LA-UR-23-22461

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Title:	Los Alamos National Laboratory (AI 856), No Permit Required Application for Installation of Welding Fume Extraction System for Welding Booths at TA-03-0038
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Los Alamos
NATIONAL LABORATORY

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Environmental Protection & Compliance Division
Compliance Programs Group

Symbol: EPC-DO: 23-092
LA-UR: 23-22461
Locates: N/A
Date: MAR 2 9 2023

Mr. James E. Nellessen, Ph.D.
Permitting Section
New Mexico Environment Department, Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505-1816

Subject: Los Alamos National Laboratory (AI 856), No Permit Required Application for Installation of Welding Fume Extraction System for Welding Booths at TA-03-0038

Dear Mr. Nellessen:

Los Alamos National Laboratory is requesting review of the attached No Permit Required (NPR) application. This No Permit Required (NPR) determination application is for the installation of a welding fume extraction system for 10 welding booths located in the welding shop at TA-03-0038 of the Los Alamos National Laboratory (LANL). Welding operations at the welding booths are performed primarily for training or for the certification and recertification of welders (LANL employees and subcontractors). There are currently seven welding booths, three have no ventilation and four are grouped together supported by the current ventilation system which exhausts into the shop air. A modification to the current operation involves removing three welding booths, installing six new welding booths resulting in a total of 10 booths, and a new welding fume extraction system. With the new fume extraction system, each welding booth will exhaust via ductwork to a main duct branch, which will be routed to a high velocity exhaust fan located on the roof above with an extra fan on standby. The fans will have a high velocity plume in lieu of a stack.

Maximum potential emission rates were calculated assuming that all 10 welding booths were operating simultaneously at the maximum estimated hourly electrode usage of 4 pounds per hour (pph) for 8,760 hours per year. Resulting maximum potential emissions are 0.588 pph PM-10, 2.57 tons per year (tpy) PM-10, and 0.198 tpy total HAPs (total includes lead). Because this welding operation's maximum potential emissions of PM-10 are greater than 0.5 tpy, the operation does not qualify as an exempt source under 20.2.72.202 NMAC. However, maximum potential emissions are less than 10 pph and 10 tpy for any regulated pollutant, and less than 1 tpy for lead, and therefore we are requesting concurrence that this operation qualifies for a "No Permit Required" determination.

Thank you for consideration of this application. We request this NPR be placed on the Air Quality Permit #2195 as an administrative revision (2195 R-94). Please contact Marjorie Stockton at (505) 665-3289 with any questions you may have.

Sincerely,

Steve Story
Group Leader

Attachment(s): Attachment 1 Los Alamos National Laboratory (AI 856), No Permit Required Application for Installation of Welding Fume Extraction System for Welding Booths at TA-03-0038

Copy: Karen E. Armijo, NA-LA, karen.armijo@nnsa.doe.gov
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ATTACHMENT 1
No Permit Required Application Forms

EPC-DO: 23-092

LA-UR: 23-22461

Date: MAR 2 9 2023

Mail Application To:		For Department use only:
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		AIRS No.:

Universal Air Quality Permit Application

Use this application for NOI, NSR, or Title V sources.

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well. See Section 1-I for submittal instructions for other permits.

This application is submitted as (check all that apply): ☒ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☐ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC ☐ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☐ Title V (new) ☐ Title V renewal ☐ TV minor mod. ☐ TV significant mod. TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ minor modification to a PSD source ☐ a PSD major modification

Acknowledgements:

☒ I acknowledge that a pre-application meeting is available to me upon request. ☒ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.

☐ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).

☐ Check No.: in the amount of $0

☒ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.

☐ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.

☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **No Permit Required Determination**

(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **856**	Updating Permit/NOI #: **NA**
1	Facility Name: **U.S. Department of Energy (DOE)/Los Alamos National Laboratory**	Plant primary SIC Code (4 digits): **8733**	
		Plant NAIC code (6 digits): **928110**	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): **The Laboratory is bounded by the towns of Los Alamos and White Rock, the San Ildefonso Pueblo, the Bandelier National Monument and the Santa Fe National Forest.**		
2	Plant Operator Company Name: **Triad National Security LLC**	Phone/Fax: **505.667.5101**	

a	Plant Operator Address: **P.O. Box 1663, Los Alamos, NM 87545**	
b	Plant Operator's New Mexico Corporate ID or Tax ID: **2680007**	
3	Plant Owner(s) name(s): **U.S. Department of Energy (DOE), National Nuclear Security Administration**	Phone/Fax: **505.665.7314**
a	Plant Owner(s) Mailing Address(s): **3747 West Jemez Road, Los Alamos, NM 87544**	
4	Bill To (Company): **Triad National Security, LLC, 3747 West Jemez Road, Los Alamos, NM 87544**	Phone/Fax: **505.665.2169**
a	Mailing Address: **P.O Box 1663, MS J978, Los Alamos, NM 87545**	E-mail: **story@lanl.gov**
5	☒ Preparer: **Katelyn Mahoney** ☐ Consultant:	Phone/Fax: **505.396.0619**
a	Mailing Address: **P.O Box 1663, MS J978, Los Alamos, NM 87545**	E-mail: **kmahoney@lanl.gov**
6	Plant Operator Contact: **Steven Story**	Phone/Fax: **505.665.2169**
a	Address: **P.O Box 1663, MS J978, Los Alamos, NM 87545**	E-mail: **story@lanl.gov**
7	Air Permit Contact: **Marjorie Stockton**	Title: **MAQ Team Leader**
a	E-mail: **mstockton@lanl.gov**	Phone/Fax: **505.665.3289**
b	Mailing Address: **P.O Box 1663, MS J978, Los Alamos, NM 87545**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☒ Yes ☐ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ No	If yes, give month and year of shut down (MM/YY): **N/A**
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☒ Yes ☐ No	
5	If Yes to question 4, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☒ Yes ☐ No ☐ N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: **P100-R2M4**
7	Has this facility been issued a No Permit Required (NPR)? ☒ Yes ☐ No	If yes, the NPR No. is: **2195A, 2195Q, 2195S, 2195T, 2195U, 2195V, 2195L, 2195X, 2195-R75, 2195-R77, 2195-R81, 2195-R90**
8	Has this facility been issued a Notice of Intent (NOI)? ☒ Yes ☐ No	If yes, the NOI No. is: **2597**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: **632, 634-M2, 1081-M1-R6, 2195, 2195B-M3R2, 2195F-R4, 2195H, 2195N-R2, 2195P**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☒ Yes ☐ No	If yes, the register No. is: **GCP-3-2195G-R1**

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required). **As this application is for welding operations, there isn't a typical input capacity, but a maximum rate at which someone could weld or the maximum estimated hourly electrode usage.**			
a	Current	Hourly: N/A	Daily: N/A	Annually: N/A

b	Proposed	Hourly: 4 lb/hr	Daily: 96 lb/day	Annually: 35,040 lb/yr
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required) **As this application is for welding operations, there isn't a typical production rate, but a maximum rate at which someone could weld or the maximum estimated hourly electrode usage.**			
a	Current	Hourly: N/A	Daily: N/A	Annually: N/A
b	Proposed	Hourly: 4 lb/hr	Daily: 96 lb/day	Annually: 35,040 lb/yr

Section 1-D: Facility Location Information

1	Section: **17**	Range: **6E**	Township: **19N**	County: **Los Alamos**	Elevation (ft): **7392**
2	UTM Zone: ☐ 12 or ☒ 13			Datum: ☐ NAD 27 ☒ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): **380189**			UTM N (in meters, to nearest 10 meters): **3970947**	
b	**AND** Latitude (deg., min., sec.): **35°52'31**			Longitude (deg., min., sec.): **-106°19'37"**	
3	Name and zip code of nearest New Mexico town: **Los Alamos 87545**				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **Enter Los Alamos National Laboratory from East Jemez Road. Continue on East Jemez Road, turn left on Bikini Atoll, take first left into parking lot, TA03-0038 is to the east of the parking lot.**				
5	The facility is **0.42** (distance) miles **south-southwest** (direction) of **nearest border of Los Alamos** (nearest town).				
6	Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☒ Other (specify) **Federal – U.S. Department of Energy**				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **Los Alamos County, Sandoval County, Santa Fe County, Rio Arriba County, City of Espanola, San Ildefonso Pueblo, Santa Clara Pueblo, Pojoaque Pueblo, Cochiti Pueblo**				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☒ Yes ☐No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **Bandelier Wilderness Area (the wilderness portion of Bandelier National Monument) 0.0 km from the LANL boundary, 5.3 km from TA-03-0038**				
9	Name nearest Class I area: **Bandelier Wilderness Area (the wilderness portion of Bandelier National Monument)**				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): **0.0 km from the LANL boundary, 5.3 km from TA-03-0038**				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **N/A**				
12	Method(s) used to delineate the Restricted Area: **N/A** "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☒ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☐ No ☒ Yes If yes, what is the name and permit number (if known) of the other facility? **P100-R2M4**				

Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): **24**	($\frac{\text{days}}{\text{week}}$): **7**	($\frac{\text{weeks}}{\text{year}}$): **52**	($\frac{\text{hours}}{\text{year}}$): **8760**

2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: **N/A**	☐AM ☐PM	End: **N/A**	☐AM ☐PM
3	Month and year of anticipated start of construction: **N/A**			
4	Month and year of anticipated construction completion: **N/A**			
5	Month and year of anticipated startup of new or modified facility: **Estimated Fall 2024**			
6	Will this facility operate at this site for more than one year? ☒ Yes ☐ No			

Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] Date of Construction/ Reconstruction[2]	Controlled by Unit # Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
W-1	Welder	Miller	XMT 350 Field Pro	NA294080U	N/A	N/A	N/A ~ 2010-2015	N/A N/A	30900501	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-2	Welder	Miller	XMT 350 Field Pro	NA294082U	N/A	N/A	N/A ~ 2010-2015	N/A N/A	30900501	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-3	Welder	Miller	XMT 350 Field Pro	NA294081U	N/A	N/A	N/A ~ 2010-2015	N/A N/A	30900501	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-4	Welder	Miller	XMT 350 Field Pro	NA294079U	N/A	N/A	N/A ~ 2010-2015	N/A N/A	30900501	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-5	Welder	TBD	TBD	TBD	N/A	N/A	N/A TBD	N/A N/A	30900501	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-6	Welder	TBD	TBD	TBD	N/A	N/A	N/A TBD	N/A N/A	30900501	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-7	Welder	TBD	TBD	TBD	N/A	N/A	N/A TBD	N/A N/A	30900501	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-8	Welder	TBD	TBD	TBD	N/A	N/A	N/A TBD	N/A N/A	30900501	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-9	Welder	TBD	TBD	TBD	N/A	N/A	N/A TBD	N/A N/A	30900501	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
W-10	Welder	TBD	TBD	TBD	N/A	N/A	N/A TBD	N/A N/A	30900501	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		
										☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced		

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Insignificant Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

Unit Number	Source Description	Manufacturer	Model No. Serial No.	Max Capacity Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
B-xxx	LTS Series Infrared Tube Heater	Space-Ray Infrared Gas Heaters	LTS 250 TBD	0.25 MMBtu/hr	20.2.72.202.B(1)(a) IA List Item #3	TBD TBD	☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
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							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

[2] Specify date(s) required to determine regulatory applicability.

Table 2-D: Maximum Emissions (under normal operating conditions)

☐ This Table was intentionally left blank because it would be identical to Table 2-E.

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
2	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
3	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
4	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
5	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
6	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
7	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
8	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
9	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
10	-	-	-	-	-	-	-	-	-	-	0.06	0.26	-	-	-	-	0.00013	0.00058
Totals	-	-	-	-	-	-	-	-	-	-	0.588	2.57	-	-	-	-	0.00134	0.00585

[1]**Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Welding Shop PTE Emission Calculations for Installation of Fume Hood at TA-03-0038

PM-10 Potential to Emit							
Welding Type	Electrode Type	Estimated Max Hourly Usage (lb/hr)[1]	Ratio of each Electrode used in a Day[2]	AP-42 Emission Factor PM-10 (lb PM/10^3 lb electrode)	Surrogate AP-42 Emission Factor PM-10 (lb PM/10^3 lb electrode)	PM-10 Emissions (lb/hr)	PM-10 Emissions (tpy)
SMAW	E7018	4	21%	18.4		1.57E-02	6.89E-02
	E6010	4	9%	25.6		8.75E-03	3.83E-02
	E9018	4	4%	16.9		2.89E-03	1.27E-02
	E8018	4	4%	17.1		2.92E-03	1.28E-02
	E10018	4	4%		20.2	3.45E-03	1.51E-02
	E309	4	4%		20.2	3.45E-03	1.51E-02
	E308L	4	2%		20.2	1.72E-03	7.55E-03
	E316	4	4%	10		1.71E-03	7.49E-03
GTAW[7]	ER308L	4	6%		9.2	2.36E-03	1.03E-02
	ER309L	4	2%		9.2	7.85E-04	3.44E-03
	ER316L	4	6%		9.2	2.36E-03	1.03E-02
	ER4043	4	1%		9.2	3.14E-04	1.38E-03
	ER 70S-2	4	6%		9.2	2.36E-03	1.03E-02
	ERNiCr-3	4	3%		9.2	1.10E-03	4.81E-03
GMAW	ER70S-6	4	9%		9.2	3.14E-03	1.38E-02
	ER4043/ER5356	4	2%		9.2	7.85E-04	3.44E-03
	ER100S-1	4	2%		9.2	7.85E-04	3.44E-03
FCAW	E71T	4	9%	12.2		4.17E-03	1.83E-02
				Total for individual welding machine	**Total PM-10 (lb/hr) : Total PM-10 (tpy):**	0.0588	0.257
				Total for 10 welding machines	**Total PM-10 (lb/hr) : Total PM-10 (tpy):**	0.588	2.57

Equations:

Estimated maximum hourly usage * Ratio of each electrode used in a day * EF / 1000 = PM-10 (lb/hr)

Estimated maximum hourly usage * Ratio of each electrode used in a day * EF * 8760 / 1000 / 2000 = PM-10 (tpy)

For PTE Calculations Ratio of Total Electrodes Used per Year and per Day					
Welding Type	Electrode Type	Estimated Mass Used per Year (lb)[5]	Ratio of Electrodes using Estimated Mass per Year	Estimated Max Daily Usage[6]	Ratio of Electrodes using Estimated Mass per Day
Shielded Metal Arc Welding (SMAW)	E7018 – Estimated 900 lbs. per year – 50 lb. a day	900	22%	50	21%
	E6010 – Estimated 400 lb. per year – 20 lb. a day	400	10%	20	9%
	E9018 –Estimated 50 lb. per year – 10 lb. day	50	1%	10	4%
	E8018 –Estimated 100 lb. per year—10 lb. a day	100	2%	10	4%
	E10018—Estimated 100 lb. per year—10 lb. a day	100	2%	10	4%
	E309—Estimated 100 lb. per year—10 lb. a day	100	2%	10	4%
	E308L—Estimated 70 lb. per year – 5 lb. day	70	2%	5	2%
	E316—Estimated 50 lb. per year—10 lb. a day	50	1%	10	4%
Gas Tungsten Arc Welding[7] (GTAW)	ER308L—Estimated 300 lb. per year – 15 lb. per day	300	7%	15	6%
	ER309L—Estimated 200 lb. per year – 5 lb. day	200	5%	5	2%
	ER316L—Estimated 300 lb. per year – 15 lb. per day	300	7%	15	6%
	ER4043—Estimated 100 lb. per year – 2 lb. per day	100	2%	2	1%
	ER 70S-2—Estimated 400 lb. per year—15 lb. per day	400	10%	15	6%
	ERNiCr-3—Estimated 50 lb. per year – 7 lb. per day	50	1%	7	3%
Gas Metal Arc Welding (GMAW)	ER70S-6-- Estimated 500 lb. per year – 20 lb. a day	500	12%	20	9%
	ER4043/ER5356 – Estimated 100 lb. per year -- 5 lb. per day	100	2%	5	2%
	ER100S-1 – Estimated 80 lb. per year – 5 lb. per day	80	2%	5	2%
Flux Cored Arc Welding (FCAW)	E71T-Estimated 300 lb. per year – 20lb. a day	300	7%	20	9%

PM-10 Average Emission Factors from AP-42 Table 12.19-1 for Surrogate			
SMAW average	GMAW Average	FCAW Average	SAW (only one EF)
81.6	5.4	20.8	0.05
16.4	5.2	57	
10.8	20.5	9.1	
15.1	24.1	8.5	
10	3.2	15.1	
13.2	3.9	12.2	
25.6	2		
38.4			
8			
19.7			
18.4			
9.2			
18			
17.1			
17			
16.9			
27.9			
18.2			
11.7			
10.1			
20.2	9.2	20.5	

Supporting Data

SME and Data Provided by:
Carl Montoya - 505-257-8054, cmontoya@lanl.gov
IBC-Welding-Mechanical-Inspector
Weld Test Supervisor

[1] Carl Montoya says that the average pound per hour in the shop would be 1.7 -2 lb/hr (the middle range here would be 1.85) and the maximum would be 4 lb/hr, but that isn't typical.

[2] Used the ratio of electrodes used in a day as this resulted in higher emissions than the ratio derived from total mass of electrodes used per year.

[3] 2080 hours per year is average number of working hours in a year.

[4] AP-42 emission factors (EF) were obtained from Chapter 12.19 Electric Arc Welding, Table 12.19-2. If AP-42 does not provide an EF for a specific electrode, a surrogate EF was used - the average of the EFs for that type of welding.

[5] Estimated Mass Used per Year values include the increase in usage that would occur from adding the additional welding booths.

[6] Pound per day values represent an estimated daily use of when they are used, they are not all used everyday.

[7] Emission factors for GTAW do not exist. Page 4-19 of Development of Particulate and Hazardous
Emission Factors for Electric Arc Welding (AP-42, Section 12.19) says that emission factors were not developed for welding processes that didn't have sufficient test data or did not generate sufficient emissions of concern. Page 2-5 says "Another positive attribute of GTAW is the very low fume formation rate (FFR). The filler wire is fed and melted into the weld pool allowing a lower FFR. This procedure is different from other processes that require the fill material to pass through the arc. Since filler is fed directly to the weld pool, operating variables have little effect on the FFR."

To be conservative the lowest of the average surrogate emission factors was used.

HAPs
Potential to Emit

Welding Type	Electrode Type	Estimated Max Hourly Usage (lb/hr)[1]	Ratio of each Electrode used in a Day[2]	Chromium Emissions (lb/hr)	Chromium Emissions (tpy)	Hexavalent chromium Emissions (lb/hr)	Hexavalent chromium Emissions (tpy)	Cobalt Emissions (lb/hr)	Cobalt Emissions (tpy)	Manganese Emissions (lb/hr)	Manganese Emissions (tpy)	Nickel Emissions (lb/hr)	Nickel Emissions (tpy)	Lead Emissions (lb/hr)	Lead Emissions (tpy)
SMAW	E7018	4	21%	5.13E-06	2.25E-05	-	-	8.55E-07	3.74E-06	8.80E-04	3.86E-03	1.71E-06	7.49E-06	-	-
	E6010	4	9%	1.03E-06	4.49E-06	3.42E-07	1.50E-06	-	-	3.39E-04	1.48E-03	1.37E-06	5.99E-06	-	-
	E9018	4	4%	3.62E-05	1.59E-04	-	-	-	-	1.34E-04	5.86E-04	2.22E-06	9.73E-06	-	-
	E8018	4	4%	2.91E-06	1.27E-05	-	-	-	-	5.13E-06	2.25E-05	8.72E-06	3.82E-05	-	-
	E10018	4	4%	7.25E-05	3.18E-04	1.10E-04	4.81E-04	1.71E-07	7.49E-07	3.50E-04	1.53E-03	4.46E-05	1.95E-04	1.59E-05	6.96E-05
	E309	4	4%	7.25E-05	3.18E-04	1.10E-04	4.81E-04	1.71E-07	7.49E-07	3.50E-04	1.53E-03	4.46E-05	1.95E-04	1.59E-05	6.96E-05
	E308L	4	2%	3.63E-05	1.59E-04	5.50E-05	2.41E-04	8.55E-08	3.74E-07	1.75E-04	7.66E-04	2.23E-05	9.77E-05	7.95E-06	3.48E-05
	E316	4	4%	8.92E-05	3.91E-04	5.68E-05	2.49E-04	-	-	9.30E-05	4.07E-04	9.40E-06	4.12E-05	-	-
GTAW[7]	ER308L	4	6%	6.07E-05	2.66E-04	3.59E-05	1.57E-04	2.56E-07	1.12E-06	4.42E-05	1.94E-04	1.62E-05	7.10E-05	2.38E-05	1.04E-04
	ER309L	4	2%	2.02E-05	8.86E-05	1.20E-05	5.24E-05	8.55E-08	3.74E-07	1.47E-05	6.46E-05	5.40E-06	2.37E-05	7.95E-06	3.48E-05
	ER316L	4	6%	6.07E-05	2.66E-04	3.59E-05	1.57E-04	2.56E-07	1.12E-06	4.42E-05	1.94E-04	1.62E-05	7.10E-05	2.38E-05	1.04E-04
	ER4043	4	1%	8.09E-06	3.54E-05	4.79E-06	2.10E-05	3.42E-08	1.50E-07	5.90E-06	2.58E-05	2.16E-06	9.46E-06	3.18E-06	1.39E-05
	ER 70S-2	4	6%	6.07E-05	2.66E-04	3.59E-05	1.57E-04	2.56E-07	1.12E-06	4.42E-05	1.94E-04	1.62E-05	7.10E-05	2.38E-05	1.04E-04
	ERNiCr-3	4	3%	2.83E-05	1.24E-04	1.68E-05	7.34E-05	1.20E-07	5.24E-07	2.06E-05	9.04E-05	7.56E-06	3.31E-05	1.11E-05	4.87E-05
GMAW	ER70S-6	4	9%	8.09E-05	3.54E-04	3.42E-06	1.50E-05	3.42E-07	1.50E-06	5.90E-05	2.58E-04	1.44E-04	6.33E-04	-	-
	ER4043/ER5356	4	2%	2.02E-05	8.86E-05	8.55E-07	3.74E-06	8.55E-08	3.74E-07	1.47E-05	6.46E-05	3.61E-05	1.58E-04	-	-
	ER100S-1	4	2%	2.02E-05	8.86E-05	8.55E-07	3.74E-06	8.55E-08	3.74E-07	1.47E-05	6.46E-05	3.61E-05	1.58E-04	-	-
FCAW	E71T	4	9%	6.84E-07	2.99E-06	-	-	3.42E-07	1.50E-06	2.26E-04	9.91E-04	1.37E-06	5.99E-06	-	-
Total for individual welding machine			**Individual HAPs (lb/hr) :**	6.77E-04		4.78E-04		3.15E-06		2.81E-03		4.17E-04		1.34E-04	
			Individual HAPs (tpy):		2.96E-03		2.09E-03		1.38E-05		1.23E-02		1.83E-03		5.85E-04
			All HAPs (lb/hr) :	4.52E-03											
			All HAPs (tpy):	1.98E-02											
Total for 10 welding machines			**Individual HAPs (lb/hr) :**	6.77E-03		4.78E-03		3.15E-05		2.81E-02		4.17E-03		1.34E-03	
			Individual HAPs (tpy):		2.96E-02		2.09E-02		1.38E-04		1.23E-01		1.83E-02		5.85E-03
			All HAPs (lb/hr) :	4.52E-02											
			All HAPs (tpy):	1.98E-01											

Equations:

Estimated maximum hourly usage * Ratio of each electrode used in a day * EF / 10000 = HAP (lb/hr)

Estimated maximum hourly usage * Ratio of each electrode used in a day * EF * 8760 / 10000 / 2000 = HAP (tpy)

HAPs Emission Factors
(10^{-1} lb /10^{3} lb Of Electrode Consumed)

Welding Type	Electrode Type	Cr	Cr(VI)	Co	Mn	Ni	Pb	Comments
SMAW	E7018	0.06	ND	0.01	10.3	0.02	ND	ND=No Data
	E6010	0.03	0.01	ND	9.91	0.04	ND	
	E9018	2.12	ND	ND	7.83	0.13	ND	
	E8018	0.17	ND	ND	0.3	0.51	ND	
	E10018	4.24	6.43	0.01	20.47	2.61	0.93	Surrogate AP-42 EF
	E309	4.24	6.43	0.01	20.47	2.61	0.93	Surrogate AP-42 EF
	E308L	4.24	6.43	0.01	20.47	2.61	0.93	Surrogate AP-42 EF
	E316	5.22	3.32	ND	5.44	0.55	ND	
GTAW[7]	ER308L	2.37	1.4	0.01	1.73	0.632	0.93	Surrogate AP-42 EF
	ER309L	2.37	1.4	0.01	1.73	0.632	0.93	Surrogate AP-42 EF
	ER316L	2.37	1.4	0.01	1.73	0.632	0.93	Surrogate AP-42 EF
	ER4043	2.37	1.4	0.01	1.73	0.632	0.93	Surrogate AP-42 EF
	ER 70S-2	2.37	1.4	0.01	1.73	0.632	0.93	Surrogate AP-42 EF
	ERNiCr-3	2.37	1.4	0.01	1.73	0.632	0.93	Surrogate AP-42 EF
GMAW	ER70S-6	2.37	0.10	0.01	1.73	4.22	ND	Surrogate AP-42 EF
	ER4043/ER5356	2.37	0.10	0.01	1.73	4.22	ND	Surrogate AP-42 EF
	ER100S-1	2.37	0.10	0.01	1.73	4.22	ND	Surrogate AP-42 EF
FCAW	E71T	0.02	ND	0.01	6.62	0.04	ND	

TAPS Comparison

NMAC Taps from NMAC 20.2.72.502, Table A	PTE Total for 10 Welding Machines (lb/hr)	pph Limit
Chromium metal	0.00677	0.0333
Cobalt as CO, metal, dust & fume	0.00003	0.00667
Manganese as Mn, fume	0.02815	0.0667
Nickel Metal	0.00417	0.0667

HAPs Average Emission Factors from AP-42 Table 12.19-2 for Surrogate

Welding Type	Cr	Cr(VI)	Co	Mn	Ni	Pb
SMAW	13.9	ND	ND	232	17.1	ND
	ND	ND	ND	13.8	ND	ND
	3.93	3.59	0.01	2.52	0.43	ND
	25.3	18.8	ND	22	1.96	0.24
	5.22	3.32	ND	5.44	0.55	ND
	ND	ND	ND	6.85	0.14	ND
	0.03	0.01	ND	9.91	0.04	ND
	0.05	ND	0.01	9.98	0.05	ND
	ND	ND	ND	ND	ND	ND
	0.04	ND	< 0.01	9.45	0.02	ND
	0.06	ND	< 0.01	10.3	0.02	ND
	0.01	ND	ND	6.29	ND	ND
	0.13	ND	ND	8.4612	ND	1.62
	0.17	ND	ND	0.3	0.51	ND
	ND	ND	ND	ND	ND	ND
	2.12	ND	ND	7.83	0.13	ND
	ND	ND	ND	ND	ND	ND
	ND	ND	ND	0.39	8.9	ND
	4.2	ND	ND	0.43	2.47	ND
	ND	ND	ND	2.12	4.23	ND
SMAW Average	4.24	6.43	0.01	20.47	2.61	0.93
GMAW	5.24	ND	< 0.01	3.46	1.84	ND
	0.01	ND	< 0.01	3.18	0.01	ND
	0.04	ND	ND	ND	ND	ND
	0.1	ND	ND	0.34	ND	ND
	5.28	0.1	ND	2.45	2.26	ND
	3.53	ND	ND	0.7	12.5	ND
	< 0.01	ND	ND	0.22	4.51	ND
GMAW Average	2.37	0.10	0.01	1.73	4.22	ND
FCAW	0.02	ND	ND	20.2	1.12	ND
	9.69	ND	ND	7.04	1.02	ND
	ND	ND	ND	ND	ND	ND
	9.7	1.4	ND	5.9	0.93	ND
	0.04	ND	ND	8.91	0.05	ND
	0.02	ND	0.01	6.62	0.04	ND
FCAW Average	3.894	1.4	0.01	9.734	0.632	ND
SAW (only one EF)	ND	ND	ND	ND	ND	ND

ND= No Data

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions: Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

This No Permit Required (NPR) determination application is for the installation of a welding fume extraction system for 10 welding booths located in the welding shop at TA-03-0038 of the Los Alamos National Laboratory (LANL). Welding operations at the welding booths are performed primarily for training or for the certification and recertification of welders (LANL employees and subcontractors). There are currently seven welding booths, three have no ventilation and four are grouped together supported by the current ventilation system which exhausts into the shop air. A modification to the current operation involves removing three welding booths, installing six new welding booths resulting in a total of 10 booths, and a new welding fume extraction system. With the new fume extraction system, each welding booth will exhaust via ductwork to a main duct branch, which will be routed to a high velocity exhaust fan located on the roof above with an extra fan on standby. The fans will have a high velocity plume in lieu of a stack.

Maximum potential emission rates were calculated using emission factors from AP-42 Chapter 12.19 Electric Arc Welding and calculated surrogate emission factors for electrodes that do not have emission factors. It was assumed that all 10 welding booths were operating simultaneously at the maximum pound per hour rate of 4 lb/hr for 8,760 hours/year. Resulting maximum potential emissions are 0.588 lb/hr PM-10, 2.57 tons/yr PM-10, and 0.198 tons/year total HAPs (total includes lead).

LANL operates under Title V Operating Permit P100-R2M4, and numerous 2.72 Construction Permits. Because this welding operation's maximum potential emissions of PM-10 are greater than 0.5 tons/year, the operation does not qualify as an exempt source under 20.2.72.202 NMAC. However, maximum potential emissions are less than 10 lbs/hr, 10 tons/year for any regulated pollutant, and less than 1 ton/year for lead, and therefore we are requesting concurrence that this operation qualifies for a "No Permit Required" determination.

There are no startup, shutdown, or maintenance emissions associated with this operation.

Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.

B. At least 5 significant figures shall be retained in all intermediate calculations.

C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

(1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;

(2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**

(3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.

(4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device

regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

Emission calculations for the welding booths are included in the "Calculations" worksheet in the UA-2 spreadsheet.

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☐ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- ☐ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- ☐ If an older version of AP-42 is used, include a complete copy of the section.
- ☐ If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- ☐ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

AP-42 Chapter 12.19 Electric Arc Welding, 1/95, Metallurgical Industry
Please see Section 7, Page 2-5

Table 12.19-1 (Metric And English Units). PM-10 EMISSION FACTORS FOR WELDING OPERATIONS[a]

Welding Process	Electrode Type (With Last 2 Digits Of SCC)		Total Fume Emission Factor (g/kg [lb/10^3 lb] Of Electrode Consumed)[b]	EMISSION FACTOR RATING
SMAW[c] (SCC 3-09-051)	14Mn-4Cr	(-04)	81.6	C
	E11018	(-08)[h]	16.4	C
	E308	(-12)[j]	10.8	C
	E310	(-16)[k]	15.1	C
	E316	(-20)[m]	10.0	C
	E410	(-24)[n]	13.2	D
	E6010	(-28)	25.6	B
	E6011	(-32)	38.4	C
	E6012	(-36)	8.0	D
	E6013	(-40)	19.7	B
	E7018	(-44)	18.4	C
	E7024	(-48)	9.2	C
	E7028	(-52)	18.0	C
	E8018	(-56)[p]	17.1	C
	E9015	(-60)[q]	17.0	C
	E9018	(-64)[r]	16.9	D
	ECoCr	(-68)[s]	27.9	C
	ENi-Cl	(-72)	18.2	C
	ENiCrMo	(-76)[t]	11.7	C
	ENi-Cu	(-80)[u]	10.1	C
GMAW[d,e] (SCC 3-09-052)	E308L	(-12)[v]	5.4	C
	E70S	(-54)[w]	5.2	A
	ER1260	(-10)	20.5	D
	ER5154	(-26)	24.1	D
	ER316	(-20)[x]	3.2	C
	ERNiCrMo	(-76)[y]	3.9	C
	ERNiCu	(-80)[z]	2.0	C

Table 12.19-1 (cont.).

Welding Process	Electrode Type (With Last 2 Digits Of SCC)		Total Fume Emission Factor (g/kg [lb/10^3 lb] Of Electrode Consumed)[b]	EMISSION FACTOR RATING
FCAW[f,g] (SCC 3-09-053)	E110	(-06)[aa]	20.8	D
	E11018	(-08)	57.0	D
	E308LT	(-12)[bb]	9.1	C
	E316LT	(-20)[cc]	8.5	B
	E70T	(-54)[dd]	15.1	B
	E71T	(-55)[ee]	12.2	B
SAW[g] (SCC 3-09-054)	EM12K	(-10)[ff]	0.05	C

[a] References 7-18. SMAW = shielded metal arc welding; GMAW = gas metal arc welding; FCAW = flux cored arc welding; SAW = submerged arc welding. SCC = Source Classification Code.

[b] Mass of pollutant emitted per unit mass of electrode consumed. All welding fume is considered to be PM-10 (particles ≤ 10 μm in aerodynamic diameter).

[c] Current = 102 to 229 A; voltage = 21 to 34 V.

[d] Current = 160 to 275 A; voltage = 20 to 32 V.

[e] Current = 275 to 460 A; voltage = 19 to 32 V.

[f] Current = 450 to 550 A; voltage = 31 to 32 V.

[g] Type of shielding gas employed will influence emission factor.

[h] Includes E11018-M

[j] Includes E308-16 and E308L-15

[k] Includes E310-16

[m] Includes E316-15, E316-16, and E316L-16

[n] Includes E410-16

[p] Includes E8018C3

[q] Includes E9015B3

[r] Includes E9018B3 and E9018G

[s] Includes ECoCr-A

[t] Includes ENiCrMo-4

[u] Includes ENi-Cu-2

[v] Includes E308LSi

[w] Includes E70S-3, E70S-5, and E70S-6

[x] Includes ER316I-Si and ER316L-Si

[y] Includes ENiCrMo-3 and ENi-CrMo-4

[z] Includes ERNiCu-7

[aa] Includes E110TS-K3

[bb] Includes E308LT-3

[cc] Includes E316LT-3

[dd] Includes E70T-1, E70T-2, E70T-4, E70T-5, E70T-7, and E70T-G

[ee] Includes E71T-1 and E71T-11

[ff] Includes EM12K1 and F72-EM12K2

Table 12.19-2. HAZARDOUS AIR POLLUTANT (HAP) EMISSION FACTORS FOR WELDING OPERATIONS[a]

Welding Process	Electrode Type (With Last 2 Digits Of SCC)		HAP Emission Factor (10^{-1} g/kg [10^{-1} lb/10^{3} lb] Of Electrode Consumed)[b]						EMISSION FACTOR RATING
			Cr	Cr(VI)	Co	Mn	Ni	Pb	
SMAW[c] (SCC 3-09-051)	14Mn-4Cr	(-04)	13.9	ND	ND	232	17.1	ND	C
	E11018	(-08)[j]	ND	ND	ND	13.8	ND	ND	C
	E308	(-12)[j]	3.93	3.59	0.01	2.52	0.43	ND	D
	E310	(-16)[k]	25.3	18.8	ND	22.0	1.96	0.24	C
	E316	(-20)[m]	5.22	3.32	ND	5.44	0.55	ND	D
	E410	(-24)[n]	ND	ND	ND	6.85	0.14	ND	C
	E6010	(-28)	0.03	0.01	ND	9.91	0.04	ND	B
	E6011	(-32)	0.05	ND	0.01	9.98	0.05	ND	C
	E6012	(-36)	ND	ND	ND	ND	ND	ND	ND
	E6013	(-40)	0.04	ND	< 0.01	9.45	0.02	ND	B
	E7018	(-44)	0.06	ND	< 0.01	10.3	0.02	ND	C
	E7024	(-48)	0.01	ND	ND	6.29	ND	ND	C
	E7028	(-52)	0.13	ND	ND	8.4612	ND	1.62	C
	E8018	(-56)[p]	0.17	ND	ND	0.3	0.51	ND	C
	E9016	(-60)	ND	ND	ND	ND	ND	ND	ND
	E9018	(-64)[q]	2.12	ND	ND	7.83	0.13	ND	C
	ECoCr	(-68)	ND	ND	ND	ND	ND	ND	ND
	ENi-Cl	(-72)	ND	ND	ND	0.39	8.90	ND	C
	ENiCrMo	(-76)[r]	4.20	ND	ND	0.43	2.47	ND	C
	ENi-Cu-2	(-80)[s]	ND	ND	ND	2.12	4.23	ND	C
GMAW[d,e] (SCC 3-09-052)	E308	(-12)[t]	5.24	ND	< 0.01	3.46	1.84	ND	C
	E70S	(-54)[u]	0.01	ND	< 0.01	3.18	0.01	ND	A
	ER1260	(-10)	0.04	ND	ND	ND	ND	ND	D
	ER5154	(-26)	0.10	ND	ND	0.34	ND	ND	D
	ER316	(-20)[v]	5.28	0.10	ND	2.45	2.26	ND	D
	ERNiCrMo	(-76)[w]	3.53	ND	ND	0.70	12.5	ND	B
	ERNiCu	(-80)[x]	< 0.01	ND	ND	0.22	4.51	ND	C

Table 12.19-2 (cont.).

Welding Process	Electrode Type (With Last 2 Digits Of SCC)		HAP Emission Factor (10^{-1} g/kg [10^{-1} lb/10^{3} lb] Of Electrode Consumed)[b]						EMISSION FACTOR RATING
			Cr	Cr(VI)	Co	Mn	Ni	Pb	
FCAW[f,g] (SCC 3-09-053)	E110	(-06)[y]	0.02	ND	ND	20.2	1.12	ND	D
	E11018	(-08)[z]	9.69	ND	ND	7.04	1.02	ND	C
	E308	(-12)	ND	ND	ND	ND	ND	ND	ND
	E316	(-20)[aa]	9.70	1.40	ND	5.90	0.93	ND	B
	E70T	(-54)[bb]	0.04	ND	ND	8.91	0.05	ND	B
	E71T	(-55)[cc]	0.02	ND	< 0.01	6.62	0.04	ND	B
SAW[h] (SCC 3-09-054)	EM12K	(-10)	ND	ND	ND	ND	ND	ND	ND

[a] References 7-18. SMAW = shielded metal arc welding; GMAW = gas metal arc welding; FCAW = flux cored arc welding; SAW = submerged arc welding. SCC = Source Classification Code. ND = no data.

[b] Mass of pollutant emitted per unit mass of electrode consumed. Cr = chromium. Cr(VI) = chromium +6 valence state. Co = cobalt. Mn = manganese. Ni = nickel. Pb = lead. All HAP emissions are in the PM-10 size range (particles ≤ 10 µm in aerodynamic diameter).

[c] Current = 102 to 225 A; voltage = 21 to 34 V.

[d] Current = 275 to 460 A; voltage = 19 to 32 V.

[e] Type of shielding gas employed will influence emission factors.

[f] Current = 160 to 275 A; voltage = 22 to 34 V.

[g] Current = 450 to 550 A; voltage = 31 to 32 V.

[h] Includes E11018-M

[j] Includes E308-16 and E308L-15

[k] Includes E310-15

[m] Includes E316-15, E316-16, and E316L-16

[n] Includes E410-16

[p] Includes 8018C3

[q] Includes 9018B3

[r] Includes ENiCrMo-3 and ENiCrMo-4

[s] Includes ENi-Cu-2

[t] Includes E308LSi

[u] Includes E70S-3, E70S-5, and E70S-6

[v] Includes ER316I-Si

[w] Includes ERNiCrMo-3 and ERNiCrMo-4

[x] Includes ERNiCu-7

[y] Includes E110TS-K3

[z] Includes E11018-M

[aa] Includes E316LT-3

[bb] Includes E70T-1, E70T-2, E70T-4, E70T-5, E70T-7, and E70T-G

[cc] Includes E71T-1 and E71T-11

PM-10
Average Emission Factors from AP-42 Table 12.19-1 for Surrogate

SMAW average	GMAW Average	FCAW Average	SAW (only one EF)
81.6	5.4	20.8	0.05
16.4	5.2	57	
10.8	20.5	9.1	
15.1	24.1	8.5	
10	3.2	15.1	
13.2	3.9	12.2	
25.6	2		
38.4			
8			
19.7			
18.4			
9.2			
18			
17.1			
17			
16.9			
27.9			
18.2			
11.7			
10.1			
20.2	9.2	20.5	

HAPs
Average Emission Factors from AP-42 Table 12.19-2 for Surrogate

Welding Type	Cr	Cr(VI)	Co	Mn	Ni	Pb
SMAW	13.9	ND	ND	232	17.1	ND
	ND	ND	ND	13.8	ND	ND
	3.93	3.59	0.01	2.52	0.43	ND
	25.3	18.8	ND	22	1.96	0.24
	5.22	3.32	ND	5.44	0.55	ND
	ND	ND	ND	6.85	0.14	ND
	0.03	0.01	ND	9.91	0.04	ND
	0.05	ND	0.01	9.98	0.05	ND
	ND	ND	ND	ND	ND	ND
	0.04	ND	< 0.01	9.45	0.02	ND
	0.06	ND	< 0.01	10.3	0.02	ND
	0.01	ND	ND	6.29	ND	ND
	0.13	ND	ND	8.4612	ND	1.62
	0.17	ND	ND	0.3	0.51	ND
	ND	ND	ND	ND	ND	ND
	2.12	ND	ND	7.83	0.13	ND
	ND	ND	ND	ND	ND	ND
	ND	ND	ND	0.39	8.9	ND
	4.2	ND	ND	0.43	2.47	ND
	ND	ND	ND	2.12	4.23	ND
SMAW Average	4.24	6.43	0.01	20.47	2.61	0.93
GMAW	5.24	ND	< 0.01	3.46	1.84	ND
	0.01	ND	< 0.01	3.18	0.01	ND
	0.04	ND	ND	ND	ND	ND
	0.1	ND	ND	0.34	ND	ND
	5.28	0.1	ND	2.45	2.26	ND
	3.53	ND	ND	0.7	12.5	ND
	< 0.01	ND	ND	0.22	4.51	ND
GMAW Average	2.37	0.10	0.01	1.73	4.22	ND
FCAW	0.02	ND	ND	20.2	1.12	ND
	9.69	ND	ND	7.04	1.02	ND
	ND	ND	ND	ND	ND	ND
	9.7	1.4	ND	5.9	0.93	ND
	0.04	ND	ND	8.91	0.05	ND
	0.02	ND	0.01	6.62	0.04	ND
FCAW Average	3.894	1.4	0.01	9.734	0.632	ND
SAW (only one EF)	ND	ND	ND	ND	ND	ND

Section 10

Written Description of the Routine Operations of the Facility

A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

This No Permit Required determination application is for the installation of a welding fume extraction system for 10 welding booths located in the welding shop at TA-03-0038. Welding operations at the booths are performed primarily for training or for the certification and recertification of welders (LANL employees and subcontractors). The welding machines in the booths are operated as intended, performing normal welding processes. The welding shop also has a pipe fitter production area, where LANL Craft perform work. This welding operation is not linked to any exhaust system and is exhausted into the shop air, thus the associated emissions are not included in this analysis nor NPR application.

With the new exhaust system, each welding booth will exhaust via ductwork to a main duct branch, which will be routed to a high velocity exhaust fan located on the roof above with an extra fan on standby. The fans will have a high velocity plume in lieu of a stack. No controls are planned to be installed and the fans are not equipped with filters.

This welding operation is not for production, therefore the metal plates and pipes used during training or certification get cut down for reuse and the waste, the welded portions, are put into a roll off bin for recycling.

There are multiple process bottlenecks. The first bottleneck is the welding rate, the average pound per hour in the shop is 1.7 - 2 lb/hr and the maximum is 4 lb/hr. Welding constantly at a rate of 4 lb/hr is not typical. The second is the welding shop's operating hours, which are 40 hours per week and welding is not occurring non-stop at every machine during those hours. The third is that welding operations depend on training schedules and certification needs, which vary with the season and construction projects.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:
For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply. For example,** to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:
See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:
If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:
For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:
All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: http://cfpub.epa.gov/adi/

Example of a Table for State Regulations:

State Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent (NOI), Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	No	Welding Shop	Not applicable. NMAAQS compliance demonstration/modeling is not required for an NPR application.
20.2.7 NMAC	Excess Emissions	No	Welding Shop	This does not apply to NPR since this is not a permit.
20.2.70 NMAC	Operating Permits	Yes	Facility	LANL is a major source as defined by the rule for NO_2, CO, VOC, SO_2, TSP, PM_{10}, $PM_{2.5}$, and greenhouse gas emissions and required to obtain a Title V operating permit. For each pollutant, this is based on potential to emit as opposed to actual emissions.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	All Title V facilities are subject to the rule and an annual fee payment based on allowable emission rates.
20.2.72 NMAC	Construction Permits	No	Welding Shop	A construction permit is not required for this source. When the applicability requirements of the rule are triggered for new or modified sources, a construction or NSR permit must be obtained. To date, LANL has received the following NSR permits for operations still current: 632, 634-M2, 1081-M1-R6, 2195, 2195B-M3-R2, 2195F-R4, GCP-3-2195G, 2195H, 2195N-R2, and 2195P.
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	An NOI is not required for this application as it is an NPR application. LANL is required to submit an annual emission inventory report.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility	This rule does not apply. LANL does not have emissions or potential to emit above applicability thresholds because it has enforceable facility-wide emission limits in Permit P100-R2M4 to be a synthetic minor source for PSD permitting purposes. As this is an NPR application the welding shop will not be added to the Title V Permit. Also, adding the maximum potential emissions from the welding shop to LANL's current facility-wide emissions would not cause LANL to go above any PSD thresholds.
20.2.75 NMAC	Construction Permit Fees	No	Welding Shop	A construction permit is not required for this source.
20.2.78 NMAC	Emission Standards for HAPS	No	Welding Shop	The welding operation in this application is not subject to this regulation.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	This rule does not apply. LANL is not located in a Nonattainment Area.
20.2.80 NMAC	Stack Heights	No	Welding Shop	Not applicable. Modeling is not required for an NPR application.

Example of a Table for Applicable Federal Regulations (Note: This is not an exhaustive list):

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	No	Welding Shop	Not applicable. NAAQS compliance demonstration/modeling is not required for an NPR application.

Section 22: Certification

Company Name: Triad National Security, LLC

I, Steven L. Story, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 27 day of March, 2023, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature

3/27/2023
Date

Steven L. Story
Printed Name

Triad EPC-CP Group Leader
Title

Scribed and sworn before me on this 27th day of March, 2023.

My authorization as a notary of the State of New Mexico expires on the 12th day of June, 2023.

Notary's Signature

March 27, 2023
Date

Barbara Bushong
Notary's Printed Name

BARBARA J. BUSHONG
Notary Public - State of New Mexico
Commission # 1112450
My Comm. Expires June 12, 2023

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.