Environmental Review Form for Argonne National Laboratory

Form:	ANL-985
Version:	5
Your Form ID:	ANL-985-1372
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Created By:	McGhee, Ian Riley

Creator

Badge:	**272547**	Name:	**McGhee, Ian Riley**
Cost Center:	**331**	Division:	**WSH**
Job Title:	**ESH Multi-Functional 2**	Employee Type:	**Regular Full-Time Exempt**
Building:	**362**	Lab Extension:	**2-2324**

General Information

Project/Activity Title: Operation of the Transportation Research Facility (Buildings 300, 362, 370, 371, 373, 376)

ASO NEPA Tracking No.: ARG-CX-137

Type of Funding:

B & R Code:

Identifying Number: ARG-CX-137

SPP Proposal Number: 2015-15031

CRADA Proposal Number:

Work Project Number:

ANL Accounting Number:

(Item 3a in Field Work Proposal)

Other (explain):

List appropriate NEPA Owners:

Division: ES NEPA Owner:

Financial Plans

To select a Financial Plan, click the magnifying glass icon to open a search window.

Cost Center: Project: Phase: Task:

Description of Proposed Action

See attached document titled "TRF-CTR ARG-CX-137 Description of Proposed Action"

Description of Affected Environment

Engine exhaust will be vented directly to the atmosphere. Air emissions will conform to air permit #95090195 and any revisions subsequently approved by the IEPA. In addition, Argonne will comply with their August 2007 Notification to the IEPA for the Use of Additional Fuels at the Transportation Research Facility and October 2008 Notification to the IEPA for the Use of Urea as a NOx Reductant for Diesel Engine Research. The last modification for the TRF/CTR was issued on May 7th, 2015 (#96050057) and includes fuel amount restrictions and expanded fuel types. Monthly reports are sent to Argonne's Environmental Protection Group for emissions tracking.

Potential Environmental Effects

- Attach explanation for each "yes" response near bottom of form.
- **See Instructions for Completing Environmental Review Form.**

	Section A (Complete For All Projects)	Yes	No	Explanation
	Project evaluated for Pollution Prevention and Waste Minimization			

1.	opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable		◉	○	See responses below.
2.	Air Pollutant Emissions		◉	○	Argonne is in a non-attainment area for ozone and fine particulates (PM2.5). The TRF will operate in accordance with Air Permit #95090195, issued by the IEPA in 2015. In addition, Argonne will comply with their August 2007 Notification to the IEPA for the Use of Additional Fuels at the Transportation Research Facility and October 2008 Notification to the IEPA for the use of Urea as a NOx Reductant for Diesel Engine Research.
3.	Noise		◉	○	Argonne has an established hearing protection program that will include workplace noise monitoring, during construction and operation and establishment of appropriate administrative and engineering controls to prevent exposure to noise at levels in excess of Argonne standards (More conservative than OSHA standards)
4.	Chemical/Oil Storage/Use		◉	○	Diesel, diesel cycle fuels, gasoline, gasoline/alcohol blends, fuel additives, CNG, hydrogen, hydrogen-natural gas blends, antifreeze, oil, urea, along with various chemicals will be stored in accordance with NFPA regulations and Argonne's policies and procedures. The facilities, processes for storage, and transfer of fuel are approved by Argonne's Fire Protection.
5.	Pesticide Use		○	◉	
6.	**Toxic Substances Control Act (TSCA) Substances**				
	6a.	Polychlorinated Biphenyls (PCBs)	○	◉	
	6b.	Asbestos or Asbestos Containing Materials	○	◉	
	6c.	Other TSCA Regulated Substances	○	◉	
	6d.	Import or Export of Chemical Substances	○	◉	
7.	Biohazards		○	◉	
8.	Effluent/Wastewater (If yes, see question #12 and contact Peter Lynch (HSE) at 2-4582 or lynch@anl.gov)		◉	○	Discharges from sinks and condensate will be piped by pumping or gravity to the laboratory or sanitary sewer system, whichever is appropriate. Argonne policies and procedures prohibit disposal of hazardous materials in any drains. The laboratory sink in 376 HIBAY will drain to the laboratory sewer.
9.	**Waste Management**				
	9a.	Construction or Demolition Waste	○	◉	
	9b.	Hazardous Waste	◉	○	Possible unleaded diesel, diesel cycle fuel, gasoline, alcohol/gasoline blends, fuel additives, engine oil, and urea spillage from vehicular and emissions reduction device testing, will be contained and removed in accordance with Argonne's Policies and Procedures. Waste petroleum products, and any hazardous waste (e.g., cleaning solvents) will be accumulated, documented, and disposed in accordance with Argonne's Waste Handling Procedures and the division's specific Waste Handling Document. All on-site handling, storage and disposal will be performed in accordance with the RCRA part B permit issued by the IEPA. The accumulated hazardous waste will be disposed in accordance with Argonne's Part B permit and in accordance with the requirements in LMS-PROC-103. The on-site handling, storage and disposal will be performed in accordance with the RCRA part B permit issued by the IEPA.

	9c.	Radioactive Mixed Waste	○	◉	
	9d.	Radioactive Waste	○	◉	
	9e.	Asbestos Waste	○	◉	
	9f.	Biological Waste	○	◉	
	9g.	No Path to Disposal Waste	○	◉	
	9h.	Nano-material Waste	○	◉	
10.		Radiation	○	◉	
11.		Threatened Violation of ES&H Regulations or Permit Requirement	○	◉	
12.		New or Modified Federal or State Permits	◉	○	Air emissions will conform to air permit #95090195 and any revisions subsequently approved by the IEPA.
13.		Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste	○	◉	
14.		Public Controversy	○	◉	
15.		Historic Structures and Objects	○	◉	
16.		Disturbance of Pre-existing Contamination	○	◉	
17.		Energy Efficiency, Resource Conserving, and Sustainable Design Features	○	◉	
Section B (For Projects that Occur Outdoors)			**Yes**	**No**	
18.		Threatened or Endangered Species, Critical Habitats, and/or other Protected Species	○	◉	
19.		Wetlands	◉	○	A release of chemicals from either of the two storage sheds outside of building 370 could enter nearby storm sewers and discharge to site waterways. These site waterways are direct tributaries to the Des Plaines River. The fuel canopies are sheltered, but are not fully contained. Individual containers in the canopies are in secondary containment, and the risk of release is primarily related to fuel transfer activities. Researchers have specific drainage-grate plugs to use when moving fuels that have been reviewed by Argonne Environmental Protection.
20.		Floodplain	◉	○	A release of chemicals from either of the two storage sheds outside of building 370 could enter nearby storm sewers and discharge to site waterways. These site waterways are direct tributaries to the Des Plaines River. The fuel canopies are sheltered, but are not fully contained. Individual containers in the canopies are in secondary containment, and the risk of release is primarily related to fuel transfer activities. Researchers have specific drainage-grate plugs to use when moving fuels that have been reviewed by Argonne Environmental Protection.
21.		Landscaping	○	◉	

22.	Navigable Air Space	○	◉	
23.	Clearing or Excavation	○	◉	
24.	Archaeological Resources	○	◉	
25.	Underground Injection	○	◉	
26.	Underground Storage Tanks	○	◉	
27.	Public Utilities or Services	○	◉	
28.	Depletion of a Non-Renewable Resource	○	◉	
Section C (For Projects Outside of ANL)		**Yes**	**No**	
29.	Prime, Unique, or Locally Important Farmland	○	◉	
30.	Special Sources of Groundwater (such as sole source aquifer)	○	◉	
31.	Coastal Zones	○	◉	
32.	Areas with Special National Designations (such as National Forests, Parks, or Trails)	○	◉	
33.	Action of a State Agency in a State with NEPA-type Law	○	◉	
34.	Class I Air Quality Control Region	○	◉	

Categorical Exclusion

ANL NEPA Reviewer Use Only

○ My approval is the final approval necessary

◉ This form requires additional approval from DOE

To be Completed by DOE/ASO

Section D	Yes	No
Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal?	○	◉
Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?	○	◉
If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?	○	○
Can the project or activity be categorically excluded from preparation of an Environment Assessment or Environmental Impact Statement under Subpart D of the DOE NEPA Regulations?	◉	○

If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded:

This project may be excluded under 10 CFR 1021, Subpart D, Appendix B: B 3.6 Small Scale Research and Development, Laboratory Operations, and Pilot Projects.

If no, indicate the NEPA recommendation and class(es) of action from Appendix C or D to Subpart D to Part 1021 of 10 CFR.

Attachments

File Description: Old ERF approval View Attachment

File Description: Description of Proposed Action View Attachment

Comments

Items 19 and 20 - there is a documented (best management) procedure for the research staff to implement during the fuel transfer activities, thus avoiding potential for fuel spill

Add Approver

Approver Name	Approver Badge	Reason	Delete
Hillebrand, Donald Gerard	55658	ES Division Director	
Wallner, Thomas	56413	Group Leader	
Longman, Douglas E.	50934	Group Leader	
Schlenker, Ann M.	59421	Director - Center for Transportation Research	
Harris, Amy M.	49490	NEPA Owner	
Mesarch, Matthew B	291600	Air Emissions	
Lynch, Peter L.	46304	Waste/Chemicals	
Pfeiffer, Mark Albert	232188	Air Permit	
Perez, Christina T.	225594	Noise	
Grzymajlo, Jeffrey T.	97489	Waste	

Notifications

The approval notification email will be copied to the people listed below.

Badge	Name	Division	Delete
232518	Willig, Ryne T.	WSH	
272547	McGhee, Ian Riley	WSH	

ASO-CX Number

ASO-CX- 372

Comments:

ERF for this activity was previously approved 14 Nov 2008. See attached paperwork from previous approval. DOE ASO tracks this CX approval as ASO-CX-137.

Approval

Approver	Action	Date Routed	Action Date	Approval Reason / Comments	Approval Type
McGhee, Ian Riley	APPROVED	2020-02-11	2020-02-11 12:55:53.0	Creator :	PRIMARY
McGhee, Ian Riley	APPROVED	2020-02-11	2020-02-11 12:55:53.0	Allows access to the form :	PRIMARY
McGhee, Ian Riley	APPROVED	2020-02-11	2020-02-11 12:55:53.0	Allows access to the form :	PRIMARY
McGhee, Ian Riley	APPROVED	2020-02-11	2020-02-11	Project Manager :	PRIMARY

			12:55:53.0		
Lynch, Peter L.	APPROVED	2020-02-11	2020-02-13 16:34:34.0	Waste/Chemicals :	PRIMARY
Harris, Amy M.	APPROVED	2020-02-11	2020-02-13 08:26:04.0	NEPA Owner :	PRIMARY
Longman, Douglas E.	APPROVED	2020-02-11	2020-02-11 14:02:26.0	Group Leader :	PRIMARY
Hillebrand, Donald Gerard	APPROVED	2020-02-11	2020-02-17 10:57:23.0	ES Division Director :	PRIMARY
Wallner, Thomas	APPROVED	2020-02-11	2020-02-11 13:52:58.0	Group Leader :	PRIMARY
Schlenker, Ann M.	APPROVED	2020-02-11	2020-02-11 20:51:31.0	Director - Center for Transportation Research :	PRIMARY
Grzymajlo, Jeffrey T.	APPROVED	2020-02-11	2020-02-13 07:25:24.0	Waste :	PRIMARY
Perez, Christina T.	APPROVED	2020-02-11	2020-02-11 14:01:59.0	Noise :	PRIMARY
Mesarch, Matthew B	APPROVED	2020-02-11	2020-02-11 15:08:14.0	Air Emissions :	PRIMARY
Pfeiffer, Mark Albert	APPROVED	2020-02-11	2020-02-11 14:37:57.0	Air Permit : **Comments addressed by Ian**	PRIMARY
Harris, Amy M.	APPROVED	2020-02-13	2020-02-13 08:26:04.0	NEPA Owner Approval for Argonne Environmental Review :	PRIMARY
Ptak, Jill S.	APPROVED	2020-02-17	2020-03-10 13:51:52.0	ANL NEPA Reviewer :	PRIMARY
Hellman, Karen B.	APPROVED	2020-03-10	2020-03-10 18:04:46.0	ANL-985 Review and Approval :	PRIMARY
Clifford, Megan C. for Kearns, Paul K.	APPROVED	2020-03-10	2020-03-19 09:25:46.0	ANL-985 ANL COO Review and Approval :	DELEGATE
Joshi, Kaushik N.	APPROVED	2020-03-19	2020-03-31 15:03:13.0	ANL-985 DOE-ASO Review and Approval : **DOE tracks this ERF Categorical Exclusion as ASO-CX-137.**	PRIMARY
Siebach, Peter Rudolf	APPROVED	2020-03-31	2020-04-01 10:56:04.0	ANL-985 DOE NEPA Compliance Officer Review and Approval : **Previously CX's were designated as ASO-CX-137. This new CX identified as ASO-CX-372**	PRIMARY

Description of proposed action:

The purpose of the Transportation Research Facility (TRF), also known as the Center for Transportation Research (CTR) is to evaluate methods of emissions reduction and improvement of efficiency as well as to develop durability improvements in several types of commercial and research engines. The TRF/CTR facilities are housed in four buildings: 362, 370, 371, and 376. These buildings house automotive, truck, and locomotive engines and associated support and analytical equipment. Engines will be limited to those defined in the existing CAAPP air permit #95090195 and any subsequent revisions approved by the IEPA. The permit provides for both construction and operation. The permit provides for use of the following fuels:

1. Gasoline
2. Gasoline/alcohol blends (0-100%)-ethanol, methanol, butanol and any other alcohol blends
3. Diesel fuel
4. Diesel cycle fuels (0-100%)-biodiesel, renewable diesel, Fischer-Tropsch and any other diesel blends.
5. Compressed natural gas
6. Hydrogen
7. Hydrogen/natural gas blends
8. Fuel Additives (up to 5%)-designed for increased efficiency and/or the reduction of vehicle

The types of operations/tests that occur in building 371 and its addition include chassis dynamometers for testing both 2-wheel and 4-wheel drive vehicles; automotive/truck engine, and off-road equipment test cells to conduct experiments related to emissions reduction and fuel efficiency; vehicle lift area for maintenance and modification, vehicle refueling area, gas bottle storage for gasses used for instrument operations and calibration, indoor fuel storage and dispensing tanks, conventional laboratory for bench scale analyses, laser laboratory for characterizing diesel spray particulates and control rooms. The total ES area of the existing 371 building is approximately 8600sf.

The types of operations that occur in building 376 include studies of single and multiple cylinder automotive/truck and locomotive engines for emissions reduction and fuel efficiency. The test areas are operated from a control room. The total ES area in building 376 is 9000sf.

Building 362 operations includes single-and-multi cylinder stationary and transportation engines as well as a micro-turbine to conduct experiments related to emissions reduction and fuel efficiency. The test area is operated from a control room. The total ES area in building 362 hi-bay is 3100sf. The TRF/CTR houses equipment to analyze gaseous and particulate emissions. Above ground exterior fuel storage tanks, with interior day tanks are equipped with leak and spill prevention devices, which have been approved by ANL Fire Protection and Environmental Compliance. The engine exhaust discharges to the exterior via engineered exhaust systems that conform to ANL requirements. Appropriate fire safety systems are installed per ANL Fire Protection recommendations. All construction is designed to minimize the potential for releases to the environment in the event of a fuel spill or leak in a test cell or from delivery piping. Research/experimental vehicles (cars, trucks, vans) are operated as mobile sources at ANL and on public roadways. Building floors and some structures are modified to isolate engine vibration, thus avoiding disturbance and damage to adjoining experiments and structures. Engine exhaust will be vented to the atmosphere. The test cells will house the engine, dynamometer and other support systems (e.g., cooling, lubrication, and air supply systems). A 6700sf, two story building

extension to building 371 has been constructed to house a 4WD chassis dynamometer and related equipment. The extension is constructed of steel framing and concrete floors, insulated metal siding and roofing, masonry and drywall partitions, a steam to hot water heating system; an exhaust and return air ventilation system, air conditioning, sprinkler and fire alarm system; electrical lighting and power. An interior pit has been constructed for the lower portion of the dynamometer. The existing tower and domestic water, chilled water, steam and electrical services in building 370 & 371 have been extended to the addition. Sewer drainage is pumped to the existing building 371 system. The test cell also includes climate control equipment to allow vehicles to be tested at ambient temperatures ranging from -20°F to 120 °F

In building 371, 2 of the test cells are equipped for natural gas fueling, and one test cell is equipped for hydrogen fueling. The vehicular fueling station is a pre-fabricated self-contained environmentally approved unit. The existing compressed natural gas piping has been extended to building 362, 371 and 376; this included installing 2300 feet of 4 inch buried gas lines. Metering devices have also been installed to monitor the natural gas. A natural gas generator set has been installed in building 362 high bay. The engine will be controlled from a control room.

The TRF/CTR is developing and evaluating "after-treatment" processes to reduce the amount of NOx, particulates and hydrocarbons in engine exhaust emissions. Some of the processes include: selective catalytic reduction, NOx trapping, particulate trapping, oxidative catalysis and any other emission reducing processes.