IN SITU BURNING APPLICATION AND BURN PLAN

FOR OIL DISCHARGE AND HAZARDOUS SUBSTANCE RELEASE RESPONSES IN ALASKA

August 2019

Please note that this checklist has been extracted for ease of use by responders from the ARRT's In Situ Burning Guidelines for Alaska" Revision 1, dated August 2008.

The ARRT *In Situ* Burning Guidelines for Alaska are a component of the Alaska Regional Contingency Plan under the purview of the ARRT. For additional information and the guidelines in its entirety are available online at http://dec.alaska.gov/media/8436/in-situ-burning.pdf

Appendix 1: Application and Burn Plan

In Situ Burning Guidelines for Alaska

Incident Name: _____

Incident Location: _____

Incident Date: _____

Incident Time: _____

Date Prepared		Operational Period	
		Date	Time
Time Prepared	Start:		
	End:		

Title of Applicant: _____ Address: _____

Affiliation: _____ Phone: _____ Fax: _____

PART 1

Potential Burn Location_____

Site Description_____

Latitude _____

Longitude _____

Type of Incident (check one):

_____ Grounding

_____ Transfer Operations

_____ Explosion

_____ Collision

_____ Blowout

_____ Other_____

Product Released (check one):

_____ North Slope Crude

_____ Cook Inlet Crude

_____ Residual/Bunker Oil

_____ Diesel #2

_____ JP4

_____ Other_____

Estimated Volume of Released Product:

_____ gallons, or

_____ BBL

Estimated Volume of Product That May Potentially be Released:

_____ gallons, or

_____ BBL

Release Status (check one):

_____ Continuous

_____ Intermittent

_____ One time only, now stopped

If Continuous or Intermittent, estimated Rate of Release:

_____ gallons, or

_____ BBL

Estimated Surface Area Covered (square miles)
At Time of Application _____

If inland, identify/describe:.

- Vegetative cover at burn site (e.g., wetlands, grasslands, shrublands, forest, tundra, non-vegetated)
- Fire danger rating at and near the burn site (see Appendix 6) Whether burn is on permafrost
- Any ignitable vegetation near the burn
- Any structures/buildings near the burn

Why is mechanical recovery alone **inadequate** for spill response?

Consider the spill size, forecasted weather and trajectories, amount of available equipment, time to deploy, and time to recover. _____

_____

Will you use mechanical recovery in conjunction with in situ burning? _____ yes no

Have you evaluated dispersants? yes no

Will you use dispersants in conjunction with in situ burning? yes no

Why is in situ burning preferred? _____

_____

_____

PART 2

Did source burn? yes no

Is source still burning? yes no

Is product easily emulsified? yes no

Is product already emulsified? (check one)

_____ No
_____ Light emulsion (0-20%)
_____ Moderate emulsion (21-50%)
_____ Heavy emulsion (>50%)
_____ Unknown

Estimated Percent Oil Naturally Dispersed and Evaporated Within First 24 Hours: _____

Check boxes and enter wind values in the following table:

	Current Conditions	12-hour Forecast	24-hour Forecast
Clear			
Partly cloudy			
Overcast			
Rain			
Snow			
Fog			
Wind Speed (kt)			
Wind Direction (from)			

Percentage Ice Coverage (check one):

_____ No ice present
_____ <10%
_____ 11-30%
_____ 31-50%
_____ 51-100%

Tidal state at _____ o'clock (check one):

_____ Slack tide
_____ Incoming (flood)
_____ Outgoing (ebb)

✓ **Attach a graph** with tidal information for three tidal cycles.

Dominant current (not drift):

Speed (knots)_____

Direction (to)_____

Current Speed (knots) Relative to the Containment Boom _____

Note: Current speed relative to the fire boom should be .75 knots or less to minimize entrainment.

Sea State (check one):

_____ Calm
_____ Choppy
_____ Swell

Waves (estimate height in feet) _____

Does your site safety plan cover this in situ burn plan? yes no

Will response workers be briefed on the site safety plan before burning? yes no

Are the responders trained and equipped with safety gear? yes no

✓ **Attach an ICS 204 form, or similar document**. On it, list the following equipment you will use:

Vessels

Aircraft for ignition and aerial observation

Lengths of fire boom

Residue containment and removal equipment

Fire fighting equipment

Ignition systems

Burn promoters

Communications systems

Air/plume monitoring equipment.

_____

Proposed Burn Date and Time _____

Describe how you intend to carry out the burn.

_____

_____

Check one:

_____ Ignition is away from source after containment and movement of the oil to safe location (i.e., controlled burn).

_____ Ignition of uncontained slick(s) is at a safe distance from the source.

_____ Ignition is at or near source without controls.

How will you ignite the oil? _____

_____

Enter the volume of oil you expect to burn:

Fire No.	Oil Volume (BBL__ or Gal__)	Fire Duration (Hrs__ or Min__)
1		
2		
3		
4		
5		
Attach a list for more fires.		
Total Vol.:		

How many simultaneous burns are planned?

_____

What distance will separate simultaneous burns?

_____

Are you planning sequential or repeat (not simultaneous) burns?
yes no

Estimated area of oil in uncontrolled burn
(square feet)_____

Describe your ability and procedures to extinguish the burn if necessary or directed to do so.

Part 3

✓ **Attach a chart with a distance scale**. Show estimated spill trajectory and landfalls, with time. Show the location and distance of your proposed burns relative to the following features:

1. Source:

Location _____

Distance from Burn (miles)_____

2. Ignitable slicks:

Location _____

Distance from Burn (miles)_____

3. Nearest Land (burns on water) or
Non-Flat Terrain (burns on land):

Location _____

Distance from burn (miles) _____

Nearby Populated Areas (i.e., one or more non-spill-related people present):

Location _____

Distance from Burn (miles)_____

Location _____

Distance from Burn (miles)_____

Location _____

Distance from Burn (miles)_____

For Inland Burns consider

- Ignitable vegetation
- Structures/buildings
- Areas with Fire Danger Rating of extreme, very high, or high
- Nearest airport
- Alaska Class I Area (see Appendix 4)

4. Attach a drawing showing your mechanical recovery and in situ burning equipment configurations.

6. For burns potentially impacting populated areas, provide an air monitoring plan in accordance with the SMART protocols.

7. Identify whether any Class 1 Areas (Appendix 4) will be impacted.

Part 4

How do you plan to collect burned oil residue?

_____

_____

How do you plan to store and dispose of burned oil residue?

_____

_____

For inland burns, how do you plan to address post- burn erosion if applicable?

Describe plan for eliminating risk (if any) of accidental (secondary) fires (e.g., structures/buildings and/or vegetation).

_____

_____

Will the burn affect visibility at downwind airports within 20 miles?

_____

Signatures

Signature of Applicant

Printed name of Applicant

Date and Time Submitted to Federal and State On-Scene Coordinators

Prepared by: _____ ICS Position: _____ Phone: _____

Appendix 2: FOSC/SOSC Review Checklist In Situ Burning Guidelines for Alaska

Note: If an *in situ* burn is being considered, immediately notify the EPA ARRT representative (unless EPA is the FOSC), the DOI and DOC ARRT representatives, and the USCG Strike Team to provide advance notice of this possibility.

STEP 1: Review of the completed Application to Burn Plan

Is burning an appropriate response option, when considering mechanical containment and recovery and/or dispersant use?	yes	no

STEP 2: Determine feasibility of burning

Will the oil become 2 to 3 mm thick?	yes	no
Is the oil relatively fresh (less than 2 or 3 days of exposure)?	yes	no
Does the oil contain less than 25 percent water?	yes	no
Is visibility sufficient to see oil and vessels towing boom, and suitable for aerial overflight for burn observation?	yes	no
If burning may involve darkness or poor visibility, can the burn be completed safely and well away from any populated areas or other sensitive resources?	yes	no
Is wind less than 20 knots?	yes	no
Are currents less than 0.75 knots relative to the boom?	yes	no
Are waves less than 3 feet in choppy, wind-driven seas or less than 5 to 6 feet in large swells?	yes	no
Does the responsible party have a site safety plan for this incident that specifically addresses the proposed burning operations?	yes	no
Will response workers be briefed on this plan before burning starts?	yes	no
Are personnel trained and equipped with safety gear?	yes	no
Is a communications system available and working to communicate with and between aircraft, vessels, and control base?	yes	no
Are operational and environmental conditions feasible for burning?	yes	no
Can the fire be extinguished and are the procedures for addressing this contingency adequate?	yes	no
Will the burn meet the operational criteria for:		
the next 24 hours?	yes	no
the next 48 hours?	yes	no

STEP 3: Determine whether burn may be conducted at a safe distance from populated areas.

Burning Near Unpopulated Areas:

To help determine whether an area that could be affected by an in situ burn smoke plume is unpopulated, the Unified Command will consult with land managers and (to the extent practical) land owners of the area to help determine whether there may be individuals using the area for activities including, but not limited to, fishing, hunting, berry picking, boating, backpacking, or conducting research. The Unified Command may require further verification by aerial reconnaissance or some similar means.

Will the smoke plume pass into populated areas?	yes	no

If no, proceed to Step 4. If yes, consider the following conditions of authorization.

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In Situ Burning Guidelines for Alaska

Burning in Flat Terrain Near Populated Areas:

Is the burn in an area near or adjacent to populated areas? yes no

Are local government, land managers, land owners, and/or state emergency service personnel involved in planning for, and if necessary assisting with, public notifications? yes no

On water more than 3 miles from shore, the Green Zone safe distance is 1 mile from populated areas. On land or on water less than 3 miles from shore, the green zone safe distance is 3 miles from populated areas. Burning at a green zone safe distance from populated areas is acceptable. Proceed to Step 4.

The Yellow Zone distance is from 1 to 3 miles downwind of a burn, and within 45 degrees of the smoke plume, when the burn is on land or on water within 3 miles of shore. If the potentially-impacted population can be sheltered in place or evacuated during the burn, proceed to Step 4. If potentially-impacted populated areas cannot be protected, do not authorize burning at this time.

The Red Zone distance is within 1 mile of any burn. Burns within 1 mile of populated areas may be authorized if the potentially-impacted population can be sheltered in place or evacuated during the burn, and if best professional judgment supports the expectation of $PM_{2.5}$ less than 65 micrograms per cubic meter 1-hour average in populated areas. If these conditions can be met, proceed to Step 4. If these conditions cannot be met, do not authorize burning at this time.

Burning when the Safe Distance Is Not Predicted:

The Unified Command determines whether flat terrain exists through the use of topographic maps and on-scene weather information, and input, as appropriate, from the National Weather Service and the Alaska Interagency Coordination Center.

According to best professional judgment, will $PM_{2.5}$ concentrations remain below 65 micrograms per cubic meter 1-hour average in populated areas? yes no

If yes, proceed to Step 4. If no, do not authorize burning at this time.

Notifications and Warnings:

Is it possible to implement Level 1 general notification in the Green Zone? yes no

Is it possible to implement a Level 2 alert notification in the Yellow Zone? yes no

Is it possible to implement a Level 3 warning notification, which includes in-place sheltering?

Is it possible to implement a Level 4 emergency notification, which includes temporary evacuation? yes no

STEP 4: Determine whether environmental and other considerations will be adequately addressed.

Have potentially-affected natural resources and historic properties been identified and adequately addressed? yes no

If no, document rationale in decision memo.

Have potentially-affected other considerations (e.g., structures/buildings) been identified and adequately addressed? yes no

If no, document rationale in decision memo.

STEP 5: Review of consultations and requests for authorization.

NCP Authorization of Use

Concurrence Required:

- EPA (FOSC or EPA ARRT representative) yes no conditional
- State (SOSC in Unified Command) yes no conditional

Consultation as per the NCP (If other than yes, document how addressed)

- DOI ARRT Representative yes no conditional
- DOC ARRT Representative yes no conditional

Other Consultations with Representatives of Potentially Affected Stakeholders:

- Other State and/or Federal natural resource trustees yes no conditional
- Federally-recognized tribes yes no conditional
- Federal, State, and/or local safety and public health agencies yes no conditional
- Land Owners:
  - Local (e.g. borough, municipal governments yes no conditional
  - Private Land owners (e.g. Native corporations) yes no conditional
- Others (e.g., Regional Citizens Advisory Councils, Port Authorities, Area safety/security committees, law enforcement, etc.) yes no conditional
- For a burn that may affect threatened and/or endangered species and/or their critical habitat, DOI-Fish and Wildlife Service* and/or National Marine Fisheries Service ESA Specialists* yes no conditional
- For a burn that may affect historic properties, the FOSC's Historic Properties Specialist. yes no conditional
- For a burn proposed in conjunction with an Outer Continental Shelf Facility, the DOI-MMS Regional Supervisor for Field Operations* yes no conditional

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STEP 6. Make decision on whether to authorize burn.

Authorization and Conditions:

The on-scene coordinators' decision based on review (check one):

___ Do not conduct in situ burning.

___ In situ burning may be conducted in limited or selected areas (see attached chart).

___ In situ burning may be conducted over the limited period of ____ day(s).

___ In situ burning may be conducted as requested in the application.

____ Other, as specified: _____

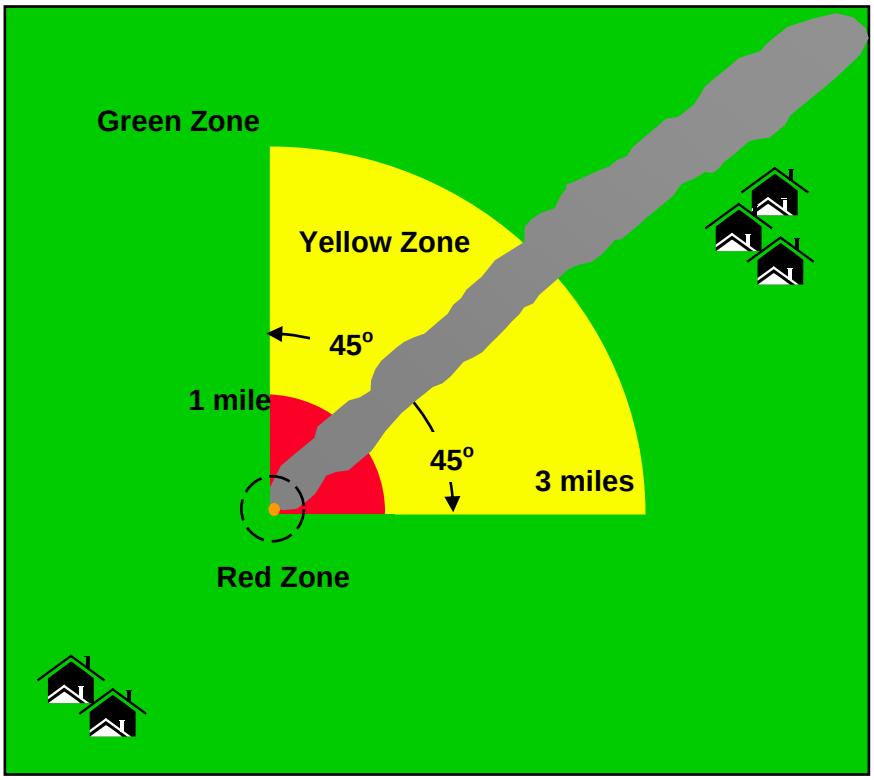
Conditions:

1. The burn operations team will visually monitor the smoke plume in accordance with the monitoring plan.
2. The burn operations team will collect the burn residue in accordance with the burn plan.
3. Public notification/warning to people in populated areas who may be in proximity to any of the three safe distance zones in accordance with the notification.
4. Other incident-specific conditions of authorization (e.g., air monitoring in accordance with the SMART protocols) for a burn with the potential to impact populated areas: _____

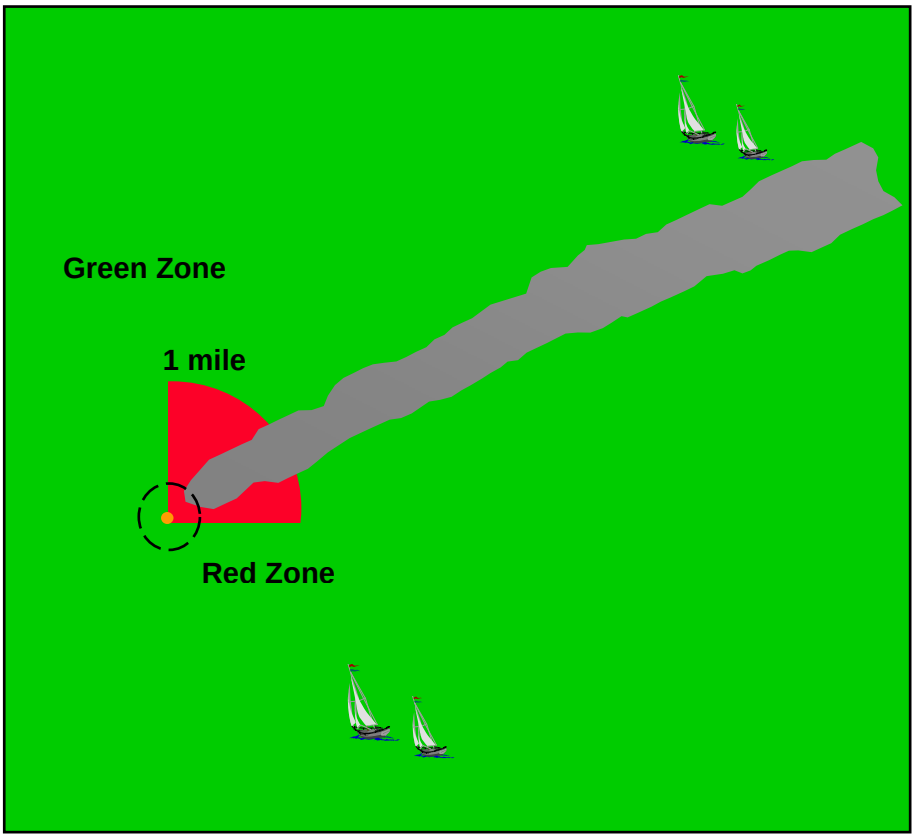
Signature of Federal On-Scene Coordinator	Printed Name of Federal On-Scene Coordinator	Date and Time
Signature of State On-Scene Coordinator	Printed Name of State On-Scene Coordinator	Date and Time

Prepared By: _____ ICS Position: _____ Phone: _____

Figure 5. In Situ Burn Zones



5A: Zones for in situ burns on populated flat terrain, or on water within 3 miles of shore.



5B: Zones for in situ burns on water more than 3 miles from shore.

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APPENDIX 3: SAMPLE UNIFIED COMMAND DECISION DOCUMENT FOR IN SITU BURNING

Unified Command Decision Document

Authorization to proceed with in situ burning is approved with the following conditions:

1) This approval is for (date). Continued in situ burn operations shall be subject to daily review and approval by the Unified Command. This authorization may be terminated by the Unified Command at any time.

2) The in situ burn operation shall not inhibit or impact on going recovery operations approved by the Unified Command

3) The RP or applicant shall implement a plan to collect residual or unburned oil following the completion of the in situ burn.

4) The applicant shall implement the approved in situ burning site safety plan to provide for the safety of personnel.

5) The Unified Command shall maintain public notification and warning procedures for the duration of the in situ burning operation.

6) The Unified Command shall perform visual monitoring (and air monitoring, where necessary) to ensure the operation and smoke plume is conducted as projected and will not impact either populated areas or the mechanical operations. The applicant shall ensure that the monitoring team includes representatives as determined by the Unified Command to monitor the burn.

7) In situ burn efficacy observations and visual monitoring reports should include the amount of oil burned, the location of the burn, the time and duration of burn, the boom condition, wind direction and plume characteristics. These reports shall be submitted to the Unified Command on a daily basis, no later than 12:00 noon the day following the burn, for consideration in approval for continued burning operations.

8) Following the burn operation, a detailed after-action report will be submitted by the RP denoting the actions taken and the lessons learned from the operation.

FOSC:	**Date:**
SOSC:	**Date:**
LOSC (if required):	**Date:**
Incident Commander:	**Date:**

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* This figure shows areas in Alaska, which are identified in accordance with the Clean Air Act and subsequent amendments, as "Class I Areas." They include one national park and preserve managed by the U.S. Department of the Interior-National Park Service (DOI-NPS) and three national wilderness areas managed by the DOI-Fish and Wildlife Service (DOI-FWS). Class I Areas receive a higher standard of air quality control to protect the visual quality of these scenic areas. In doing so, a higher level of environmental protection from air pollutants is also achieved.

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Appendix 5: Air Quality Monitoring Equipment in Alaska

Monitor Location	Monitor Measurement Capability	Stationary or Portable	Continuous or Manual	Agency Owner	Agency Contact Phone Number
Fairbanks	PM-10, PM-2.5	S	C/M	Alaska Department of Environmental Conservation	907-269-6249
Anchorage	PM-10, PM-2.5	S	C/M		
Juneau	PM-10, PM-2.5	S	C/M		
Butte	PM-10, PM-2.5	S	C/M		
*Wasilla	PM-10, PM-2.5	S	C/M		
*Palmer	PM-10, PM-2.5	S	C/M		
*Soldotna	PM-10, PM-2.5	S	C/M		
Anchorage	PM-2.5 (2 EBAMs)	P	C		
Anchorage	PM-2.5 (2 EBAMs)	P	C	Department of the Interior- Fish and Wildlife Service	907-271-5011
Tuxedni Bay	PM-10, aerosols (IMPROVE)	S	M		
Sand Point	PM-10, aerosols (IMPROVE)	S	M		
Denali National Park	PM-10, aerosols (IMPROVE)	S	M	Department of the Interior-National Park Service	907-271-5011
Trapper Creek	PM-10, aerosols (IMPROVE)	S	M		
*Bettles	PM-10, aerosols (IMPROVE)	S	M		
Fairbanks	PM-2.5 (2 EBAMs)	P	C/M	Department of the Interior-Bureau of Land Management	907-271-5011
Petersburg	PM-10, aerosols	S		U.S. Forest Service	907-772-5865
Anchorage	PM-2.5 (2 DataRAMs)	P	M	Environmental Protection Agency	907-257-1342
Anchorage	PM-.1-10 (2 PDR 1000s)	P	M		
Anchorage	VOC, O2, CO2, LEL (3 Area RAEs)	P	C/M		

*These sites are due online in 2008.

Note: “Continuous” monitors run 24 hours a day, 7 days a week and an operator does not have to be present for the sampler to run.

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Appendix 6: Fire Danger Rating for Inland Areas

Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer strands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.

All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.

Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.

Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.

Source: U.S. Forest Service – Wildland Fire Assessment System

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