ALASKA INLAND AREA ON-SCENE COORDINATOR

IN SITU BURNING (ISB) CHECKLISTS

A Tool for Responses to Oil Spill Incidents in the Inland Zone of Alaska

A Supplement to the Alaska Area Contingency Plans

Prepared by the Alaska Inland Area Committee, In Situ Burning Working Group

November 2022

Imminent and Substantial Threat to Human Life
AS OUTLINED IN SUBPART J OF THE NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN (40 § 300.910(d)), THE FOSC MAY AUTHORIZE THE USE OF BURNING AGENTS AND OTHER CHEMICAL AGENTS FOR ANY OIL SPILL WHEN, IN THE JUDGMENT OF THE FOSC, IT IS NECESSARY TO PREVENT OR SUBSTANTIALLY REDUCE A HAZARD TO HUMAN LIFE.

These checklists are based on an idealized situation – anticipating a response with a full incident management team. Like the Incident Command System (ICS), is the checklists are flexible and can be utilized regardless of the scale of the event and is likely not to be used exactly as prescribed. Some checklist questions will not apply depending on the location and season of the response. The primary purpose of these checklists is to document and facilitate the OSCs decision-making process and their thorough but efficient review of a proposed ISB Plan.

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INTRODUCTION AND OVERVIEW

INTENDED AUDIENCE

This Job Aid is intended for use by *On-Scene Coordinators* to document and facilitate their decision-making process regarding proposals using *In Situ Burning* (ISB) at an oil discharge response tactic.

This Job Aid contains checklist-style tools developed to help decision-makers determine whether ISB is appropriate for the situation, to document the decision, and to develop an operational plan.

What is ISB?

For the purposes of this document, ISB is defined as the use of burning pooled oil (crude oil or a refined product) as a response tactic.

ISB is NOT:

⇒ Burning of residual oil on vegetation after other tactics have been used to recover the spilled substance.
⇒ Burning of contaminated soil or waste collected for disposal.

However, OSCs may use these checklists for responses that do not include ISB. These checklists include human health and environmental safety concerns that are common to any response involving fire or that uses fire as a response tactic.

REFERENCE AND TOOLS

These Checklists are not "stand-alone." They are intended to be used in combination with the following documents, available on the ADEC References and Tools website.

- *Alaska Department of Environmental Conservation* (ADEC) Spill Tactics for Alaska Responders (STAR) Manual
- *Alaska Regional Response Team* (ARRT) *In Situ Burning Guidelines for Alaska*, Revision 1 (August 2008, updated March 2018)
- 2014 Special Monitoring of Applied Response Technologies (SMART)
- Draft *Annex H - Job Aid: Health, Safety, and Training*
- *Job Aid: Logistics*
- OSHA Safety and Health Awareness for Oil Spill Cleanup Workers
- National Oceanic and Atmospheric Administration (NOAA) *Health and Safety Aspects of In Situ Burning of Oil* (Nir Barnea, undated)

Additionally, the Region 10 *Regional Response Team* (RRT) *Northwest Area Contingency Plan* (NWACP) has parallel content that might serve as useful references.

- Section 4617 *Region 10 In Situ Burning Policy and Plan*.
- Section 9203 *Health and Safety Job Aid*
- Section 9407 *In-Situ Burning Operations Planning Tool*.

The American Petroleum Institute (API) has developed several documents and references for ISB. Several of them are referenced in Chapter 2 of this document. They are available at the Oil Spill Prevention + Response, Response Library website.

- Field Operations Guide for In Situ Burning of Inland Oil Spills, API Technical Report
- Field Operations Guide for In Situ Burning of On-Water Oil Spills, API Technical Report
- API Selection and Training Guidelines for In Situ Burning Personnel, API Technical Report
- In Situ Burning – The Fate of Burned Oil, API Publication
- In Situ Burning Guidance for Safety Officers and Safety and Health Professionals, API Technical Report

In Situ Burning: A Decision Maker's Guide, API Technical Report

HOW TO USE THIS CHECKLIST

These Checklists are operational tools and supplements to the ARRT's *ISB Guidelines for Alaska.* Primarily, this Checklist is composed of decision-making worksheets/checklists for the OSCs to document and guide their decision-making process, along with some background guidance/references applicable to the checklists and ISB operations.

Incident Command (IC)/Incident Management Team staff working on developing an ISB plan can also use these checklists to verify that they anticipate and address their OSCs expectations.

OSCs should begin using these checklists as soon as ISB is proposed as a tactic to be considered in the response.

PART ONE: ISB DECISION MAKING CHECKLISTS. These are two checklists to support Unified Command Decision-Making and should be completed by the FOSC/SOSC or their support staff.

> **CHECKLIST #1: GO/NO-GO CHECKLIST** is an initial checklist for OSCs to use to determine if the conditions of the discharge and the environment are suitable for ISB. If the OSCs agree to proceed with ISB as a tactic, the Operations and Planning Sections will proceed with preparing appropriate plans and permits for ISB operations.
>
> *Per the ARRT ISB Guidance, the ARRT should be notified as soon as ISB is considered a potential response tactic. Checklist #1 may be used in the initial notification to the ARRT.*
>
> **CHECKLIST #2: ISB PLAN COMPONENTS**
>
> Is a list of ICS forms and supporting documents that compose the necessary ISB plan. If the information is provided in a different document, please specify location.

PART TWO: CHECKLIST FOR PLANNING SECTIONS STAFF

CHECKLIST #3: ISB PLANNING BEST MANAGEMENT PRACTICES. This is not intended to serve as a comprehensive list of all components of the ISB operations plan, permitting, notifications and consultations required to be completed or prepared by IC staff.

PART THREE: ISB QUICK REFERENCE GUIDES. This section is divided into two sections, a quick-reference guide for decision-making and for ISB operations.

PART FOUR: FREQUENTY ASKED QUESTIONS

PART 1 – ISB DECISION-MAKING CHECKLISTS

CHECKLIST #1: GO/NO GO CHECKLIST			
CATEGORY	**At the time of the proposed ISB operations, will the following conditions be met?**	**TYPE**	**Required Answer**
The purpose of this checklist is to confirm that Unified Command concurs that ISB is an appropriate tactic to be considered. This checklist is intended to list of environmental conditions, incident and response status that are recommended to support a safe and effective ISB.			
Weather & Environmental Conditions	**Are winds conducive to safe burning?** *i.e., No red flag warning: There is no established 'safe' wind speed; it is determined based on location of spill, season, and weather forecast.)* See: https://www.weather.gov/arh/fire	REQUIRED	YES
Health & Safety	**Have the following been identified within 3 miles of the anticipated fire to facilitate risk assessment & mitigation tactics?** • structures & infrastructure • human activities *Facility Owner/Operators of any critical infrastructure should be notified at start of ISB to address their operational concerns*	REQUIRED	YES
	Will a smoke plume model/ plume forecast be available for the burn period? *It is recommended that a model is requested via NOAA Scientific Support Coordinator or FEMA Interagency Modeling and Atmospheric Assessment Center (IMAAC).*	REQUIRED	YES
	Is there access for fire control, rescue, and monitoring?	REQUIRED	YES
	Will conditions or measures be in place to contain the fire and prevent secondary/accidental fire of surrounding vegetation or other oil outside of burn area? *Conditions and measures include the containment of oil by boom or natural barriers.*	REQUIRED	YES
Oil Discharge Conditions	**Is the oil condition appropriate for ignition and sustaining a burn?** *Factors include oil volatile hydrocarbons, weathering, and thickness*	REQUIRED	YES
Oil Discharge Conditions	**Is a burning agent being considered?** *See Part 3, A.1 for additional information*	REQUIRED	YES

UNIFIED COMMAND TO COMPLETE THIS CHECKLIST #1 PRIOR TO

PLANNING SECTION PROCEEDING WITH PLANNING FOR ISB

CHECKLIST #1: GO/NO GO CHECKLIST			
Weather & Environmental Conditions	**Has the ICS 232 Resources at Risk form been developed with agency input/review?** *Ensure that no resources found are at risk due to ISB operations, without acceptable mitigation*	REQUIRED	YES
	Are vegetation conditions suitable for conducting an ISB? *Verify that:* • *Vegetation is likely to recover from fire* • *Muskegs/peat bogs have adequate saturation to prevent persistent, below-surface fires.* • *Vegetation is not high-risk for fire (i.e., dry grasses or black spruce).*	RECOMMENDED	YES
Are there any potential concerns for completion of the following tasks prior to proposed/planned start to ISB operations?			
Incident Action Plan (IAP) and/or ISB Plan Components: 1) ISB Safety Plan 2) Communications Plan - including communications for aviation operations.			
Acquire and distribute or deploy appropriate equipment, including: 1) Personal Protective Equipment (PPE) 2) Communications Equipment 3) Air Monitoring Equipment			
Deploy trained responders for ISB operations, including: 1) ISB burn operations 2) Plume monitoring (visual and air monitoring teams) 3) Air monitoring 4) Fire suppression 5) Worker and public safety personnel for rescue, evacuations, Emergency Medical Services (EMS)			
Unified Command (UC) concurs that it is reasonable to proceed with creating an ISB plan for approval. *Efforts for mechanical recovery will continue until ISB Plan is approved by the UC.*			**YES / NO**
If UC endorses planning for ISB, UC should specify notifications/coordination/consultation including the following?			
Landowner/ Land manager and nearby critical facilities			
Tribal and local governments (include request for any restrictions, including transportation)			
State and local emergency services (include request to assist/coordinate evacuation efforts and other tasks, as needed.)			
Federal Aviation Administration (FAA) regarding potential need to broadcast Notice to Airmen for proposed burn area(s); Temporary Flight Restriction(s) issued.			
U.S. Coast Guard (USCG) regarding potential need to broadcast Notice to Mariners for proposed burn areas(s), if applicable.			

CHECKLIST #2: ISB PLAN COMPONENTS & SUPPORTING DOCUMENTS		
(*ISB Operations should be supported by and included in the following documents*) To be completed by FOSC/SOSC Support Staff		
IAP/ICS Forms & Supporting Documents	**Type**	**Status**
ICS 204 Assignment lists the following equipment that will be used: vessels, aircraft for ignition and aerial observation, ignition systems, fire boom, burn promoters (i.e., accelerants and herders), communications systems, air/plume monitors equipment. If personnel or equipment are not yet on-scene, provide estimated arrival times	IAP	
Map(s) showing the location of the spill source, location of proposed burn(s), location of nearest population centers, boundary of population centers, locations of simultaneous response operations, and plume forecast with 45-degree safety margin.	IAP	
Diagram depicting mechanical recovery and ISB equipment configurations	IAP	
Subpart J Chemical Agent use and application plan, including details about equipment to apply chemicals, and the application rates for burning agents and herders *(if applicable)*	Subpart J Authorization	
Site Safety Plan; Safety Data Sheets (including, as applicable, ICS 201-5, 206, 208HM, or 208)	Health & Safety	
Communication Plan - Internal (including ICS 205, 205A)	Communications	
External Communications (ISB fact sheet; burning or herding agent fact sheets; press releases, etc.)	Communications	
ICS Form 232- Resources at Risk Summary	Wildlife & Habitat, Socio-economic and Archeological & Cultural Resources Protection	
ESA Consultation Form (see Wildlife Protection Guidelines)	Wildlife & Habitat Protection	
Weather forecast, 72 Hr. (including through proposed burn period)	Other	
Task Specific Plans developed to support ISB: • Air Monitoring Plan • Sampling Plan	Other	

PART 2 – ISB PLANNING BEST MANAGEMENT PRACTICES CHECKLIST

The following ISB Planning Best Management Practices Checklist is intended to serve as a guide for Planning Section Staff and other IMT personnel working on developing plans and supporting documentation for conducting an ISB.

This checklist is intended to guide IMT staff in FOSC and SOSC expectations of information, consideration and content that should be included in UC briefings and IMT produced documents.

This information addressed in the checklist is likely to also be useful for PIO and LNO staff to prepare informational briefings and reports.

Note not all considerations are applicable to all ISB operations or locations.

ISB PLANNING BEST MANAGEMENT PRACTICES CHECKLIST			LOCATION: ICS FORM, ISB PLAN SECTION/ PAGE, ETC.
IAP or ISB Plan Topic	**Does the ISB Operations Plan and Plan Development include the following:**	**Yes/No N/A**	
Spill-Specific Info	Status of discharge (continuous; intermittent; secured) If discharge is continuous or intermittent, estimated rate of release.		
	Estimated volume discharged. Potential maximum discharge, if unknown or source not secured.		
	Type of Oil? API Gravity?		
	Age and weathering of oil. (Oil should have adequate volatile components to support ignition and sustain burn; ideally oil should be fresh, less than 2-3 days weathering)		
	Emulsification of oil. *(Oil emulsification less than 25% to support ignition and sustain burn)*		
	Oil thickness - in proposed ISB Area. *(Thickness of pool should be 2-3 mm to support ignition and sustain burn. Thickness can be enhanced/maintained by use of boom or herders.)*		
	Did source burn? If so, is it still burning?		
Basic ISB Plan	Proposed ISB date(s) and time(s)		
	Potential burn location(s) well described. Is a site diagram of burn area, and areas are impacted by smoke plume included?		
	Are multiple burns planned: ☐ Simultaneous? ☐ Sequential? Does a site diagram show distances between burns?		
	Is the Surface Area proposed for ISB determined? If multiple areas are planned, is the Surface Area of each burn itemized and included?		
	Is the estimated volume of oil to be burned described?		
	Is the Burn Task Force(s) described, including proposed personnel and assignments? (ICS 204)		

ISB PLANNING BEST MANAGEMENT PRACTICES CHECKLIST			LOCATION: ICS FORM, ISB PLAN SECTION/ PAGE, ETC.
IAP or ISB Plan Topic	**Does the ISB Operations Plan and Plan Development include the following:**	**Yes/No N/A**	
Basic ISB Plan	A detailed description on how mechanical response and other response operations will be conducted concurrent, delayed by, or staggered with ISB operations?		
	Is a test burn planned or completed?		
	Does the ISB Plan include necessary details on tactics for ignition, monitoring, fire control, worker safety, etc.		
	Spill Source & Ignition Location. Check One: ☐ Ignition is away from the source after containment and movement of the oil to a safe location (i.e., controlled burn); ☐ Ignition of uncontained oil is at a safe distance from the source; ☐ Ignition is at or near the source without controls.		
	Are oil ignition tactics identified, with necessary equipment and personnel available?		
	Does the ISB Plan include details on tactics & procedures to extinguish the fire, if necessary?		
	Will appropriate natural resource/environmental monitoring personnel and equipment be mobilized and on-site within the proposed time?		
	Task-specific Plans/ Plan Components developed to support ISB: ☐ ISB Safety Plan ☐ SMART Monitoring/Community Air Monitoring Plan ☐ Sampling Plan: Air Sampling, Burned Oil Residue ☐ Recovery of Burned Oil Residue		
	Post Burn Plans: Are Incident Management Team (IMT) prepared to develop or have they developed the following plans for implementation following burn operations? ☐ Waste Disposal Plan for Oil Residue ☐ Re-vegetation and Erosion Control		
	Does the Safety Plan specify that all response personnel (not just ISB personnel) will be briefed on the plan for ISB operations and safety considerations?		
	Are personnel trained and equipped with PPE & safety gear appropriate for burn operations?		

ISB PLANNING BEST MANAGEMENT PRACTICES CHECKLIST			LOCATION: ICS FORM, ISB PLAN SECTION/ PAGE, ETC.
IAP or ISB Plan Topic	**Does the ISB Operations Plan and Plan Development include the following:**	**Yes/No N/A**	
Basic ISB Plan	Are all administrative controls, protocols, and action levels established and included in the plan for likely combustion by-products, including? ☐ Level of Concern (contaminants) ☐ PM10 particulate action levels ☐ PM2.5 particulate action levels ☐ Total & Respirable dust action levels		
	Does a Communication Plan include the following? ☐ a system that addresses communication for plume monitoring and air monitoring teams (may be 'off-site'), ☐ communication between aircraft, response teams on ground, and a control base		
	Has communication equipment been distributed and/or deployed? Are repeater stations established, if necessary?		
	Does the ISB Plan address alternate day & night operations if ISB is only conducted during day (e.g., collection of oil or residue at night)?		
Use of Chemical Countermeasures	Is use of a burning or herding agent planned?		
	Is the proposed herding agent herder listed on the EPA Schedule J?		
	Is equipment available to apply a burning or herding agent?		
	Are trade-offs or impacts of burning or herding agents identified?		

Safety Analysis	Does the operations and/or Safety Plan(s) address measures to control the fire, including: ☐ Prevention of secondary/accidental fires (structures, buildings, and/or vegetation) ☐ Fire suppression or extinguishing		
	Does the operations and/or Safety Plan(s) address air monitoring for the following? ☐ On-site (burn location) worker health and safety ☐ Downwind worker health and safety (mechanical recovery operations, shoreline clean-up assessment teams (SCAT), etc.) ☐ SMART/ Community Air Monitoring (public health air monitoring)		
	Does the Safety Plan address personnel who are on-site and downwind? ☐ Appropriate Training (Hazardous Waste Operations and Emergency Response (HAZWOPER), etc.) ☐ Appropriate PPE issued ☐ Medical monitoring		
	Has the weather forecast been evaluated for wildfire risk? Do the projected wind speeds, relative humidity, and temperatures exceed the "Red Flag" thresholds for the region? (https://fire.ak.blm.gov/content/Weather%20Folder/Weather%20Help%20Tools/Red%20Flag%20Criteria.pdf)		
	Risk of Secondary/Accidental Fire: ☐ Does the operations plan describe a means for eliminating risk of accidental/secondary fires (e.g., structures/buildings and/or vegetation)? ☐ Can ignition and burn be conducted in a way to prevent unintentional ignition of the spill source and surrounding habitat?		
	Is visibility sufficient to see oil and nearby structures, features, personnel, and/or operations, and is it suitable for aerial overflight for burn observation? *(Recommend a ceiling of at least 500 feet and visibility of a ½-mile minimum)*		
	Are adequate aviation assets available to direct and assess burn operations and to make observations of wildlife in the area?		

Weather, Ice & Currents	☐ Is a weather forecast for the proposed burn period included? ☐ Are the forecasted precipitation conditions described and suitable for burning? ☐ Have periods of forecasted weather as favorable for burning identified?		
	Is the ice coverage described (including percent coverage and thickness)?		
	Is ice thickness safe and appropriate to support operations (personnel and equipment)?		
	Is the snow coverage described, including? ☐ Percentage snow coverage ☐ Snow depth ☐ Any oil absorption by snow		
	If oil on water, is the current described and suitable for burning? *(Recommended <0.75 knots relative to the boom)*		
	Has the type of terrain elevation, where burning is proposed, been described (flat, hilly, mountainous, open water, etc.) Has terrain type been evaluated for a risk of uncontrolled fire, and have post-impacts after fire been determined to have an acceptable/low risk?		
Air Quality	Are any Class 1 Areas, protected by Section 162(a) Clean Air Act (CAA), in the area potentially impacted by ISB (burn area or plume area)? ☐ If so, is there a plan to mitigate impacts?		
	According to best professional judgment, will PM2.5 concentrations remain below 35 micrograms per cubic meter (m3) for a 24-hour average in populated areas?		
	Is air sampling planned? If so, are equipment and procedures described?		
	Is on-site (worker) air monitoring specific to ISB described, including equipment, procedures, and action levels?		
	Is SMART/Community Public Health Air Monitoring planned? Are the equipment, procedures and action levels described?		
	Are procedures and/or protocols for sharing air monitoring & air sampling results with state & local health and air quality agencies described? With other interested parties?		

Natural Environment	Has the type of terrain & ecosystem where burning is proposed been described (lake, river/creek, bog, marsh, tundra, gravel, forested, etc.) Has terrain type been evaluated for the risk of uncontrolled fire and has it been determined to have an acceptable/low risk?		
	Has the soil & substrate where burning is proposed been described? Has any ice or water layer(s) in substrate been identified? Has substrate type been evaluated for the risk of uncontrolled fire and has it been determined to have an acceptable/low risk?		
	Has the area proposed for ISB been evaluated for the presence of deep or thick organic soil layers (tundra, peat bogs, muskegs)? *These may pose a risk of persistent burning below ground surface.*		
	Has the area proposed for ISB been evaluated for the presence of permafrost? *ISB can cause permafrost to thaw and result in a long-term change to the landscape and/or destabilization of infrastructure.*		
	Has the vegetation in the area where ISB is proposed been described in terms of? ☐ Vegetation cover ☐ Fire hazard ☐ Post-burn impacts & recovery		
	Is there any protected land or habitat in the proposed ISB area (National Parks, National Monuments, State Parks, State or National Wildlife Refuges, designated Wilderness) that may be adversely impacted by ISB operations or resulting smoke plume?		
	Are there any species listed as Threatened or Endangered under the ESA or designated Critical Habitat that may be adversely impacted by the ISB operations or smoke plume? If so, has ESA Emergency section 7 consultation been conducted?		
	Have the natural and cultural resource protection agencies provided input or reviewed the Resources at Risk/ ICS 232? Have any additional at-risk resources (ICS 232) been identified that may be adversely impacted by ISB operations or resulting smoke plume? ☐ *If so, is there* a plan to mitigate impacts?		

Human Populations & Built Environment	Are there humans residing (including temporary or seasonal residences) in the impacted area? ☐If so, is there a plan to mitigate impacts?		
	Are vulnerable populations identified in the potentially impacted area, including facilities with vulnerable populations (e.g., schools, nursing homes, hospitals, congregate care)? ☐If so, is there a plan to mitigate impacts?		
	Are there recreating humans or subsistence activities in the impacted area? ☐If so, is there a plan to mitigate impacts?		
	Are evacuations or shelter-in-place orders anticipated/necessary? Have plans for notifications and procedures been established?		
	Have structures and infrastructure *within 3 miles* of the proposed burn area(s) been identified? Has a risk assessment and Safety Plan been developed to protect the structures/infrastructure?		
	Will the burn affect visibility at airports? Will the burn affect visibility on roads? ☐If so, is there a plan to mitigate impacts?		
	Have potentially affected historic properties and cultural resources been identified and adequately addressed? ☐If so, is there a plan to mitigate impacts?		

Spill Impact Mitigation Assessment/Net Environmental Benefit Analysis	Have the reasons for selecting ISB as a response tactic over mechanical been well documented and justified, including Spill Impact Mitigation/Net Benefit Analysis? Why is ISB being considered instead of mechanical recovery alone? ☐ ISB will reduce movement of oil to sensitive sites or over a large area; ☐ ISB will reduce the generation of oily wastes, especially where transportation or disposal options are limited; ☐ Access to the site for mechanical recovery is limited by shallow water, soft substrates, thick vegetation, or the remoteness of the location; ☐ Mechanical recovery efforts have been deemed insufficient to protect sensitive shorelines and other natural resources fully and adequately; and/or ☐ Mechanical recovery would cause more damage to the environment than ISB. (e.g., the operation of heavy equipment might damage sensitive wetlands or permafrost)		
	Has the reasoning and/or justification for ISB as a response tactic versus mechanical been documented in a way that is appropriate for Public Information Officer (PIO)/Joint Information Center (JIC) use and administrator (state/regional/headquarters) briefings?		
	Has an on-site survey been conducted to identify bird and wildlife concentrations in the proposed burn area?		
	Have federal and state agencies and stakeholders post-burn residue recovery requirements been established? Has the impact to the environment for mechanical recovery of unburned oil vs. recovery of burned oil residue been assessed?		

External Consultation, Coordination and Communication	Are required permits obtained or in process of getting?		
	Has FAA been notified of ISB operations and the potential impact? Is the FAA prepared to issue Temporary Flight Restrictions and Notice to Airmen?		
	Has consultation and coordination with fire service agencies regarding fire risk been completed, including Alaska Interagency Coordination Center/BLM Alaska Fire Service, the U.S. Forest Service, and/or the State of Alaska Division of Forestry to advise on fire danger/wildland fire risk completed?		
	To the extent practical, is consultation with the following completed and documented? ☐ potentially impacted landowners/land managers completed and documented? ☐ State and federal natural resource agencies ☐ other affected stakeholders ☐ potentially impacted public safety agencies o Fire, EMS, Law Enforcement notified to be on standby for potential response in event of emergency?		
	Is the Alaska Department of Transportation & Public Facilities (DOT&PF) and local road managers prepared to assist in road closures or other impacts to ground transportation?		
	Is consultation with potentially impacted Tribes completed and documented, to extent practical?		
	Are tribal and local government, public safety, and local/regional emergency management personnel involved in planning for public notifications, evacuations, etc.?		
	Have federal, state, or regional air authorities and health departments been consulted, to extent practical?		
	Have critical facilities operators/managers within sight distance of smoke plume been notified and consulted?		

PART 3 – ISB QUICK REFERENCE GUIDES

CHAPTER A – QUICK REFERENCE GUIDE: ISB DECISION-MAKING

Prior to any ISB operations, the On-Scene Coordinator (OSC)/Unified Command (UC) will use the decision tree provided in Figure 1.

A.1 – SOSC, FOSC AND/OR ARRT APPROVAL

FOSC Authority: FOSCs have the authority and responsibility for responding to oil spills based upon their jurisdictional boundaries. Within the UC, the FOSC is authorized to do the following without ARRT approval:

- Under proper conditions, ignite the spilled oil without the addition of chemical agents, including burning and herding (surface-collecting) agents.
- Utilize chemical agents to initiate/sustain ISB when, in the FOSC's judgment, the use of agents is necessary to prevent or substantially reduce a hazard to human life.

Following ARRT approval, the FOSC is authorized to do the following:

- Utilize chemical agents to initiate and sustain in situ burning to mitigate spilled oil within any constraints provided by ARRT.

Imminent and Substantial Threat to Human Life: As outlined in Subpart J of the National Contingency Plan (NCP), the FOSC may authorize the use of chemical agents, including burning and herding (surface-collecting) agents for any oil spill, when in the judgment of the FOSC, the chemical agents are necessary to prevent or substantially reduce a hazard to human life without first obtaining ARRT Approval. [40 CFR 300.910(d)].

SOSC Authority: Under Alaska regulations, ISB constitutes an open burn. The SOSC can waive the necessary open burn permits required under Alaska air quality regulations (18 AAC 50.065) but must approve any ISB operations.

ARRT Authority: The ARRT U.S. Environmental Protection Agency (EPA) co-chair and `Alaska Department of Environmental Conservation (ADEC) representatives to the ARRT must approve the use of any chemical agent, including burning or herding (surface-collecting) agents. When practical the U.S. Department of Interior (DOI) and U.S. Department of Commerce (DOC) ARRT representatives should also be consulted. (40 CFR 300.910[b-c]).

Definition of "Ignition": Subpart J of the NCP does not define or prohibit ignition as a method to ISB. Further, the use of an ignition source is not considered the use of a burning agent in the initiation of or sustained combustion of spilled oil.

Definition of "Burning Agents": Subpart J of the NCP specifically addresses authorization procedures for the use of "appropriate burning agents." A burning agent, also called an "accelerant," is defined as an additive that, through physical or chemical means, improves the combustibility of the materials to which it is applied [40 CFR 300.5]. ISB often includes the use of burning agents to assist with ignition and, at times, with sustained combustion. The NCP does not require technical product data submissions for burning agents and does not include burning agents on the NCP Product Schedule (40 CFR 300.915[e])

Definition of "Surface Collecting Agents:" Surface collecting agents, also called herding agents, are chemical agents that form a surface film to control the layer thickness oil (40 CFR 300.5). Subpart J of the NCP authorizes FOSCs to approve the use of surface collecting agents. To approve the use of a collecting agent, the chemical must be listed on the NCP Product Schedule and (40 CFR 300.910[b]).

A.2 – TYPICAL WORKFLOW FOR ISB DECISION-MAKING

The typical ISB use review and authorization process includes the general steps described below.

Each spill response is unique, and the exact steps used in this process and their timing may vary between responses):

1. ISB is proposed as a potential tactic.
2. UC notified and Checklist 1 completed.
3. If UC agrees to proceed based on Checklist 1, Operations and Planning Sections proceed with developing an ISB Plan.
4. While mechanical recovery is on-going, resources for ISB are mobilized concurrent with ISB plan development.
5. Planning Section Chief (PSC) will inform (directly or by delegation) the Environmental Unit Leader (EUL) of the need to advise and document the decision to use ISB. The EU should:
    a. Evaluate the use of ISB,
    b. Document the decision-making process and necessary approvals, including key decision points to maintain a clear record of decisions.
6. The PSC should, in coordination with the OPS, EUL, Safety and Liaison Officers:
    a. Establish a timeline for completion necessary plans, permits and coordination/consultation/notifications, and briefing documents for the FOSC/UC and ARRT,
    b. Brief the FOSC/UC about the completed ISB plans, and
    c. Prepare materials for the FOSC/UC to brief the ARRT for ARRT approval, if necessary.
7. The PSC or EUL will then establish a group of technical experts. Potential ISB advisors include the following:
    a. National Oceanic and Atmospheric Administration Scientific Support Coordinator (SSC),
    b. Representatives from natural and cultural resource trustee agencies,
    c. Industry/consultant technical experts,
    d. Wildland Fire experts,
    e. Air quality experts and regional air authorities,
    f. State and federal health authorities,
    g. Tribal and local area representatives to advise on local conditions and land use, and
    h. Other representatives as appropriate.

A.3 – EMERGENCY NOTIFICATION AND CONSULTATION

A.3.1 - Endangered Species Act (ESA)

Emergency ESA section 7 consultations shall be initiated by the lead federal response agency as soon as practicable after notification of a major discharge where ISB is proposed and listed species and/or critical habitat is present in the area or nearby. Alaska Inland ACP Section 4850 – "ESA Section 7 Consultations" outlines the FOSC's responsibilities for ESA consultation. The Wildlife Protection Guidelines for Oil Spill Response in Alaska (sections 1620.3, 4810, and 9740.3.7), provide additional

information and resources regarding ESA consultation. In-situ burning will be conducted in accordance with emergency consultations with the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Examples of potential protection measures resulting from the consultation may include moving the location of the burn to an area where listed species are not present; temporary employment of wildlife deterrence techniques; and physical removal of individuals of listed species). An on-site survey will be conducted prior to beginning an ISB to determine if any threatened or endangered species are present in the burn area or otherwise at risk from any burn operations, fire, or smoke. Appropriate knowledgeable natural resource specialists and USFWS and NMFS representatives will be consulted prior to conducting any ISB. Measures will be taken and documented to prevent risk of injury to any wildlife, especially endangered or threatened species.

A.3.2 - National Historic Preservation Act Consultation

ISB will be conducted in accordance with emergency consultations with the State Historic Preservation Office. Section 106 of the National Historic Preservation Act (16 United States Code 470[f]) requires federal agencies to consult with the State Historic Preservation Office if they are proposing an action that may affect historic properties. The "Alaska Implementation Guidelines for FOSCs for the Programmatic Agreement on Protection of Historic Properties During Emergency Response Under the NCP" discusses obligations required of FOSCs to protect cultural resources and historic properties during an emergency response and procedures to follow to meet those obligations.

A.4 – TRIBAL EMERGENCY NOTIFICATION AND COORDINATION

Emergency notification of tribes shall be initiated by the lead federal response agency as soon as practicable after notification of a major discharge.

When EPA or USCG responds to an emergency using their FOSC authority, the FOSC will notify tribes within the potential impact area or that conduct traditional use activities in the impact area. The SOSC, likewise, will notify tribes that may be affected by an oil spill or hazardous substance release.

The FOSC will also offer consultation to affected tribes, through tribal natural or cultural resources or environmental staff, regarding oil spills and the use of ISB operations that potentially could affect tribal interests.

A.5 – CLEAN AIR ACT, CLASS I AREAS

The federal CAA (amended in 1977) designated all international parks and certain national parks, wilderness areas, and memorial parks as *mandatory class I Federal areas* (Class I Areas) subject to special visibility protections from manmade air pollution. Federally recognized tribes were also provided a mechanism to petition for additional Class I Area designations. Class I Areas receive a higher standard of air quality control to protect the visual quality of these scenic areas.

ISB decision making that could impact Class I Areas needs to involve Department of the Interior (DOI) trustees.

Class I Areas:

- Bering Sea Wilderness Area;
- Simeonof Wilderness Area;
- Tuxedni Wilderness Area;
- Denali National Park and Preserve

Tribal Use Areas, Class I Areas:

- No Class I Areas have been designated by tribes in Alaska.

Figure 1 - This figure shows areas in Alaska that are identified in accordance with the CAA and subsequent amendments, as "Class I Areas."

CHAPTER B – QUICK REFERENCE GUIDE: ISB OPERATIONS

B.1 – RESPONDER HEALTH AND SAFETY

ISB Operations will require a revision or supplement to a response health and safety plan, to address health and safety concerns separate from general response operations. These hazards specific to ISB operations can include:

- ☐ Respiratory Hazards from combustion by-products (particulate matter and combustion gases)
- ☐ Chemical hazards of any herding (surface-collecting) or burning agents, including potential aerial application of these chemicals
- ☐ Fire/High Temperature hazards
- ☐ Aircraft or Unmanned Aircraft Systems (UAS) Operations

API's *ISB Guidance for Safety Officers and Safety and Health Professionals* includes an example ISB Worker Health and Safety Plan.

References:

API. 2018 *In Situ Burning Guidance for Safety Officers and Safety and Health Professionals*, API Technical Report 1254. Available at https://www.oilspillprevention.org/oil-spill-research-and-development-cente

NOAA. Health and Safety Aspects of In-situ Burning of Oil. Available at https://response.restoration.noaa.gov/sites/default/files/health-safety-ISB.pdf

B.2 – SMOKE PLUME MODELING AND WEATHER FORECASTING

NOAA, via the National Weather Service and/or the Air Resources Laboratory can assist in both weather forecasting and plume modeling. Contact the NOAA Scientific Support Coordinator for assistance.

- Plume Modeling Capabilities (NOAA Air Lab/Hysplit; crude particulate)
- Weather Forecasting Capabilities (National Weather Service [NW]S On-site Meteorologist/Synchronized Pre-Deployment and Operational Tracker [SPOT forecasting])

B.3 – AIR QUALITY STANDARDS

Air Quality Standards are established by OSHA for workers and EPA, via the National Ambient Air Quality Standards (NAAQS) and Air Quality Standard (AQI). For most cases, the NAAQS is the applicable for public health standards – and these are consistent referenced in the ARRT ISB Guidelines and the SMART protocol. However, general users and the pubic are likely more familiar with the AQI public health standard and its color-coded standards for particulates, especially regarding wood smoke from wood stoves and wildfires.

References:

- API's *In-Situ Burning Guidance for Safety Officers and Safety and Health Professionals*. Section 3.4.5 Table 6 and Table 7.
- NOAA "Health and Safety Aspects of In-situ Burning of Oil." Table 1.

Table 1 below lists the occupational and public health air standards and the estimate emissions at and 1 kilometer downwind of an ISB of diesel fuel.

Table 1: Estimated Airborne Emissions for Burning of Oil and Comparison to Occupational and Public Health Standards					
Contaminant of Concern		Occupational Standards	Public Health Standards	Range at the Burn Site	Range 1 Kilometer Downwind
Particulates	PM2.5	Not established	35 µg/m^3: 24-Hour NAAQS 0–12 µg/m3 (24-hour average) • (AQI: 0–50, Good) 12.1–35.4 µg/m3 • (AQI: 50–100, Moderate) 35.5–55.4 µg/m3 • (AQI: 101–150, Unhealthy for Sensitive Subgroups) 55.5–150.4 µg/m3 • (AQI: 151–200, Unhealthy) 150.5–250.4 • (AQI: 201–300, Very Unhealthy) > 250.5 µg/m3 • (AQI: 301–400, Hazardous)	0.0- 2.4 mg/m^3 (from diesel)	No data identified for ISB
	PM10	Not established	150 µg/m^3 (24-hour EPA NAAQS)	850 µg/m^3	86 µg/m^3
	Respirable Dust (OSHA PEL)	5 mg/m^3 (*15 mppcf)	Not established	No data identified for ISB	No data identified for ISB
	Total Dust (OSHA PEL)	15 mg/m^3 (*50 mppcf)	Not established	No data identified for ISB	No data identified for ISB
Polycyclic Aromatic Hydrocarbon (PAH) [1]		200 ug/m3 (OSHA PEL)[1]	Not established	0.0-13.1 µg/m^3	No data identified for ISB
Gases and Vapors	Carbon Dioxide (CO_2)	5,000 ppm (OSHA PEL)	Not established	26-543 ppm	<32 ppm
	Sulfur Dioxide (SO_2)	0.25 ppm (ACGIH STEL) 5 ppm (OSHA PEL)	0.075 ppm (1-hour EPA NAAQS) 0.5 ppm (3-hour EPA NAAQS)	2 ppm	<0.0012 ppm
	Nitrogen Dioxide (NO_2)	5 ppm (OSHA Ceiling)	0.1 ppm (1-hour EPA NAAQS)	0.0001-0.0006 ppm	
	Carbon Monoxide (CO)	50 ppm (OSHA PEL)	35 ppm (1-hour EPA NAAQS) 9 ppm (8-hour (EPA NAAQS)	0.14-0.15 ppb	0.14 ppb
	Total Volatile Organic Compound (VOCs)	300 ppm (ACGIH TLV; gasoline) 500 ppm (OSHA PEL)	Not established	0.0026-0.0083 ppm	0.0013 – 0.0016 ppb

[1] There is no specific OSHA PEL for PAH; however, OSHA does establish a PEL for volatiles from coal tar pitch that includes PAHs anthracene, benzo(a)pyrene, phenanthrene, acridine, chrysene, and pyrene.

Acronyms

µg/m^3 – micrograms per cubic meter
ACGIH – American Conference of Governmental Industrial Hygienists
AQI – Air Quality Index
mppcf - million particles per cubic foot
NAAQS - National Ambient Air Quality Standards
OSHA – Occupational Safety and Health Administration
PEL - permissible exposure level
ppb – parts per billion
STEL – short-term exposure limit
TLV – threshold limit quantity

Sources: API. 2018 *In-Situ Burning Guidance for Safety Officers and Safety and Health Professionals*, API Technical Report 1254. Available at https://www.oilspillprevention.org/oil-spill-research-and-development-cente; With the addition of OSHA standards for Particulates, Not Otherwise Regulated (Respirable Dust and Total Dust), EPA NAAQS: https://www.epa.gov/criteria-air-pollutants/naaqs-table; EPA AQI https://www.airnow.gov/aqi/aqi-basics/

Types of Air Sampling and Monitoring Equipment & Data Availability:

- **Air Sampling**: Federal Reference Method (FRM) and Chemical Speciation Network (CSN) results are not available immediately. These samplers collect airborne particulate matter (PM) in a filter cassette each day, and the cassette is submitted to a laboratory for analysis.
- **Air Monitoring:** Beta Attenuation Monitors (BAMs) results can often be available within about an hour, depending on data telemetry performance. These samplers collect particulate on a tape spool hourly, analyze the concentration internally, and provide the data to remote users via an uplink.
- **Air Monitoring:** Gas Phase Sensor (carbon monoxide, nitrogen compounds, ozone, sulfur dioxide) data is generally available quickly depending on telemetry performance.

Available Equipment:

- **EPA Region 10** maintains an inventory of Air Sampling and Monitoring equipment at their Anchorage, Seattle, and Portland Emergency Response Logistics Centers.
- [insert statement on OSRO and response contractor equipment]

B.4.1 Worker/ On-Site Air Monitoring

Air Monitoring for worker health and safety should be established, as determined appropriate in consultation with the Safety Officer. Air monitoring may need to be adjusted to accommodate increased volatilization of contaminants due to increased temperatures before and following ISB operations.

B.4.2 SMART and Public Health Air Monitoring

The ARRT ISB Guidelines, when practicable air monitoring (in accordance with the SMART protocols) must be conducted during the burn operation whenever there is a potential of impacting populated areas.

The *EPA Region 10 Community Air Monitoring Plan* is consistent with the SMART protocols and provides more detailed information on conducting air monitoring for public health protection with EPA Region 10 equipment and may be a useful guide for EPA implementation of air monitoring.

During an ISB, public health and safety is primarily at risk from smoke-particle exposure. Statewide, responsibility is vested in the Alaska Department of Environmental Conservation (ADEC) Division of Air Quality Monitoring and Quality Assurance Program. Additionally, State and Federal human health agency representatives (Alaska DHSS, CDC/ATSDR) have expertise that could help evaluate the safety of a proposed operation, as should be consulted (as time allows) regarding air quality hazards to nearby populations.

The State operates nine *air quality monitoring* (AQM) sites. These sites monitor for a variety of parameters including $PM_{2.5}$ and $PM_{10.}$ The incident commander, or designee, should confirm with ADEC that the monitoring network described above is operational before relying on it during an ISB.

B.4.3 – Local Air Agencies and Public Health Departments

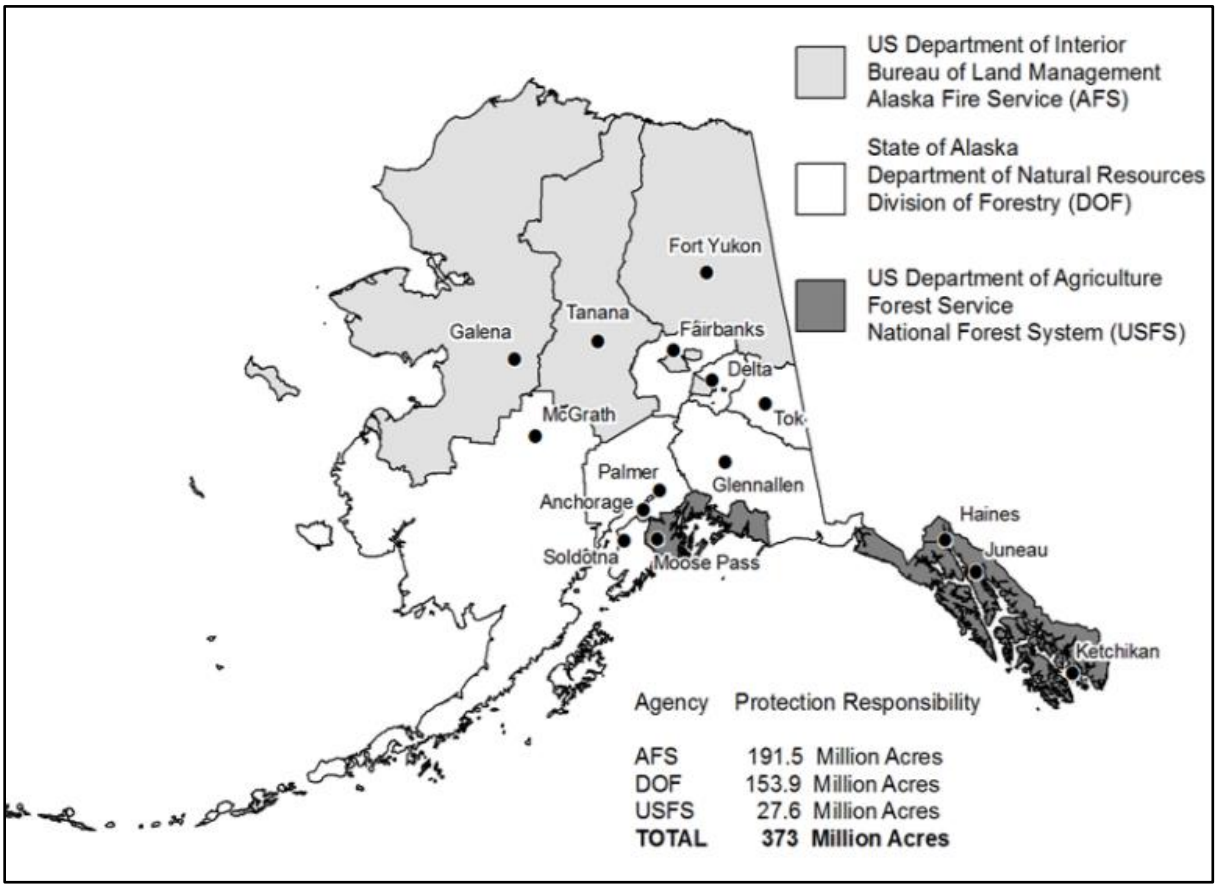
Several local governments have public health departments or agencies. Contact information is available on the ADHSS, Division of Public Health page for Public Health Centers.

B.5 – WILDLAND FIRE/ UNCONTROLLED BURN RISK

The wildland fire agency for the region where the response is located should be consulted for risk of secondary or unintentional fires due to ISB.

- Alaska Interagency Fire 907-356-5600, 800-237-3633
- BLM Alaska Fire Service: (907) 356-5600
- Alaska DNR, Division of Forestry, Wildland Fire & Aviation Program: (907) 761-6238 or
- USFS Fire (Chugach National Forest and Southeast Alaska) 907-743-9458, 907-205-1150

Figure 1: Alaska Wildland Fire Management Agencies



Source: Alaska Multi-Agency Coordinating Group Handbook. 2021. Alaska Interagency Coordination Center (AICC) Situation Report which is available at https://fire.ak.blm.gov/.

B.6 – BURN RESIDUE & WASTE MANAGEMENT

Plans should be developed that address the recovery of burned oil residue and waste disposal plan for oil residue.

REFERENCE API. 2004. Fate of Burned Oil, https://www.oilspillprevention.org/-/media/Oil-Spill-Prevention/spillprevention/r-and-d/in-situ-burning/3f8cc481e00046bd97367e6aeeb0c767.pdf]

B.7 – RECOVERY, EROSION CONTROL, REVEGETATION PLANS

Plans for recovery burn site should be developed as part, this may include plans to manage or mitigate erosion and revegetation of the site. Important considerations include:

- Seeds for revegetation are native to the region and weed-free;
- Consult with a fire ecologist for guidance on revegetation.

PART FOUR: FREQUENTLY ASKED QUESTIONS

Is this checklist intended for use in coastal or marine environments?

No, this checklist is specifically for the inland area of Alaska. It does not address coastal or marine environments, such as tides or currents.

When should these checklists be used?

Checklist 1 should be used by the OSCs/UC at the first suggestion of ISB as a potential response tactic. This checklist is intended to facilitate the OSC's decision-making to assign OPS and PSC to develop an ISB Plan and begin initial steps anticipating the authorization to use ISB.

Checklist 2 should be used by OSCs/UC to review the ISB plan(s) prior to approval.

Will these checklists replace the checklist found in the ARRT's *In Situ Burning Guidelines of Alaska?*

No. This is a supplemental tool used to assist and document the OSCs decision-making. The ISB Guidelines of Alaska is the minimum requirement for an ISB Operational Plan. This checklist sets out the OSC expectations for an ISB Plan in the Alaska Inland Zone.

Should the PSC or EUL complete the checklists?

This checklist may be useful for meeting OSC expectations; however, the Part 1 checklists is for the OSC to complete.

In Part 2, ISB Planning Best Practices, a column is included for the 'location' of the requested information for completion by the Planning Section Staff. Completion of this field prior to OSC review may reduce the time required for the plan review and ISB approval.

Why is Burning Oil Vegetation not considered ISB?

As defined in the ADEC Tundra Treatment Manual, the burning of oiled vegetation is specifically intended to be the burning of residual oil. This is the removal of residue after mechanical removal of oil and not in lieu of mechanical recovery. In burning oil vegetation, there should be no pooled oil – burning of pooled oil would be considered ISB.

However, burning oiled vegetation, while not categorized as ISB, poses some similar risks, specifically accidental/secondary fire hazards, and plans for burning of oiled vegetation should address these.

If there is not an FOSC on the response, does EPA FOSC need to approve the use of ISB?

EPA will not be involved if the discharge is not within their jurisdiction (e.g., Waters of the United States are threatened or impacted). Even if the EPA can assert jurisdiction, the EPA can opt out of active involvement in the response - in this case the approval of ISB can be the made by the SOSC without FOSC concurrence.

If there is not an SOSC (but an ADEC case manager) on the response, does the SOSC need to approve the use of ISB?

ISB requires an air permit; however, an SOSC is authorized to waive the air permit during an emergency response. Either SOSC approval or an ADEC air permit is required prior to burning.

Does a test burn require OSC or ARRT approval?

A test burn serves a few purposes: ignitability and determining plume direction and dispersion. Ignitability can often be tested by using a small amount of the discharged oil, but assessing the plume generated requires a volume of oil to be burned adequate to simulate planned ISB operations. Whether OSC or ARRT approval is required is dependent on the size, scope, and location of the test burn, as described below.

1. If a small amount (<10 gallons) of oil is burned in the test burn, and a chemical agent is not used: FOSC approval may not be required.
    a. NOTE: Oil should be isolated from the pooled oil, preferably within containment.
2. If more than 10 gallons is to be burned in the test burn: FOSC approval is REQUIRED.
3. If a chemical agent is to be used during the test burn, regardless of volume burned, and if the oil is NOT in a containment, FOSC and ARRT approval is REQUIRED.
    a. If the oil is in containment, ARRT approval is not required since the chemical agent is not being added to the environment.

4. SOSC approval may be required in all cases due to the requirement for a burn permit to burn crude oil, unless ADEC Air Quality has issued a permit for the burning of oil. See https://dec.alaska.gov/air/air-permit/open-burn-info/ for more information.

Does the ARRT need to approve the ISB plan?

The role of the ARRT as defined in the NCP is to approve the use of chemical agents (burning or herding/surface collecting agents) specifically. In this case, the approval is delegated to the EPA Co-Chair and the ADEC Representative. When practical, the DOI and DOC ARRT representatives should also be consulted.

If chemical agents are not used, ARRT approval and consultation is not required.

Ignition sources do not require ARRT approval.

What happens if resource protection or human health protection agencies oppose ISB but the OSCs do not?

While coordination and consultation with agencies, tribal and local governments, and other stakeholders is a best practice, ISB if used must be conducted early in the response while the oil remains burnable. The time required or requested by these agencies/organizations may not be feasible within the 'burn window.' The NCP authorizes the FOSC to make this decision, with or without the concurrence of other agencies.

DOCUMENT CHANGE HISTORY

In keeping with best practices for quality and transparency, updates to this document and identification of contributors are tracked in the following two tables. This document was developed in collaboration with the Alaska Inland Area Committee, ISB Working Group. The table summarized the draft versions that were a product of working group.

TABLE 1 - ALASKA ISB CHECKLIST VERSION LOG

Version Number	Effective Date	Change Type	Change Description
Internal Draft	July 31, 2020	Preliminary Draft Document shared with EPA OSCs	New document with extensive derivation from existing plans.
Initial Draft	July 7, 2021	Incorporated recommendations of OSCs. Shared with AK Inland Area Committee, ISB Working Group	
Draft #2	October 8, 2021	Changes incorporated from ISB Working Group and OSC Comments. Primary change to streamline worksheets into two Checklists with Yes/No questions. *Draft shared to be tested at ExxonMobil exercise, Oct 14, 2021.*	Checklist #1: Go/No-Go to approve consideration of ISB as a response tactic. Checklist #2: OSC Checklist to review plans developed for ISB operations. Streamlined reference material in Part 2.
Draft #3	February 1, 2022	Draft #2 revised with lessons learned following ExxonMobil exercise and SOS/FOSC review.	Completed information on Air Monitoring; improved consistency and references to NCP and ARRT ISB Guidance.
Draft #4	March 2022	Changes incorporated from ISB Working Group and OSC Comments.	Addition of a Chapter 3. Frequently Asked Questions. Reduction of redundant questions in checklist. Improvements to format and technical edit.
Draft #5	October 2022	Changes in corporate following ISB Working Group, September 2022 meeting	Revisions to clarify the purpose of the job aid and to streamline use of the checklist.
Draft #6	November 2022	Revision following Hilcorp Alaska Full Scale Exercise, October 2022.	Streamlined checklist questions. Moved Checklist 2 to its own chapter and reclassified it as a Best Practices guide rather than a decision-making checklist