the plugging Plan of Operations and attachments are true to the best of the best of the plugging Plan of Operations and attachments are true to the best of the plugging Plan of Operations and attachments are true to the best of the plugging Plan of Operations and attachments are true to the best of the plugging Plan of Operations and attachments are true to the best of the plugging of the plug	familiar with the rul hem, and that each my knowledge and	les and regulation and all of the stat	ns of the State tements in the $\frac{q/z}{z}$	well 7/16
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I, Opera Engin Pluggi	Mark Everett, say that I have a part hereof; that I am neer pertaining to the plugging of wells and will comply with the plugging of t	familiar with the rul hem, and that each my knowledge and when the second ature of Applicant	les and regulation and all of the stat	ns of the State tements in the $\frac{q/z}{z}$	well 7/16
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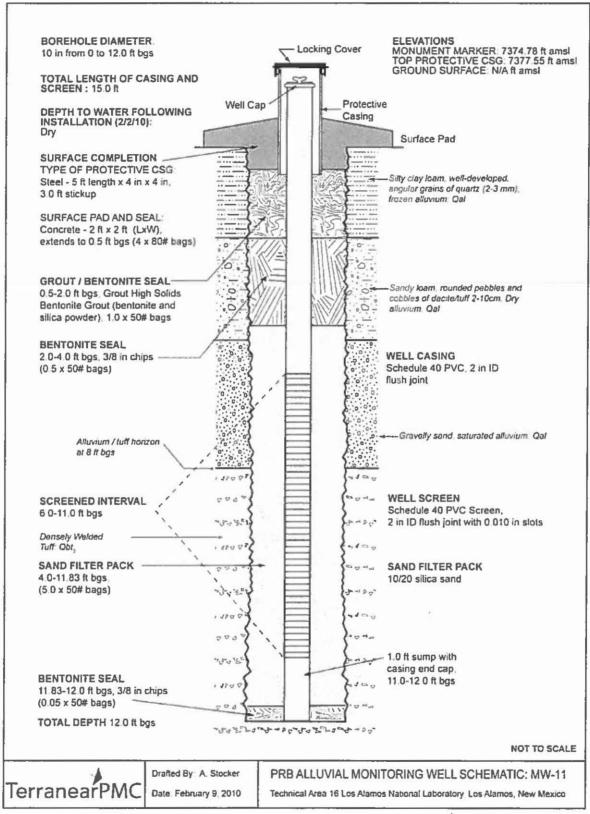
TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			12.0
Theoretical volume of grout required per interval (gallons)			2.0 gal.
Proposed cement grout mix gallons of water per 94-lb, sack of Portland cement			8.5 gal.
Mixed on-site or batch- mixed and delivered?			on-site
Grout additive 1 requested			Bentonite
Additive 1 percent by dry weight relative to cement			up to 5%
Grout additive 2 requested		·\$-	
Additive 2 percent by dry weight relative to cement			

Trn. No	
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TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			



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