

**State of Alaska
Department of Environmental Conservation
Contaminated Sites Remediation Program**



**Guidance on Public Involvement
for Project Managers
*Public Review Draft***

Comment Period: Through October 29, 1999

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Public Involvement Guidance

Informing and involving interested community members throughout the investigation and cleanup of the site is a key element of the Contaminated Sites Regulations. Most communities, given the opportunity, can accept a remedy, provided they are at least aware of the information the decisions were based on and, ideally, had a part in reaching those decisions. The purpose of this document is to provide guidance to Alaska Department of Environment Conservation (DEC) site managers in conducting public involvement. It is intended solely as a guide for DEC employees in implementing statutes and regulations. It is not intended, and must not be construed, to create any rights, substantive or procedural, inuring to any party. Readers are advised to refer to the statutes and regulations for definitive requirements and procedures. DEC reserves the right to act at variance with the guidance, as well as revise it periodically.

Some sites will require a high level of public participation and other sites will just require the minimum effort as described in Part 2. While the Department may choose the methods for public involvement that are most appropriate, the following are suggestions to assist Project Managers conducting the basic public involvement program for a site. Required public involvement activities are described in Part 1 and again in Part 2 and are written in *italics*. This guidance is divided into several parts:

Part 1: Legal Authority for Public Involvement	1
What is the Department’s legal authority to conduct public involvement?	1
Consultation with the public is required:	1
Public Comment is required:.....	1
What is meant by consultation?	1
What is meant by public comment?	1
Can a Responsible Person conduct community involvement activities?	2
Part 2: Public Involvement throughout the Cleanup Process	2
Site Discovery or at the start of a Project.....	3
Notifying the Community that the Department is beginning work on a Project.....	3
Ways to assess community interest:.....	4
Interim Removal Actions	5
The Site Characterization Work Plan.....	6
Following the Approval of a Site Characterization Work Plan	7
The Site Characterization Report	7
The Proposed Plan-Two Versions.....	8
Responsiveness Summary	10
Record of Decision.....	11
Cleanup Plan	11
Site Closeout	12
Part 3: Public Involvement Toolbox	13

Part 4: Americans with Disabilities Act..... 20

- Notification at the start of a project..... 36
- Notification for Public Comment on 10x Rule 37
- Notification when seeking comments on Land Use Restrictions..... 38
- Notification when a site is closed..... 39
- Notification when a site is closed with restrictions (No Further Remedial Action) 39

Appendices

- APPENDIX A. Sample Communications Plan 21
- APPENDIX B. Sample of a Condensed Proposed Plan 24
- APPENDIX C. Example of an Expanded Proposed Plan..... 25
- APPENDIX D. Examples of Pubic Notifications..... 36
- APPENDIX E. Glossary of Common Environmental Terms and Acronyms 40

Part 1: Legal Authority for Public Involvement

This guidance pertains to 18 AAC 75.325 through 18 AAC 75.390 which cover reporting, investigating, and cleaning up of oil and other hazardous substances. Other parts of the regulations may have different public involvement requirements.

What is the Department's legal authority to conduct public involvement?

Section 18 AAC 75.325(j) states:

“The department will seek public participation regarding activities conducted under the site cleanup rules, using methods for seeking public participation the department determines to be appropriate.” This statement provides the Department with the flexibility to handle public involvement at each site in the most appropriate manner.

There are also four specific points within the Contaminated Sites regulations (18 AAC 75, Article 3) where public involvement is required, if appropriate.

Consultation with the public is required:

1. *When the department is considering accepting a commercial/industrial land use designation under method three. 18 AAC 75.340(e)(3)(A)*
2. *When ground water at a site is not considered a current or reasonably expected potential future drinking water source and the cleanup levels for groundwater will be set at 10x the applicable ground water cleanup level. 18 AAC 75.345(b)(2)*
3. *When points of compliance will be established for ground water that is hydrologically connected to surface water. 18 AAC 75.345(f)*

Public Comment is required:

4. *When an alternative soil or ground water cleanup level based on a risk assessment is proposed. 18 AAC 75.325(h)(9)*

What is meant by consultation?

In the broadest sense, it means using any methods available to seek advice and receive community members' viewpoint on a Department proposal. The purpose is to ensure that the Department makes informed decisions. Consultation includes public notification, education, information sharing and an exchange of views. It does not mean that the Department will agree with or accept all comments received.

What is meant by public comment?

Public comment is a formal process where notice is provided to a community that the Department is seeking comments on a particular topic, issue or project. Comments will be accepted during a specified period of time, usually 15 or 30 days. Comments can be received in writing, faxed or via e-mail. If you wish to take oral comments at a meeting, then you need to tape-record the meeting or hire a court reporter. More information on comment periods is described in Parts 2 & 3 of this guidance.

Can a Responsible Person conduct community involvement activities?

Generally the answer is yes. The Responsible Person may conduct their own public involvement program in addition to DEC's own public involvement activities. If a Responsible Person has the capability, they may also prepare drafts of documents for the Department's use.

There are key activities where the Department must be responsible for the final document that is released to the community. These documents are:

- notification to the community that DEC is involved in a project
- the site communication plan
- department notification on 10x rule, commercial/industrial landuse or alternative points of compliance
- the Proposed Plan
- the response to community comment called a Responsiveness Summary
- the Record of Decision
- notification to the community that the site is closed or No Further Remedial Action Planned

The Department must concur with documents prepared by Responsible Person or other agencies that seek public input on the 10x rule, commercial/industrial landuse, alternative points of compliance or cleanup levels for a site using Method 3 or Method 4 for soils. These are the Department's decisions and all documents should be pre-approved by the Department prior to release to the community.

The Department should serve as the contact for any comments during a public comment period, except where a federal agency is conducting the public involvement. The Department should also assist in preparing the Responsiveness Summary to ensure that the Department's viewpoint is expressed. The Department will issue its own notices, Proposed Plans, Responsiveness Summaries, etc. if other agencies do not allow sufficient time for Department comment prior to release or do not make changes the Department feels necessary.

Any time spent on public involvement activities is cost-recoverable by the Department. More information on cost recovery can be found the Project Manager's Handbook. [Note: Responsible Person is defined in 18 AAC 75.990]

Part 2: Public Involvement throughout the Cleanup Process

Public involvement opportunities and requirements are tied to phases in the cleanup process. The phases are:

- Site Discovery
- Interim Removal Actions
- Site Characterization Work plan
- Site Characterization Report
- Proposed Plans
- Record of Decision

- Final Cleanup Report
- Site Closeout

To further assist you, database requirements, regulatory requirements and management authorization points are also included in this section. They are noted with the following codes:

-  Public involvement point
-  Database entry point
-  DEC Decision point

Community interest may change throughout the investigation, decision-making, and cleanup process. Public interest is usually heightened during field activities and when key decisions are being made.

A toolbox is provided for each key point that shows what public involvement tools could be used. These tools are explained in Part 3, Public Involvement Tools and Activities.

Site Discovery or at the start of a Project

-  Site Ranked Using Alaska Hazard Ranking Model and Added to Database by Site Intake
-  DEC issues a notice to the community that an investigation and possible cleanup will be conducted at the site.
-  DEC begins assessing level of community interest. This will determine your initial level of effort at the beginning of the project.

Notifying the Community that the Department is beginning work on a Project

Once you are assigned a project or when funding becomes available, a notification needs to be prepared. The purpose of notification is to provide accurate information to the community, to ensure that citizens understand the issues associated with the site, and to provide a DEC contact. Contaminated Sites regulations are designed to allow informal, but timely notification to community members.

There are numerous ways to notify the community that DEC is working on a project. The toolbox lists several ways to notify the community and Part 3 provides more information public notification.

From the beginning of a project, you need to begin developing a mail list and a list of contacts for the project.

Toolbox:

- *Display Ad*
- *Fact Sheet or newsletter*
- *Posting on Homepage*

Ways to assess community interest:

-  Determine how often and how does the community want to receive information.
-  Develop a Communication Plan for site.

The Project Manager, with assistance from appropriate public involvement experts, needs to make an initial assessment of community interest at the beginning of a project. Here are some things to consider:

- ◆ Is the site near a school, playground, church, or in the middle of town? Usually the more public the site, the higher the community interest level.
- ◆ Is the site located in a subsistence hunting or gathering area? This is a major indicator that you need to work with local Tribal governments and corporations. Federally recognized Tribes have a unique political position and have access to federal funding and federal recognition.
- ◆ Has there been a history of problems at this site? If this is a long-standing problem, assume that most community members know about the problem, want to know what is going on, and want it fixed.
- ◆ Is there a potential for local hire at any point in the process? Although this is not something the Department may be able to impact, it is a common concern among rural communities.

Under 18 AAC 75.340(e)(3)(D) and 18 AAC 75.340(f)(2), *consent of the each landowner who is affected by the contamination on the site that a cleanup level less stringent than a cleanup level appropriate to residential land use for the site.* Under 18 AAC 75.345(b)(2), *a concentration equal to 10 times the cleanup levels in Table C, based on a determination of groundwater use under 18 AAC 75.350 in consultation with each site landowner, the public, and appropriate officials if...*

It is important to involve the property owner in the project as soon as practical to gain site access. The property owner will also need to give their approval if a soil or groundwater alternative cleanup level is being considered or the property will be maintained as commercial/industrial, so communication needs to continue throughout the project.

At this point you should begin developing a Communication Plan for the project. This is a written outline of major project milestones and timeline of public involvement events. (More information can be found on this activity in Part 3 and a sample can be found in Appendix A).

Toolbox:

- *Interviews*
- *Questionnaires*
- *Briefings*
- *Availability Sessions*
- *Fact Sheets or newsletters*
- *Set up Information Repository*
- *Communications Plan*

Interim Removal Actions



DEC issues a notice to the community that an early cleanup action will be conducted at the site.



Interim Action

The purpose of an interim removal action is to prevent human or environmental exposure to contamination at a site or to prevent migration of a hazardous substance at or from a site. This can occur at any time throughout a site characterization or cleanup action.

There is usually some planning time for interim removal actions, so there is time for public involvement. Whether or not you know the most appropriate cleanup method, it is important to keep the community informed before, during and after the interim action. If you are using a presumptive remedy the reason why this is the best remedy should be clearly explained prior to starting the work.

Toolbox:

- *Fact Sheet or newsletter*
- *Public Service Announcements*
- *Open house/workshops*
- *Public notification*
- *Communications Plan*

The Site Characterization Work Plan

-  Conduct informational meetings with community if there is interest.
-  If community meeting held, record as meeting.

Here are several things that Project Managers need to develop and consider while reviewing the Work Plan.

- ◆ If you have the opportunity to visit the site:
 - Spend some time meeting community members in addition to those people directly affected or interested in the site. Find out their level of interest in the project, find out what they know about the historical use of the property, and how much information they want from DEC about the work being conducted.
- ◆ Is the work being planned going to be disruptive to the community?
 - If so, then the Project Manager and the Responsible Party need to provide an opportunity to discuss the disruption with the community. This can take the form of public forums, availability sessions or meetings with specific groups, such as the PTA at a school or a community council. The work plan should not be approved until the potential disruptions are discussed with the community and their concerns addressed to the best of the Department's ability.
- ◆ Update the communications plan as appropriate:
 - Your mailing list should be updated and any new community concerns should be recorded so that you can address them in the future.
- ◆ If the Responsible Party conducts the community involvement efforts:
 - DEC shall coordinate with and request an opportunity to comment on any written material prior to releasing it to the affected community. If possible, the Project Manager should attend any public forums to represent DEC. Remember that any document which needs Departmental approval must have DEC's concurrence before the document is released to the public.
- ◆ If the community interest is high:
 - Consider forming a Citizen Advisory Committee. More on this is can be found in Part 3.

Toolbox:

- *Communications Plan update*
- *Mail List*
- *Fact Sheet or newsletter*
- *Interviews*
- *Citizen Advisory Committee*
- *Public Participation Plan*

Following the Approval of a Site Characterization Work Plan

	DEC approves the Site Characterization Work Plan
	Site Characterization Work Plan Approved
	Community members are notified that site investigation will begin

Consider notifying the community about the fieldwork. It is highly recommended to let small communities know when DEC or contractors will be coming into town; how long they will be staying; and if local hiring is planned, who they can contact.

- ◆ If the Responsible Party is handling the notification, DEC should review their written material to order to avoid any misunderstanding by the public on the Department's expectations or actions.
- ◆ DEC will need to consult with the community if it appears that the Responsible Party is going to seek:
 - ◆ DEC's approval on cleanup levels using Method 3 or 4;
 - ◆ A determination that groundwater is not a potential drinking water source;
 - ◆ A determination that future land use will be limited to commercial or recreational activities; or
 - ◆ Alternative points of compliance for meeting the groundwater standards if the groundwater is hydrologically connected to surface water.

Toolbox:

- *Fact Sheets*
- *Display Ad*
- *Project Summary*
- *Fact Sheet or newsletter*
- *Public Service Announcements*
- *Interviews*

The Site Characterization Report

	The Department approves the Site Characterization Report
	Site Characterization Report Approved

At this point, we know what the problems at the site are and a number of ways to address them. It is extremely important that we share this information with the community and, on the more complex sites, that DEC waits to make a decision on the final remedy, final cleanup levels for soil and groundwater until after the public comment period. If not already conducted, consultation with the community must occur prior to making these decisions:

- *When the department is considering accepting a commercial/industrial land use designation. 18 AAC 75.340(e)(3)(A) or,*
- *When ground water at a site will not be used as drinking water and the cleanup standard for groundwater will be set at 10x the applicable groundwater standard. 18 AAC 75.345(b)(2)*
- *When alternative points of compliance will be established for ground water. 18 AAC 75.345(f)*

Formal public comment is needed *when alternative cleanup standards under Method 3 or a cleanup standard based on a risk assessment under Method 4 is used. 18 AAC 75.325(h)(9)*

The Proposed Plan-Two Versions

-  DEC staff prepares Proposed Plan for site
-  RP or DEC staff can propose cleanup levels, but different levels of management approval are needed depending on the soil or groundwater cleanup levels proposed. Refer to current delegated authorities.
-  DEC staff must brief management prior to release of Proposed Plan and have management concurrence.
-  Proposed Plan Approved
-  An announcement of the 15 or 30 day public comment period is released to community.
-  DEC may choose to host an informational meeting to explain the proposed cleanup plans to the community and gather any public comment.
-  Consider holding a community meeting

The level of effort and length of the public comment period is dependent on a number of criteria. Criteria to consider are:

1. Is the site near a school, playground, church, in the middle of town? If the answer is no, you may consider using the Condensed Proposed Plan. If yes, the Expanded Proposed Plan may be better.
2. Has there been a high level of community interest in the project up to this point? If the answer is no, consider using the Condensed Proposed Plan, otherwise you should use the Expanded Proposed Plan and consider holding a community meeting.
3. Is the Responsible Party considering a land use designation change or restricting future land use? It may be possible to use a Condensed Proposed Plan for these type of sites if there are no other factors that require public consultation or comment.
4. If groundwater is affected, is the Responsible Party proposing to use the 10 times the Table C values for groundwater or are they going to establish alternative points of compliance? It may be possible to use a Condensed Proposed Plan for this case if there are no other factors that require public consultation or comment.
5. Is an alternative cleanup level or Risk Assessment being used? These types of sites are usually more technically complex and would require a Expanded Proposed Plan.

The Condensed Proposed Plan

This Condensed Proposed Plan for the site can be in the form of a display advertisement (see example in Appendix B). It can also be made into a one-page fact sheet sent to people on the mailing list or posted in the community. The public comment period should be 15 days. A responsiveness summary should be prepared for any comments received and attached to the Record of Decision.

The Expanded Proposed Plan

The Expanded Proposed Plan serves as a plain English summary of the project to date. It describes what is known about the site, what the proposed or actual cleanup levels will be, how they were determined, describes possible cleanup alternatives and compares them against evaluation criteria, and provides DEC's preferred cleanup alternative. If institutional controls or long-term monitoring are part of the proposed remedy they should also be described. The Site Characterization Report and Risk Assessment, if one was conducted, should provide all the information needed to write the Expanded Proposed Plan. The Expanded Proposed Plan will need to include a comparison of proposed cleanup alternatives against the following evaluation criteria.

Protectiveness:

How well does each alternative protect human health, safety, and welfare or the environment, both during and after the construction?

Regulations:

Will the alternatives and cleanup comply with all state and federal regulations?

Practicable:

Are the technologies/techniques under consideration capable of being designed, constructed and implemented in a reliable and cost-effective manner? What alternatives are the most cost effective?

Short- and Long-term Effectiveness:

Are there potential adverse effects to human health, safety and welfare or the environment during construction or implementation of the alternative? How fast does the alternative reach cleanup levels? How well does the alternative protect human health, safety, and welfare or the environment after completion of the cleanup? What, if any, risks will remain at the site?

Public Input:

Have significant comments received from the community been considered and addressed? This can not be fully addressed until after the end of the comment period and all comments have received and reviewed.

An example of an Expanded Proposed Plan can be found in Appendix C. Plan a 30-day public comment period for the Proposed Plan. The Department may extend the comment period an additional 5-30 days if a community member requests an extension. Consider having an open house or other informal meetings in the community. In planning a community meeting, it is key to work with local elected officials, community councils Tribal leaders, and schools to ensure that your meeting doesn't conflict with other major community events, particularly in a small community. Notification about a meeting

should be at least 10-14 days before the meeting date. At the meeting provide comment forms. If you want to take oral comments during the meeting, you must have a court reporter or tape record people's comments. If you are not taking oral comment, you may want to write down concerns on flip charts or notepaper and address them as concerns raised during the comment period, but not as official comments. Keep all comments, concerns, and opinions received. Prepare a written response to significant comments, called a responsiveness summary.

Toolbox:

- *Proposed Plan*
- *15 or 30-day
Comment period*
- *Public notification*
- *Open house/workshop*
- *Briefing*

Responsiveness Summary

If you have received comments from the community during a formal public comment period, you need to prepare a written response to these comments. This document is called a Responsiveness Summary and serves as an appendix to the Record of Decision.

The summary should include the comment or question and the Department's response. Comments and questions can be grouped together based on topics, such as ground water questions, safety issues, cleanup technologies, etc. Comments should be copied as close to verbatim as possible.

Examples:

- Comment: Local community members expressed concern about the quantity of soil samples taken and reported in the Site Characterization Plan.
 Answer: DEC believes the sampling is adequate to characterize the problems at the site because....(insert site specific answer).
- Comment: The Responsible Party questioned why the groundwater needed to be cleaned up when it is not a source of drinking water.
 Answer: DEC is obligated to protect groundwater as a state-owned resource. Groundwater, which could be used in the future as a drinking water source, needs to be cleaned up.
- Comment: A local resident expressed their appreciation for the work DEC has done.
 Answer: DEC thanks the commentor for their support.

Toolbox

- *Responsiveness Summary*
- *Fact Sheet/Newsletter*

Record of Decision

The *Guidance on Decision Documentation under the Site Cleanup Rules* provides extensive information on preparing a Record of Decision for all types of sites.



DEC prepares Record of Decision (see current delegated authorities)



Cleanup Levels Approved



Record of Decision Signed



Inform the community about DEC's cleanup decision

Toolbox:

- *Display Advertisement*
- *Fact Sheet or newsletter*

Cleanup Plan

The community should be advised when cleanup work begins



Cleanup Plan Approved

Now that a cleanup decision has been made, this is another point to reassess the community's level of interest. It may be that although interest in the project has increased throughout the investigation and when the Proposed Plan was issued, it may now decrease while you are preparing for fieldwork. Continue your existing public involvement activities or adjust as needed. You should also update your communications plan at this time.

It is advisable to notify the community prior to the start of construction of the remedy. The Responsible Party can conduct these activities, also. Some of the questions that people generally ask are:

- ◆ Is there going to be lots of construction equipment or other disruption in the community during the cleanup? It is very important to explain what types of equipment will be used, how long the construction will be going on during the day and total construction duration, whether or not there will be lots of truck traffic and what other disruptions may occur during the construction. People can be very concerned about noise and dust, so try to address these concerns early in the process.
- ◆ Will there be any restrictions on the property when the work is completed? (institutional controls) It may be that the site will be restricted to certain types of use or will have signs or fences posted on the property. The purpose of these restrictions should be clearly explained and if they can be removed in the future, how that might occur.
- ◆ Is there an opportunity for local hire? Community members may be interested in knowing if they can get work on the project.

If the project extends over several field seasons, it is recommended that the community be advised what happened at the end of the field season. At the start of the next field season prior to going into the field the community should be notified of what activities they will see once the work starts.

Toolbox

- *Update communications plan*
- *Fact Sheet or newsletter*
- *Public Service announcement*
- *Open house/workshop*

Site Closeout

This section is divided into two parts as sites can be closed out in two different ways.

No Further Remedial Action Planned

-  Institutional Controls Established
-  Long Term Monitoring Established
-  DEC issues a public notice that the site meets all state requirements.

Some sites will have long-term monitoring or institutional controls that remain on the property long after the construction of the remedy is complete. While no further remedial action is required by DEC, the site will have restrictions and/or operation and maintenance of treatment equipment at the site for some time into the future. It is important that local community members are made aware of these restrictions in your notifications. You may want to consider sending out annual updates on sites with long-term monitoring or institutional controls. It is important to keep the community informed about the status of the site until final closure.

Site Closure Approved

-  Site Closure Approved
-  Institutional Controls Removed
-  Long Term Monitoring Completed
-  DEC issues a public notice that the site meets all state requirements.

The public should be informed when DEC has determined that all reports are completed, no additional action is needed, and no further restrictions exist at the site. This indicates to the community that a project is completed and the site is closed. Samples can be found in Appendix D.

Toolbox:

- *Public Notification*
- *Fact sheet or newsletter*

Part 3: Public Involvement Toolbox

There is a wide range of tools and activities that you can choose from for use at your site. Your initial evaluation of the project and the community will help you determine suitable tools and activities to support your project. Be flexible and responsive to community interests, questions and concerns.

One of the biggest errors you can make is to decide which techniques you will use before you decide what you are trying to accomplish. Be prepared to modify chosen activities if the level of interest in the project changes over time.

One of the basic public involvement requirements is timely public notification. Public notification is required at the start and end of a project, the consultation, and public comments points listed in Part 1. Usually more than one public notification tool is used at a time.

Here are some different ways to conduct public notification:

- ◆ Conducting information gathering interviews of community members, either face-to-face or via phone.
- ◆ Direct mailing of questionnaires or community surveys
- ◆ Posting flyers about the project around town, such as the Post Office, grocery store, town bulletin boards, etc.
- ◆ Fact sheets or information sheets to interested parties; you can start with local elected officials, state and federal interested agencies and build your mailing list throughout the project. Or you can mail to all the boxholders in the community.
- ◆ Public service announcements or paid advertising
- ◆ Interviews with local radio and newspaper to get information on their media
- ◆ Display advertisement in local newspaper

- ◆ Posting information on CSRP's homepage
- ◆ Establish an information repository
- ◆ Use a local TV broadcast network to provide information, such as the "scanner" in Southeast Alaska

This next section describes in more detail various activities and tools. The purpose and use of each activity or tool is also described below.

Advisory Committee:

An advisory committee representing a variety of interest groups in the community is recommended for complex projects, or where the level of community interest is extremely high. The committee may provide the project manager with valuable input at important decision points. It should also serve as an information conduit, communicating concerns to the project manager and disseminating project information to members of represented organizations. They are also known as stakeholder groups or technical discussion groups. For those sites proposed for or listed on the National Priorities List, EPA Technical Assistance Grants may be available to the community. The state currently has no similar mechanism for providing monetary assistance. However, site managers should work with Responsible Parties at high interest sites to help fund a citizen advisory committee.

Availability Sessions:

This is an informal meeting in a public location where interested citizens can meet and talk with Department representatives on a one-to-one basis.

Briefings:

Briefings present a short, official statement about cleanup actions. Briefings are appropriate when local officials, the media, or citizens have expressed a moderate to high level of interest about the site. Local city council or assembly meetings can provide a good forum for briefings. Briefings are used within the Department to inform and seek approval from upper management at key decision points.

Canvassing:

Door to door canvassing is useful for meeting with individual members of the community. This activity is best used when information is needed from a specific group of individuals. For example, canvassing can be used to gather signatures to gain access to property for soil and water testing. Components of a canvass include identifying the essential areas in the community, sending an explanation letter to residents, briefing canvassing staff on the types of concerns or questions they may encounter, conducting the canvass, and sending a follow-up thank you letter.

Communications Plan:

The communications plan is considered an internal document. However, the plan can be shared with stakeholders. The plan should sketch out the major milestones and a timeline of events for the site. Draft a communications plan (and update it regularly). A communications plan can be as simple as a list of communications tasks integrated with the project timeline. The purpose is to think through how important information will be communicated effectively to stakeholders. The plan should describe the project, the communication objectives, provide a "player's list" of contacts, and briefly outline the steps that will be taken to communicate to and engage various stakeholders. These steps may include any of the other tools and activities described below. Larger, more complex projects will typically require a greater diversity of tools and activities. This plan should be periodically updated. A sample can be found in Appendix A.

Display Advertisement (Public Notices):

Public notices may be published in local newspapers or on a community bulletin board. Use a display advertisement format, instead of a legal notice for newspaper advertising. They are usually less expensive and can be placed in the "community news" or "Metro" section of the paper. Design the ads to be readable, graphically clear, and visually interesting. Always ask to see a camera-ready proof before you ok the final printing of the ad. Include grassroots publications that often reach a different audience. Public notices are used to announce agency decisions, major project milestones, public meetings, or to solicit public comment on proposed agency actions. Administrative support staff can assist you in formatting and placing these ads.

Fact Sheets:

A fact sheet presents technical information in a clear and understandable format. Examples of items that may be included in a fact sheet are:

- ◆ background on the site,
- ◆ what is known about the site,
- ◆ a schedule of activities for the investigation and cleanup of a site,
- ◆ a description of what field work will be conducted,
- ◆ results of field work,
- ◆ recent DEC decisions,
- ◆ answers to frequently asked community questions,
- ◆ your name, phone number and e-mail address as Project Manager for the site,
- ◆ it should also include "For more information about DEC's Work, look on our homepage at <http://www.state.ak.us/local/akpages/ENV.CONSERV/dspar/csites/csitesf.htm>
- ◆ remember to include the disabilities statement on all written material. More information can be found in Part 4.

Fact sheets may be published in local newspapers, mailed directly, and also placed on the homepage. Fact sheets can be mailed to persons on your mailing list or sent to all the post office boxholders in a community. A copy should be

forwarded to CS Webmaster to be posted on the homepage. You should advise the Webmaster that the fact sheet has been ok'd by management for distribution. If the fact sheet is announcing a comment period, please let the Webmaster know, so the posting can be expedited.

Be sure to send a copy of your fact sheet to DEC's Public Information staff so they can stay abreast of important project developments. This office often receives inquiries from the press, the Governor's Office, and the general public on a variety of cross-program issues.

Flyers:

One-page flyers posted in strategic community locations are a good way to advertise a special event such as an open house or public meeting. They can also be used to inform the community about work starting at a project. They may also be passed out door-to-door in affected neighborhoods. They should include your name, phone and e-mail address.

Interviews:

Broad spectrum interviews with selected local residents, government officials, community groups, potentially responsible parties, and others help to gain an understanding of the "pulse of the community". Community interviews generally precede other public involvement activities for potentially complex and controversial projects.

Mailing List:

A mailing list may include interested officials, organizations, and individuals. Names, mailing addresses, telephone numbers, fax numbers, Internet addresses, and other appropriate information may be maintained in a mailing list database. Administrative support staff can help you set up a mail list on the CS database for each of your sites. A mailing list should continually be update throughout the project. Start your mailing list by including those parties directly notified. Add potentially interested federal and state agencies. An announcement in the newspaper soliciting interest may be useful. Obtain new names from sign-in sheets at public meeting or other events.

Newsletters:

A newsletter is a good way to regularly provide the public with a project status update. It should be simple, short, and non-technical. A newsletter may be published in local newspapers or as a newspaper insert or mailed directly to community members. A copy should also be forwarded to the CS Webmaster to be placed on the homepage. Be sure to send a copy of your newsletter to DEC Public Information staff so they can stay abreast of important project developments. This office often receives inquiries from the press, the Governor's Office, and the general public on a variety of cross-program issues.

News or Press Releases:

Statements released to the news media quickly and effectively disseminate information to large numbers of people. News release may be used at any stage in a project where there is newsworthy information that needs to be shared. DEC's Public Information staff should be consulted to help draft news releases and distribute them to the media. The key to getting the release published is to provide a key message, such as a human interest element, streamlining or saving government resources.

Open House/Workshop:

An open house or workshop allows the public to discuss the project with appropriate technical staff in a non-threatening atmosphere. Members of the public can come and go over several hours. Visual displays of maps, charts, diagrams, or photographs describing components of the project are presented at a number of different stations. A workshop or open house can be used at any time during a project, but is recommended midway through a public comment period on a complex, highly technical document such as a risk assessment report or a proposed cleanup plan. Make sure you have paper and pencils available so participants can write down their questions and concerns.

Project Document Library (Information Repository):

If public interest warrants a project document library, it should be conveniently located in the community to ensure easy accessibility by the public. Examples are a library, school, or local government office (including DEC). At a minimum the project library should contain copies of relevant project documents and all decision documents. Depending on the size of the project and community needs and desires, a variety of information such as correspondence, historical reports, and transcripts or audio/video tapes of meetings may also be included.

Proposed Plan:

The Proposed Plan seeks to provide enough information to community members to understand how the Department will select a cleanup plan for a site. We will ask the community members to provide us with their comments about the proposed cleanup technologies being considered for the site. There are two versions of the Proposed Plan.

The Condensed Proposed Plan

The Condensed Proposed Plan does not provide great detail on the site background or technical aspects of the site. It provides a summary of what the Department is proposing to do at a site and may not contain all the elements listed below. The elements of the short version are:

- ◆ Background
- ◆ Results of studies
- ◆ Human and Ecological Risk and assumptions used to develop risk numbers, if conducted

- ◆ Cleanup Levels for Site, if not taken directly from tables in regulations, and how they were established
- ◆ Land use impacts or institutional controls, if any
- ◆ DEC's preferred alternative (and other agency's concurrence if they are involved)
- ◆ Ways to provide comments (in writing, fax, via e-mail)
- ◆ Meeting information, if one is planned
- ◆ Dates for comment period (15 days)

The Expanded Proposed Plan

This longer version of the Proposed Plan includes more detail from the Site Characterization Workplan and Risk Assessment. It is designed to be read by the average citizen and is usually 6-12 pages long, depending on the complexity of the site. The following elements should be included in the longer Proposed Plan:

- ◆ Background
- ◆ Results of studies
- ◆ Any Interim Actions, if conducted
- ◆ Human and Ecological Risk and assumptions used to develop risk numbers, if conducted
- ◆ Cleanup Levels for Site and how they were established
- ◆ Land use impacts or institutional controls, if any
- ◆ Alternatives and Evaluation of Alternatives
- ◆ DEC's preferred alternative (and other agency's concurrence if they are involved)
- ◆ Ways to provide comments (in writing, fax, via e-mail)
- ◆ Meeting information, if one is planned
- ◆ Next steps – (such as, request for funding, RP's pay and schedule for field or construction activities)
- ◆ Dates for comment period (30 days)
- ◆ Comment form, if using

It is important to remember that if the cleanup levels used in Tables A1, B1 & B2 and C are being used, these are not subject to public comment. It is the cleanup technology being proposed that is subject for public comment. It may not be necessary to issue a Proposed Plan on very small, low interest, low priority sites, such as those using Method 1 and maybe Method 2. These need to be discussed with your Section Manager.

Public Comments Periods:

Public comment periods allow citizens the opportunity to review and comment on the agency's proposed course of action. Written comments are the best way receive information, however, you should take notes during any community meeting during the comment period. If you plan to take oral comments at your meeting, you should hire a court report or tape record the meeting. Any media announcement (a press release or display ad) should be published at least 10-14

days before the beginning of the comment period. A 15-day review period is used for the Condensed Proposed Plan. The Expanded Proposed Plan requires a 30-day public comment period. A comment period can be extended with a timely request.

Public Meetings:

Project staff present information and answer questions regarding ongoing activities, and receive feedback from the public. Public meetings may be effectively used at any stage of the project, but only if there is a specific purpose in mind. Think about scheduling for the optimal season and time of day. According to research conducted by the Department of Transportation and Public Facilities for its public involvement program, the best time of year for meetings is usually the spring or fall. The best time of day is early evening. Don't forget the Americans with Disabilities Act when searching for an appropriate location.

Public Participation Plan:

Think of the Public Participation Plan as an expanded Communications Plan that is commonly shared with the community. One should accompany the most complex projects, and should be based upon input received from the community. At a minimum the plan should briefly describe the site or project history, present a list of public concerns, describe the public involvement tools that will be used during the life of the project, set a project schedule that indicates where public input will be solicited, and provide a list of appropriate contacts. You may wish to release the Public Participation Plan for public comment to ensure that it meets community needs. The plan will also need to be periodically updated.

Public Service Announcements:

Local radio and television stations usually offer free airtime for short announcements. Newspapers often have an "around town" section. These tools may be used to replace display advertisements, but should be used with discretion. For example, a project manager may feel community advertising is better received in the community than a display ad.

Questionnaires:

A questionnaire is a survey that is typically mass-mailed. It may be useful to help identify specific issues of concern and to determine the general level of interest in the site. A low percentage response may (but not absolutely) indicate that the community is not too concerned about the issue. This may change as the project moves forward. Care must be taken in how a questionnaire is designed. It should be short, simple, and objective. Avoid leading questions or questions that result in a "yes/no" answer.

Responsiveness Summary:

This document is prepared following a public comment period and provides the Department's response to concerns, comments and questions raised by the community. This document serves as an appendix to the Record of Decision and

can be shared with the interested community members prior to the release of the Record of Decision. It is considered a “stand-alone” document.

Restoration Advisory Boards:

Restoration Advisory Boards (RABs) are stakeholder groups formed at Department of Defense (DoD) sites to provide advice to government decision-makers, serve as a forum for the discussion and exchange of information regarding cleanup and provide an opportunity for stakeholders to participate in the cleanup process. DoD also provides funding through the Technical Assistance for Public Participation program to Restoration Advisory Boards and Technical Review Committees.

Site/Project Summary:

A one-page summary can serve as the start for follow-up newsletters and fact sheets. These can be helpful if you need to give a management briefing. Your communications plan or your database files should be able to provide you enough information to write the summary. The summary should be updated periodically. Use the format found in the Site Summary Notebooks.

Telephone Hotline:

An advertised toll-free number can provide citizens with an opportunity to ask questions and obtain prompt information. Someone familiar with the specific project should staff the hotline

Part 4: Americans with Disabilities Act

Reasonable efforts should be made to ensure that all segments of the population have an equal opportunity to participate in the public involvement process. Efforts to ensure all community members have an opportunity to participate may include, but are not limited to:

- ◆ Using informal or traditional communication channels within a community.
- ◆ On all written information or public meeting announcements, include the following language:
“The State of Alaska, Department of Environmental Conservation, complies with Title II of the Americans with Disabilities Act of 1990. Individuals with disabilities who may need auxiliary aids, services, and/or special modifications to participate in this event should contact the Department’s Human Resources Manager at (907) 465-5040 (TTY compatible).”

APPENDIX A. Sample Communications Plan

Aniak White Alice Site/Middle School
Communications Plan
Updated April 22, 1998

Communication Objectives

- To inform the community about the presence of PCBs at the school and keep them informed on work to eliminate exposure and cleanup the site.
- Seek Community involvement on key steps and decisions.
- Address community concerns about the contamination.
- Be responsive to community.

Objectives for Site Work

- To eliminate the PCB pathway to students and staff without causing undue alarm.
- To work with the Corps of Engineers FUDS Program, Kuspuk School District, Department of Education and AK DOT to conduct a timely removal and thorough site cleanup.
- Ensure that the site is cleaned up to a level that is protective of public health, welfare, and the environment.

List of People to Contact (Core Mail List)

City of Aniak: Herman Morgan, City of Aniak Mayor, Box 43, Aniak 99557, Phone: 675-4481. Kuskokwim Native Association - Jeff Nelson, 675-4275

Newspapers: *Interior Echo*, Box 228, Aniak 99557 - Elaine Albertson 675-4464
Tundra Drums, 660 3rd Ave., Bethel 99559 - Aaron Stitzer Phone: 543-3500, FAX: 543-3112.

Radio: KYUK-AM, Pouch 468, Bethel 99559 - Alex Mortensen Phone: 543-3131, FAX: 543-3130

TV: KIMO 13 (561-1313) did a documentary in January '98 - Dow VU (now with Channel 2) reporter and Danny Pearson camera man, phone; Channel 2 News - Dow Vu (762-9260) (would like to do more coverage during the drum removal planned for summer of '98).

PRPs: Corps of Engineers, AK District - Don Bethel 753-5789
Kuspuk School District - Bobbet Bush, District Superintendent 675-4250, FAX 675-4351. Steve Hill, Maintenance Supervisor 675-4250 ext. 508, FAX 4336

AK Dept of Education - Mike Morgan 465-1858; Tim Mearig 465-6906

ADOT&PF - Anna Walker (leasing) 269-0737; Dan Breeden (Environmental) 269-0765

EPA: Monica Tonel (206) 553-0323, (Site Investigation)
Chris Field (206) 553-1674 (Removal Program) FAX 553-0124
Dan Duncan (206) 553-6693 (TSCA) FAX – 553-8509
Mat Carr 271-3616, (Removal Program, Anch.) FAX 271-3424

ADEC: John Halverson 269-7545
Ann Marie Palmieri 766-3184
Bob Carlson (Bethel FO) 543-3215, 543-3216 (fax)

ADH&SS: John Middaugh 269-8054, FAX 562-7802
Lori Feyk 269-8045

ATSDR: Greg Thomas and Richard Kauffman (206) 553-2113

Legislators: Georgianna Lincoln, 119 N. Cushman, Suite 209, Fairbanks, 99701, Phone -
452-3471
Irene Nicholia, Room 409 State Capitol, Juneau, 99801, Phone: 465-4527

Actions taken to date

- PRP letters sent to the Corps, AK DOT, AK DOE, Kuspuk School District;
- Fact Sheets sent to all P.O. box holders in Aniak:
 - Oct. '97 - Summary of 1997 Studies (found PCBs outside the Middle School)
 - Dec. '97 - Aniak Middle School Cleanup Begins (found PCBs inside the Middle School, Corps to clean inside the building with DEC oversight)
 - Jan. '98 - Invitation to informational workshop/summary of cleanup in the school
 - Jan. '98 - Update, chicken tissue samples clean, PRP meetings continue, maintenance Shop to be cleaned
- Held community meetings before and after cleaning inside the middle school;
- Worked with the Corps to have a geofabric liner and clean gravel placed over contaminated surface soil;
- Worked with DHSS Epidemiology to have them respond to community concerns over possible health implications, DHSS interviewed community members and collected blood samples for PCB analysis from selected individuals; summary report/fact sheet being prepared;
- Worked with EPA, ATSDR and the Corps to evaluate implications of PCBs in the school;
- Worked with the Corps and its contractor who cleaned inside the school and collected and analyzed tissue samples from chickens being raised at the school;
- Set up an information repository at the high school with copies of plans and reports;
- Initiated PRP meetings to develop a plan for additional site investigation and cleanup;
- Worked with the Corps on developing its plan to removed drums of waste, contaminated soil and buried batteries behind the school;

Actions needed in the future:

- Develop a fact sheet describing plans for 1998 (early May '98);
- Ensure blood test results are summarized for interested people (work with DHHS);

- Develop a scope of work for sampling inside the high school and middle school, around the schoolyards and driveways, and in the maintenance building (April-May);
- Conduct sampling shortly after school closes for the summer (early June);
- Inform the community on the sampling results (end of June - early July);
- Be prepared to undertake additional actions this summer if sampling data shows a need.
- Oversee Corps contractor removal of drums and contaminated soil (July-Aug.);
- Continue PRP negotiations with the Corps for remaining site investigation and cleanup actions;
- Hold a community meeting at the end of the field season.

APPENDIX B. Sample of a Condensed Proposed Plan

PUBLIC NOTICE
Soil & Groundwater Contamination Issues
Former ABC Public Health Hospital
Somewhere, Alaska

The Alaska Department of Environmental Conservation (ADEC) is informing the public of contaminated soils and groundwater issues associated with the former ABC Public Health Hospital. The site contains contaminated soil and groundwater from its past use as a hospital facility. The contamination of concern in the soil is diesel range contamination (with concentrations between 6,000 and 12,500 parts per million proposed to be left in place). The groundwater is contaminated with benzene at levels as high as 37 parts per billion (ppb). The drinking water standard for benzene is 5 ppb. ADEC has determined that cleanup of the groundwater is not necessary as it is not migrating and there is no possible way a person could come into contact with the contaminated groundwater. ADEC is proposing to monitor the groundwater to insure the contamination does not migrate and to determine if contamination levels are decreasing. Computer analysis indicates that groundwater should meet drinking water standards within 30 years. During this period, its use as a drinking water source will be prohibited.

A Risk Assessment was prepared to help establish cleanup levels that are considered protective of human health and the environment. It was determined that a risk based soil cleanup standard for diesel contamination at this site is 6,000 parts per million from ground surface to 10 feet below ground surface (bgs); and, 12,500 parts per million from 10 to 15 feet bgs. Contamination below this level will be allowed to remain in the ground provided it does not migrate.

This notice is intended to inform the public that ADEC is requiring the property owners:

1. to limit any future excavation on this site to depths no greater than 10 ft below ground surface and
2. to prohibit use of shallow groundwater beneath the site as a drinking water source until drinking water standards have been met. Groundwater will be monitored annually to determine if further cleanup efforts will be needed to prevent contaminant migration from the site.

For additional information, please contact: ADEC/Anchorage at 269-XXXX or e-mail: project.manager@envircon.state.ak.us. Please comment within 15 (fifteen) days from the date of this publication.

APPENDIX C. Example of an Expanded Proposed Plan

**Proposed Plan for Cleanup of the
Indian Booster Pump Station Site
Indian, Alaska**

You are encouraged to participate in the selection of a cleanup action for the Indian Booster Pump Station Site.

You can participate by commenting on the proposed actions presented in this Plan during the comment period from **June 7 to July 6, 1999**.

Also, you can attend the **informational meetings at 7:00 p.m. on June 16th** at the **Z J Loussac Library** in Anchorage, or at **7:30 p.m. on June 17th** at the **Indian Valley Bible Chapel**

Send your written comments to:

Scott Pexton
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, Alaska 99501

This Proposed Plan presents the cleanup alternatives proposed by the U.S. Defense Energy Support Center (DESC) for the Indian Booster Pump Station Site, near Indian, Alaska (see Figure 1—Not shown in this version). The Alaska Department of Environmental Conservation (ADEC) is soliciting public comments on the information and proposed cleanup actions discussed in this Plan.

As the manager of the land on which the spill occurred in Chugach State Park, the Alaska Department of Natural Resources (ADNR) is participating in the public review of this plan. ADNR may enter into an agreement with ADEC to restrict ADNR's use of land near the spill area. ADNR plans to issue a Special Park Use Permit to the Department of Defense for future activities at the site after a decision is made regarding the proposed plan. ADNR intends to gather public input for both the draft agreement and the park use permit during the public review process of this proposed plan. ADEC and ADNR have been involved throughout the site investigation, and support the proposed cleanup alternative.

This Proposed Plan includes a summary of the history of the Indian Booster Pump Station, the interim cleanup actions completed to date, the nature and extent of the remaining residual contamination, and the risks associated with the residual contamination. This Proposed Plan also identifies cleanup alternatives considered for the contaminated areas, and it presents the preferred cleanup alternative. In addition to this Plan, other technical documents can be found in the Alaska Room at the Loussac Library and are available at the ADEC offices at 555 Cordova Avenue in Anchorage.

The investigations, emergency and interim cleanup actions taken, and the evaluation of cleanup alternatives are being conducted under the jurisdiction of 18 Alaska Administrative Code (AAC) 75, Article 3 “Discharge Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances”.

HOW CAN YOU PARTICIPATE?

We invite you to comment on the proposed cleanup action, the cleanup alternatives and the cleanup levels. Your comments will help ADEC make a decision on the cleanup approach for the Indian Booster Pump Station Site that is technically sound and addresses the concerns of the community. All public comments, whether provided at the informational meetings or submitted in writing, will be considered by ADEC before making a final decision for cleanup action at the Site. Depending upon public comments, the actual remedy selected for the Site may be the preferred alternative, a modification to the alternative, or a combination of alternatives.

The ADEC will present their comment responses in a document called a “Responsiveness Summary”. The decision on the cleanup action for the Indian Booster Pump Station Site will be presented in a Record of Decision (ROD). The Responsiveness Summary will be part of the ROD and will be available for review at the Loussac Library.

SITE DESCRIPTION AND BACKGROUND

The Indian Booster Pump Station, a U.S. Defense Energy Support Center (DESC) facility, is located within Chugach State Park. The site is approximately 25 miles southeast of Anchorage on the Seward Highway and one mile north of the community of Indian at the end of Indian Creek Trailhead Road (Figure 1—Not shown in this version). Down-gradient landowners include the Municipality of Anchorage (Heritage Land Bank) and local residents.

Glaciers have heavily influenced Indian Valley in the past. The geology beneath the site consists of a 1 to 2 foot thick organic mat covering 20 to 60 feet of glacial till. The upper 10 to 20 feet of the till have been reworked by glacial out wash streams, while the lower portion of till remains consolidated and dense. Two groundwater zones have been identified, an unconfined shallow zone located 10 to 20 feet below ground surface at the contact between the re-worked and consolidated till, and a semi-confined deep zone located 20 to 60 feet below ground surface at the contact between the consolidated till and bedrock.

The Indian Booster Pump Station was constructed in 1967 in conjunction with a pipeline to transport fuel from Whittier to Anchorage for use by military bases and other government agencies in Alaska. A pipeline easement (ADL 32606) for the Anchorage-Whittier Pipeline was issued by the ADNR to the U.S. Department of the Army, Corps of Engineers - Alaska District on May 1, 1973. The Army operated the pipeline until 1989, when operational responsibility was transferred to DESC. The pipeline was shutdown by DESC in 1993 after the north valve failed resulting in a release of jet fuel. The pipeline

was retrofitted for natural gas transport in 1995 and leased by the Department of Defense to the Alaska Pipeline Company in September 1995 for a term of 33 years. ENSTAR has since used the pipeline to transport natural gas.

On August 3, 1993, the north pressure relief valve released up to 35,700 gallons of fuel, impacting soils and groundwater at the site. Emergency response measures involved excavation of groundwater interception trenches and the use of rope mops, skimmers, and vacuum pumps to recover liquid fuel (free product). In addition, an interim groundwater treatment plant was constructed to treat the groundwater contaminated by dissolved fuel. The emergency response recovered more than 21,000 gallons of fuel. It prevented the release from impacting the nearby creek or down-gradient residential wells. Following completion of the emergency response, an investigation was conducted to determine the nature and extent of the spill.

RESULTS OF THE INVESTIGATIONS

A 1994 release investigation indicated that in addition to the 1993 north valve release, there were previous releases of various types of fuel at the site. These releases are believed to be associated with an explosion at the Booster Pump Station in 1969, a leaking underground storage tank (removed in 1990) at the Booster Pump Station, and maintenance and repair operations at the north and south relief valves (Figure 2—Not shown in this version). Soil, on-site groundwater, residential drinking water, and Indian Creek were tested to determine the extent and degree of impact caused by these releases. The summary of the investigation is presented below.

- Soil is significantly contaminated in the area of the north valve. Shallow groundwater is significantly contaminated due to fuel leaching from the soil.
- On-site groundwater monitoring showed free-product and high diesel-range fuel concentrations in the shallow groundwater. The deep groundwater zone is less impacted, but still degraded due to the fuel spills. More than 30 shallow and deep monitoring wells were installed to characterize on-site groundwater (see Figure 3—Not shown in this version).
- Residential drinking water was sampled at more than 20 locations starting less than 1 week following the August 1993 release. No petroleum contaminants were detected in any of the more than 500 samples that have been collected and analyzed from 1993 to 1999.
- Indian Creek was not significantly affected by the releases.

SUMMARY OF INTERIM CLEANUP ACTIONS

Interim cleanup actions after the emergency response phase of the project included additional soil excavation and continued groundwater treatment.

Soil Excavation: During the construction of the collection trenches (1993), approximately 15,000 cubic yards of contaminated soil was excavated and removed off-site for thermal treatment. In September 1994, ADEC approved the excavation of additional soils in the area of the north valve, up-gradient of collection trench 1. Excavation of the contaminated soils occurred between October 1994 and January 1995. Approximately 10,000 cubic yards of contaminated soil was excavated and removed off-site for thermal treatment. Based on the level of contamination, it was estimated that approximately 2,300 gallons of spilled fuel was removed.

In April 1997, an assessment of the Booster Pump Station underground storage tank location was conducted to verify the adequacy of closure. The assessment included the excavation and disposal of approximately 40 cubic yards of soil.

Groundwater Treatment: In October 1993, an interim groundwater treatment plant was constructed followed by a long-term water treatment plant completed in early 1994. The groundwater treatment system consisted of an oil/water separator, particulate filters, and granular activated carbon. Contaminated water was collected from underground trenches, pumped to the treatment plant for processing, and later used for recharge water or disposed of in a large leachfield located off-site along the power line corridor. Over 44 million gallons of water were treated. Monitoring wells at the site, as well as incoming and outgoing water from the treatment system, were monitored for fuel and fuel by-products on a regular basis.

By September 1995, the groundwater collection trenches and treatment system had been running for 2 years. As a result of the groundwater treatment system and excavation of the area around the north valve, the concentration of fuel by-products in the groundwater had decreased significantly. By September 1995, the groundwater treatment system was no longer a practical means of recovering fuel, and it was shutdown in November 1995. Groundwater monitoring of the wells has continued, and was most recently reported to ADEC in May 1999.

Other Actions: Several efforts were undertaken to collect floating free-product from monitoring wells MW-22 and MW-26. However, fuel does not flow readily into these monitoring wells, which make active recovery impractical. Frequent testing of groundwater, Indian Creek, and residential drinking water was conducted and the site was closed to public access to help manage potential risks posed by site contamination.

SUMMARY OF SITE RISKS

In 1996, an Updated Site Characterization was completed to determine the extent and degree of residual contamination. The information generated was used to prepare a risk assessment. It was concluded that most of the soil and groundwater contamination was contained in the vicinity of the north valve (Figure 3—Not shown in this version). It was also shown that soil and groundwater contamination exceeded ADEC cleanup levels.

A risk assessment report was prepared to characterize the risks posed by fuel contamination to human health and the environment. The ADEC approved the report in November 1998. Diesel-range organics, a subset of petroleum hydrocarbons associated with diesel-type fuel, exceeded risk-based screening levels and was retained for inclusion in the human health and ecological risk characterizations. The *Final Indian Booster Pump Station Risk Assessment Report* is available for public review in the Alaska Room at the Loussac Library in Anchorage.

Ecological Risk Assessment Summary: In the ecological risk assessment, terrestrial and aquatic habitats with associated receptors were evaluated for potential impact due to remaining contamination. The potential exposure of the spruce grouse, snowshoe hare, American dipper, coho (silver) salmon, and dolly varden to site contaminants was evaluated. Based on the site conditions, potential of exposure to contaminants by ecological receptors was considered to be relatively small. The majority of the impacted soil at the site is at depth, and contaminated groundwater would be significantly diluted prior to mixing with surface water. Contaminants present in site surface soils were the only sources of contamination to which ecological receptors are potentially exposed.

Human Health Risk Assessment Summary: The purpose of the human health risk assessment was to evaluate the potential risks to current and future site users from soil and groundwater contamination. The evaluation was based on the location, amount, and toxicity of contamination present, current and future use of the site, and pathways by which people could be exposed to contaminants.

For humans, ingestion, inhalation, or dermal contact with smear zone contaminated soils were considered potentially complete pathways if future park activities (such as installation of water lines, septic systems, utility trenches, buildings, or other park related facilities) disturb the smear zone, and contaminated soil was excavated and redistributed on the surface. The smear zone is located within subsurface soil between the high and low groundwater levels, where contamination tends to stick or smear to soil due to a fluctuating groundwater table. At this site, the smear zone is approximately 10 to 20 feet beneath the ground surface.

The human health risk assessment showed that the groundwater contamination in the shallow and deep groundwater zones exceeded ADEC standards, chiefly by the ingestion exposure pathway. To help mitigate the potential risks, an up-gradient drinking water well was installed for future Park use.

A contaminant transport analysis was performed to address the potential for contaminant transport from the site to down-gradient private wells and Indian Creek. Modeling results demonstrated that diesel adsorbed to soil leaches into groundwater to cause the current impact. The model predicted that under the worst case scenario, the contaminated groundwater plume would not increase in size or travel from the site. The contaminated groundwater is being naturally diluted, dispersed, and biologically degraded before moving away from the site towards down-gradient wells.

ALTERNATIVE POINTS OF COMPLIANCE

A point of compliance for groundwater is an area where groundwater cleanup levels must be attained, and may include each point extending vertically from the uppermost level of the saturated zone to the lowest possible depth that could be affected. Alternative points of compliance for groundwater can be proposed in accordance with 18 AAC 75.345 (e) of the Oil and Hazardous Substances Pollution Control Regulations.

Three types of alternative points of compliance (APOC) are recommended for monitoring the groundwater cleanup levels. The alternative points of compliance (Table 1) are located within the plume area and down-gradient of the site (Figure 4—Not shown in this version). Type 1 monitoring wells are located on the down-gradient edge of the plume. Type 2 monitoring wells are located within the plume area. Type 3 monitoring wells are located between Indian Creek (up-gradient side) and the plume.

Table 1
Proposed Groundwater Alternative Points of Compliance

APOC Type	Monitoring Well Location
Type 1	MW-5D, MW-6, MW-7, MW-13, MW-19, MW-23, MW-34, MW-42 ^A
Type 2	MW-PH, MW-21, MW-22D, MW-27D, MW-30, MW-37, MW-38, MW-43 ^A , MW-44 ^A MW-45 ^A , MW-46 ^A MW-47 ^A , MW-48D ^A
Type 3	MW-8, MW-11, MW-16

^A - Monitoring well to be installed.

A Public Drinking Water Supply well was installed up-gradient of the site to service anticipated future land use. Institutional controls, are proposed to limit human and ecological exposure to contaminated soil and groundwater. Groundwater development and soil excavation restriction areas are proposed as shown on Figure 4 and detailed in a draft Memorandum of Agreement between ADEC and ADNR.

CLEANUP LEVELS

The soil and groundwater cleanup levels for the site are proposed in Table 2. In accordance with ADEC 18 AAC 325(g), after completing site cleanup, the risk from a hazardous substance should not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways. Also, the risk should not exceed a cumulative noncarcinogenic standard at a hazard index of 1.0 for each exposure pathway. Risk estimates exceeding these thresholds are considered by ADEC to represent levels of concern to humans, and may indicate the need for cleanup action.

The results of the risk assessment indicate that the Indian Booster Pump Station Site did not exceed the cumulative carcinogenic risk threshold. However, at some locations, the estimated hazard index exceeded the cumulative noncarcinogenic standard for the groundwater ingestion pathway. Soil and groundwater concentrations of diesel-range organics, and potential concentrations of benzene, toluene, ethylbenzene, xylenes and polynuclear aromatic hydrocarbons (fuel by-products) near monitoring wells MW-17, MW-22, and MW-26 require action under 18 AAC 325(f). The proposed cleanup levels for soil and groundwater contained in Table 2 are consistent with the expected future use of the site by the Chugach State Park.

Table 2
Proposed Soil and Groundwater Cleanup Levels

Contaminant	Soil (mg/kg)	Groundwater (mg/l)
Diesel Range Organics (DRO)	250	1.5
Benzene	0.02	0.005
Ethylbenzene	5.5	0.7
Toluene	5.4	1.0
Xylenes (Total)	78	10.0
Acenaphthene	210	2.2
Anthracene	4,300	11.0
Benzo(a)anthracene	6	0.001
Benzo(b)fluoranthene	20	0.001
Benzo(k)fluoranthene	200	0.01
Benzo(a)pyrene	3	0.0002
Chrysene	620	0.1
Dibenzo(a,h)anthracene	6	0.0001
Fluorene	270	1.46
Ideno(1,2,3-c,d)pyrene	54	0.001
Naphthalene	43	1.46
Pyrene	1,500	1.1

mg/kg: milligrams per kilogram

mg/l: milligrams per liter

COMPARATIVE ANALYSIS OF ALTERNATIVES

Four alternatives were evaluated for cleanup of the Indian Booster Pump Station Site. The alternatives address monitoring wells MW-17, MW-22 and MW-26, as well as lesser contamination within the area contained by the collection trenches shown on Figure 3. A

detailed description of the future monitoring will be provided in the Site Management Plan.

- Alternative #1 – Natural Attenuation with Institutional Controls: Natural attenuation is the reduction in the concentration and mass of a hazardous substance and its breakdown products, due to naturally occurring physical, chemical, and biological processes without human intervention. These processes include dispersion, diffusion, sorption, retardation, and biological degradation. Groundwater would be tested and monitored at the site without further active characterization or cleanup measures, unless there is an unacceptable increase in contaminants. An institutional control would prevent access to subsurface soil and prevent installation of water wells at the site. Cleanup levels using only natural attenuation are estimated to be achieved in approximately 20 years. Estimated costs = \$580,000.
- Alternative #2 – Natural Attenuation, Additional Characterization, and Limited Excavation: This alternative includes natural attenuation with institutional controls, conducting additional characterization in the area of monitoring well MW-22, and the excavation, removal, and thermal treatment of approximately 1,000 cubic yards of soil in the area of monitoring well MW-26. The excavation of soil in the area of monitoring well MW-26 should also improve the quality of the groundwater at monitoring well MW-17. Following the excavation of the soils, the area would be recontoured and revegetated to the Chugach State Park Superintendent's satisfaction. Cleanup levels using this option are estimated to be achieved in approximately 18 years. Estimated costs = \$765,000.
- Alternative #3 – Air Sparging/Soil Vapor Extraction: This alternative would include the installation of an air sparging/soil vapor extraction unit near monitoring wells MW-22 and MW-26. Air sparging involves the injection of air into the subsurface below the groundwater table, which changes the fuels in the soil into a vapor form. The vapors are then removed from the soil with vapor extraction wells. Also, air sparging increases the amount of dissolved oxygen in groundwater, which increases the potential for biological decomposition of contaminants. Cleanup levels using this option are estimated to be achieved in approximately 20 years. Estimated costs = \$855,000.
- Alternative #4 – Groundwater Pump & Treat: This alternative would include the installation of product recovery wells near monitoring wells MW-22 & MW-26. Pumped water would be treated using a mobile groundwater treatment system. A groundwater pump and treat system involves the pumping and treating of groundwater utilizing a mobile treatment plant and recovery wells. The pumped groundwater is processed through an activated carbon unit to remove the dissolved hydrocarbons. Treated water can either be re-injected or surfaced discharged. Cleanup levels using this option are estimated to be achieved in approximately 20 years. Estimated costs = \$930,000.

ADEC uses five criteria to evaluate its preferred alternative for cleanup of a given site. The next section evaluates the four alternatives for the Site against these criteria.

1. Practicability.
 - Are the alternatives capable of being designed, constructed and implemented in a reliable and cost effective manner?
 - Which of the alternative(s) are the most cost effective?

Alternative 2 would be easily implemented and would accelerate the natural attenuation process (alternative 1). Although alternative 3 & 4 can be designed, constructed, and implemented, the effectiveness of remediation of the residual contamination is questionable. Based on the soil type, groundwater recharge rates, and the chemical properties of old fuel, alternatives 3 & 4 may be unreliable. Alternative 2 would be the most cost-effective remedy for addressing residual contamination in the area of monitoring well MW-26 and would provide more information that may either validate or invalidate a natural attenuation option in the vicinity of monitoring well MW-22.

2. Protectiveness: How well does each alternative protect human health, safety, and welfare or the environment, both during and after construction?

Due to the planned excavation, removal, and treatment of contaminated soil, alternative #2 is the most proactive remedy for the protection of human health, safety, welfare, and the environment. Because there will be some disturbance during the excavation, the area will be revegetated.

3. Regulations: Will the alternative comply with all state and federal regulations?

All of the alternatives (1-4) will comply with applicable state and federal regulations.

4. Short- and long-term effectiveness.
 - Are there potential adverse impacts to human health, safety, and welfare or the environment during construction or implementation of the alternative?
 - How fast does the alternative reach cleanup goals?
 - How well does the alternative protect human health, safety, and welfare or the environment after completion of the cleanup?

Alternative 1 is estimated to reach cleanup goals in 20 years. Alternative 2 is estimated to reach cleanup goals in 18 years. Alternatives 3 & 4 are estimated to reach cleanup goals in 20 years. Some of the potential adverse impacts include: alternative 2 – increased truck traffic during excavation effort, transport of contaminated soil to Anchorage for treatment, and additional drilling activities in 1999; and alternatives 3 & 4 – routine site visits for system O&M and additional drilling activities in 1999.

5. Public Input: Have significant comments received from the community been considered?

ADEC will review and consider all comments received during the public comment period before making a final cleanup decision.

PREFERRED CLEANUP ALTERNATIVE

Based on the information generated from the site characterization, risk assessment, comparative analysis of alternatives, and the interim cleanup actions completed to date, the preferred alternative, as the cleanup remedy for the Site is Alternative 2.

The Proposed Cleanup Remedy includes monitored natural attenuation, the excavation of approximately 1,000 cubic yards of soil near monitoring well MW-26 and recontouring and revegetation of the excavated area. It also includes placement of two additional monitoring wells, one between monitoring well MW-22 and the pumphouse, and one between monitoring well MW-22 and the former south pipeline valve. The proposed cleanup remedy includes limited institutional controls on the Site property to formally restrict access to groundwater and limit the Park's ability to excavate soil in certain areas. Additional wells will be installed and long-term groundwater monitoring will be conducted to ensure that contaminants do not migrate beyond the points of compliance, and to determine when cleanup levels are reached.

PUBLIC INVOLVEMENT

Two informational meetings are scheduled to discuss this Proposed Plan and to answer questions. ADEC, ADNR, and DESC representatives will be present at the Loussac Library in Anchorage at 7:00 p.m. on June 16, 1999 and at the Valley Bible Chapel in Indian at 7:30 p.m. on June 17, 1999. The informational meetings also will provide an opportunity for interested parties to submit written or verbal comments on the Proposed Plan.

ADEC will respond to comments on the Proposed Plan in the Responsiveness Summary. After consideration of all public comments, a final cleanup decision will be made for the site. The document that will detail the decisions made during the cleanup process is the Record of Decision, which will include the Responsiveness Summary. The Record of Decision will be added to the Indian Booster Pump Station documentation at the Loussac Library.

Your comments are requested on the proposed cleanup alternative, cleanup levels, and the alternative points of compliance for groundwater. The comment period runs from June 7, 1999 to July 6, 1999. Written comments must be postmarked by close of business on July 6, 1999. If you wish to comment or have questions, please contact Scott Pexton at (907) 269-7550.

Please plan to attend one or both of the informational meetings to discuss the cleanup alternatives for the Indian Booster Pump Station Site. We welcome your comments at these meetings.

When: 7:00 pm, June 16, 1999

Where:
Loussac Library,
Public Conference Room,
Anchorage, Alaska

When: 7:30 pm, June 17, 1999

Where:
Valley Bible Chapel,
Milepost 102.8 Seward Highway
Indian, Alaska

The ADEC contact for public comment is:

Scott Pexton
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage AK 99501
Phone: 269-7550, Fax: 269-7649
EMAIL: spexton@envircon.state.ak.us

APPENDIX D. Examples of Pubic Notifications

The following are examples of notifications to the community about DEC projects. They are designed to be “fill-in-the-blank” format and the underlined words what needs to made site-specific.

Notification at the start of a project



Environmental Investigation Begins at
XYZ site
Somewhere, Alaska

Date:

The Alaska Department of Environmental Conservation is working with the [company name, location] to ensure that the environmental investigation and cleanup meets all state requirements. This site is owned and operated by [give owner’s name]. Little is known about the contamination at the property and [give name of who will conduct investigation] will begin sampling soil, groundwater, and surface water on their property starting this spring. This site has been ranked as a [high, medium, low]priority under the Alaska Hazard Ranking Model. If you have questions or information you would like to give to DEC, please contact:

DEC Project Manager
Address, City, and phone number
e-mail address

Notification for Public Comment on 10x Rule

**Request for Public Comment
On Groundwater and Soil Cleanup Levels
At the XYZ Service Company
Somewhere, Alaska****Date:
Comments must be received by July 16, 1999**

The Alaska Department of Environmental Conservation (DEC) is requesting public comments on a request from XYZ Service Company for DEC approval of alternative cleanup levels for petroleum in the soil and groundwater at the site. The site is on the Somewhere Airport property and is planned for Terminal/Airline support under the 1996 Airport Master Plan. This commercial property will be used for a roadway and parking facility.

The primary contaminant at the site is Diesel Range Organics (DRO). The proposed groundwater cleanup level is 2,500 milligrams/liter. This number is 10 times the values found in Table C of 18 AAC 75.345 which are the safe drinking water levels. The proposed alternative soil cleanup level is 12,500 milligram/kilogram for DRO which will also address the other petroleum contamination at the site. DEC believes these level are protective of human health, safety, welfare, and the environment for this commercial property.

DEC is seeking public comment on a proposed determination that the groundwater is not a current or reasonably expected potential source of drinking water. The quality and quantity of the shallow groundwater is poor based on naturally high levels of organic and inorganic materials in the soil and a low production rate. Proposed soil treatment will prevent further shallow groundwater contamination from occurring above proposed groundwater cleanup levels.

In addition, DEC is requesting public comment on proposed cleanup levels and technologies to treat the contamination at this property. Approximately 10,000 cubic yards of soil is expected to be excavated and treated as necessary, either on or off the site. The remaining contaminated soil above cleanup levels will be treated on site.

Comments should be addressed to:

Project Manager
ADEC Contaminated Sites Remediation Program
555 Cordova Street
Anchorage, Alaska 99501
Phone: (907) 269-xxxx fax: (907) 269-xxxx
Project Manager@envircon.state.ak.us

Notification when seeking comments on Land Use Restrictions



**Public Comment On
Cleanup Levels for
ABC Power and Light
Here, Alaska**

Date:

The Alaska Department of Environmental Conservation (DEC) is requesting public comments on a request from ABC Light & Power for DEC approval of a hazardous substance cleanup level appropriate for a commercial/industrial facility. The facility is the ABC Power Plant, located at 52 John Street. Approval of a soil clean up level for a commercial/industrial facility will allow ABC Light & Power to cleanup the Polychlorinated Biphenyls (PCBs) detected in the soil to a level less stringent than a residential cleanup level.

PCBs, above the commercial/industrial cleanup level of 10 parts per million (ppm) in the surface soil and 25 ppm at depth, were detected in the soil at the ABC Power Plant. PCBs above the residential cleanup level of 1 ppm were detected at adjacent properties. Any PCBs detected off-site will be cleaned up to the residential cleanup level.

In order to obtain a less stringent clean up level, ABC Light and Power must record a deed restriction which will limit property uses to commercial/industrial use. ABC Light & Power plans to retain ownership of the property for uses associated with the generation and distribution of electric power for the city of Here.

For more information or to submit comments on the proposed cleanup decision, please contact:

Project Manager
Alaska Department of Environmental Conservation
Address
City, State, Zip
Phone and Fax number

Comments must be received by (give date)

The State of Alaska, Department of Environmental Conservation, complies with Title II of the Americans with Disability Act of 1990. Individuals with disabilities who may need auxiliary aids, services, and/or special modifications to participate in this public notice should contact Human Resources Manager at (907) 465-5040 (TTY compatible).

Notification when a site is closed



**Cleanup Completed at
XYZ site,
Somewhere, Alaska**

The Alaska Department of Environmental Conservation has issued a “Site Closure” letter on January 15, 1999 to [owner, company and location]. The Department has reviewed the environmental cleanup work at this site and finds that it meets all state requirements. Provide some specifics about the site and cleanup activities. If you have questions or information you would ask DEC, please contact:

DEC Project Manager

Address, City and phone number

E-mail address

Notification when a site is closed with restrictions (No Further Remedial Action)



**XYZ Site Meets ADEC Some Cleanup Requirements
Some Restrictions Still Apply**

**XYZ Site
Somewhere, Alaska**

The Alaska Department of Environmental Conservation has issued a “No Further Remedial Action Planned” letter on January 15, 1999 to [owner, name of company and location]. The Department has reviewed the environmental cleanup work at this site and finds that it meets all state requirements with the following restrictions. Give some specifics about the cleanup work conducted. The groundwater beneath the property is contaminated and can not be used as a source of drinking water. The property is intended to be used as commercial site and can not be used for residential purposes without further cleanup actions. If you have questions or information you would ask DEC, please contact:

DEC Project Manager
Address, City and phone number
E-mail address

APPENDIX E. Glossary of Common Environmental Terms and Acronyms

[Brackets] indicate whether the definition is a state or federal definition. Note that 18 AA75, Article 9 includes regulatory definitions that may be paraphrased in this document for ease of understanding by the general public.

Administrative Record: [Federal] A file that is maintained and contains all information used by the agency to make its decision on the selection of a cleanup action. This file is to be available for public review and maintained for current actions by the Project Manager. A copy of the administrative record must be kept at or near the site.

Alaska Department of Environmental Conservation (DEC): The state agency responsible for protecting public health and environment within the state. The Division of Spill Prevention and Response is charged for protecting public health and environment from sites contaminated by oil or other hazardous substances.

Alaska Hazards Ranking Model for the Contaminated Sites Database (AHRM): [State] August 31, 1991, as amended May 2, 1993. An exposure model which gives a site a relative priority score so that priority can be given to those site that present the greatest threat to human health and the environment.

Agency for Toxic Substances and Disease Registry (ATSDR): A federal agency established under the Comprehensive Environmental Response, Compensation, and Liability Act to perform specific functions concerning the effect on public health of hazardous substances in the environment. Specific functions include health assessments and health studies.

Air Sparging: A technique to treat contaminated groundwater. Compressed air is injected into the groundwater through specially designed wells. The air moves upward through the groundwater and soil, releasing the contaminant as vapor which may be extracted and treated using a soil vapor extraction system.

Air Stripping: A treatment system that removes or “strips” volatile organic compounds from contaminated groundwater or surface water by forcing an airstream through the water and causing the volatile compounds to dissipate.

Applicable, relevant, or appropriate requirements (ARARS): [Federal] State and federal laws and regulations that need to be met or considered in development and implementation of cleanup alternatives at a site. These include cleanup standards, standards of control, and other substantive environmental protection requirements, factors, or limitations under state and federal law.

Aquifer: An underground geologic formation composed of materials such as rock, sand, soil or gravel that can store and supply ground water to wells and springs. Aquifers in Alaska can be as little as a few feet below ground surface to more than 200 feet below ground surface. A ground water supply is usually considered an aquifer if it contains enough water to supply the water needs for a community.

Base Closure and Realignment Act (BRAC): The federal law that provides the authority, the process, and schedule for closing an operating Department of Defense facility.

Background concentrations: The level of a chemical that is consistently present in the environment or the vicinity of the site and that is naturally present or is the result of human activities unrelated to discharges or releases from the site.

Benzene: A cancer-causing chemical associated with fuels, such as gasoline. Benzene evaporates quickly and dissolves easily in water.

Benzene, Toluene, Ethylbenzene and Xylene (BTEX): Organic chemicals found in fuels that evaporate quickly and can cause cancer.

Bioaccumulate: Substances that when taken into the body through contaminated food, water or air slowly accumulate in body tissues or fat because the substances are slow to breakdown or excreted.

Bioremediation: A technique that uses bacteria or other organisms to clean up contamination. Bacteria generally break down the contamination into less harmful components, such as carbon dioxide and water. Bioremediation can be used to clean up soil or water. Water and nutrients, such as fertilizer and oxygen, may be added to the contaminated soils to speed up the breakdown process. Some chemicals, such as gasoline, are easily bioremediated while other, such as pesticides, can not be effectively treated using bioremediation. The contamination can be treated in place (*in situ*) or the material can be excavated and treated above ground in a different location (*ex situ*). Types of soil bioremediation methods include landfarming, composting, land spreading, biotreatment, and biopiles. Types of water bioremediation include natural attenuation, and engineered wetlands. [State] A remediation method that decreases the concentration of a hazardous substance in soil through biological action.

Bioventing: A technique to treat soil contaminated with petroleum products or organic chemicals. Air is forced into the soil through specially designed wells. The oxygen enhances growth of naturally occurring bacteria in soils. The bacteria feed on the contaminants in the soils, chemically breaking down the contaminants into non-hazardous components. The air can be heated to enhance bacteria growth.

Capillary Action: The rise of water along narrow passages, facilitated and caused by surface tension.

Capping: Placement of a barrier over the contamination to prevent infiltration of water into the material below the cap. Caps are made of different materials including a geotextile (fabric) cover, soil, clay, sand, gravel, asphalt, or vegetation top layer. Caps are designed specifically for each area and can range from several inches to several feet thick.

Carbon Adsorption/Carbon filtration: A treatment system for contaminated water or air, where the contaminated media is forced through tanks containing activated carbon. Activated carbon attracts, or adsorbs, the contaminants. This treatment is usually combined with other forms of treatment such as air stripping or oil/water separator. Spent carbon must be treated or properly disposed of.

Carcinogen: A substance that causes or induces cancer.

Cleanup: Efforts to mitigate environmental damages or threat to human health, safety, or welfare from hazardous substances or oil.. It may include removal of hazardous substance from the environment, including restoration, remediation, and other measures that are necessary to mitigate or avoid further threat to public health, safety and welfare, or the environment. Cleanup is often used interchangeably with terms like corrective actions, remedial action, removal action, or response action. It is often used broadly to describe various actions or phases of an action, such as the remedial investigation/feasibility study in the Superfund process.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): [federal] A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act, commonly known as the Superfund law. The Acts created a special tax that goes into a Trust fund, commonly know as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites. The U.S. Environmental Protection Agency (EPA) is responsible for implementing these laws. Under the program, EPA can either:

- a. Pay for the site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work; or
- b. Take legal action to force parties responsible for site contamination to clean up the site or pay back the Federal government for the cost of the cleanup.

Corrective Action Final Report (CAFR): [State] The report submitted to DEC upon the conclusion of the Corrective Action detailing all of the activities of the Site Assessment and Corrective Action under the Voluntary Cleanup Program.

Corrective Action Plan: [State] The procedures proposed by the responsible party, owner, operator, or their consultant to investigate, assess, correct, contain, and clean up a regulated substance release under the Voluntary Cleanup Program.

Degradation: A process by which a chemical is changes to a less complex form.

Dense Non-aqueous Phase liquid (DNAPL): A contaminant that is insoluble or has low solubility, is heavier than water and sinks to the bottom of an aquifer and potentially through the underlying materials. Examples are solvents such as PERC, and TCE; which are common dry cleaning chemicals.

Diesel Range Organics (DRO): Diesel fuels and its by-products; the acronym is commonly used to refer to these chemicals.

Emergency: Those releases or threats of releases of a hazardous substance requiring initiation of on-site activity within hours of the lead agency's determination that a removal action is appropriate. Emergency action is directly related to the public's health or the environment being imminently threatened or endangered by the incident.

Engineered Wetlands: A constructed or modified wetland area used to treat low levels of contaminated groundwater that flows into the wetland. Channels may be cut into the wetlands, slowing the water movement, allowing the water to collect more oxygen and providing time for the naturally occurring bacteria to break down the contamination in

the water or allow for wetland plants to absorb the contamination. Special plants can be added to the wetlands to enhance breakdown of the contamination in water and soil.

Engineering Evaluation/Cost Analysis (EE/CA): [Federal] An EE/CA is an analysis of removal alternatives for a site, similar to a feasibility study. Upon completion, the EE/CA must be made available for a 30-day public comment period. Upon a timely request, the comment period will be extended by a minimum of 15 days.

Ex-situ Treatment: Used to describe treatment conducted on materials that have been moved from their original location.

Feasibility Study (FS): [Federal] A study undertaken by the lead agency to develop and evaluate options for remedial action using data from the Remedial Investigation.

Formerly Used Defense Site (FUDs): Property that has been surplus by the Department of Defense and has been legally transferred to private or other governmental agencies. The U.S. Army Corps of Engineers conducts cleanups at these sites.

Free product: A petroleum product in the liquid phase.

Gasoline Range Organics (GRO): Gasoline fuels and its by-products; the acronym is commonly used to cover these types of chemicals. Benzene, Toluene, Ethylbenzene and Xylene (BTEX) are examples of GRO.

Ground water: Water found beneath the earth's surface that fills pores between sand, soil particles, or gravel creating a saturated zone. In aquifers, ground water is in sufficient quantities that it can be used for drinking water, irrigation, or other purposes.

Hazard Index: The sum of the hazard quotients attributed to noncarcinogenic hazardous substances with similar critical endpoints.

Hazardous Ranking System: [Federal] The principal screening tool used by EPA to evaluate risks to public health and the environment associated with abandoned or uncontrolled hazardous waste sites. The HRS calculates a score based on the potential of hazardous substances spreading from the site through the air, surface water, or groundwater, and on other factors such as density and proximity of human population. This score is the primary factor in deciding if the site should be on the National Priorities List and, if so, what ranking it should have compared to other sites on the list.

Hazardous Substance: [Federal] Any element or compound that presents an imminent and substantial endangerment to public health or the environment, but does not include petroleum. [State] meaning is given in AS 46.03.826.

Hazardous Waste: [Federal] By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special EPA lists. [State] a waste within the scope of 18 AAC 62.010-18 AAC 62.020.

Hydrology: The science dealing with the properties, movement and effects of water found on the earth's surface, in the soil and rocks beneath the surface, and in the atmosphere.

Incineration/Thermal treatment: This treatment technique uses heat to remove contamination from solid, liquid, or gaseous materials. Hazardous organic compounds are converted to ash, carbon dioxide, and water. Temperatures will vary depending on the type of contamination and the contaminated material.

Information Repository: A file containing current information, technical reports, reference documents, and other documents regarding the cleanup of hazardous waste site. At a Superfund site, Technical Assistance Grant application information will also be included. The information repository is usually located in a public building that is convenient for local residents, such as a public school, library, or city hall, fire station or Post Office.

In-situ Treatment: *In-situ* means “in place”. Used to describe any treatment technique that treats the contaminated water or soil in place.

Institutional Controls: Legal and enforceable restrictions or agreements that enhance and complement the permanence of a cleanup remedy. They may also include physical barriers, that prevent humans or animals from trespassing on the site, warning signs, zoning, land use or deed restrictions. They remain in effect as long as protection is needed.

Intrinsic Remediation: A type of bioremediation that uses naturally occurring microbes to degrade contaminants without taking any steps to enhance the process.

Landfill: A method for final disposal of solid waste on land. The refuse is spread, compacted, and a soil cover is placed over the refuse to prevent further exposure. There are stringent regulations for operating and maintaining landfills.

Leachate: A liquid resulting when water percolates, or trickles, through waste materials and becomes contaminated. Leachate may occur at landfills or at contaminated sites resulting in hazardous substances being transported to clean soil, surface water, or groundwater.

Light Non-Aqueous Phase Liquid (LNAPL): LNAPLs are undissolved chemicals, typically petroleum products, which float on the surface of ground, water rather than mix with it. A good analogy would be oil and vinegar salad dressing.

Liner: A structure of natural clay or manufactured material, which serves as an impermeable barrier between the clean soils and the contaminated material stored in the liner.

Maximum Contaminant Level (MCL): The maximum level of certain contaminants permitted in public drinking water supplies. EPA under the Safe Drinking Water Act sets these levels.

Monitoring Wells: Wells drilled at specific locations where groundwater parameters (depth, flow direction, chemical nature, etc.) can be sampled to determine the types and amounts of contaminants present.

Monofill: A landfill that contains only one type of hazardous waste or chemical.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): [Federal] The federal regulation that guides the Superfund program. The NCP was revised in Feb. 1990.

National Pollutant Discharge Elimination System (NPDES): [Federal] The primary permitting program under the Clean Water Act, which regulates all discharges to surface water.

National Priorities List (NPL): [Federal] A list maintained by EPA of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term cleanup using money from the Superfund trust fund. EPA is required to update the NPL at least once a year.

Natural attenuation: Naturally occurring physical, chemical, and biological processes in the water to break down the contamination into non-hazardous components. Regular monitoring of ground water is needed to ensure that natural attenuation is occurring. This is also known as intrinsic remediation.

Non-aqueous phase liquid (NAPL): Contaminants that remain as the original bulk liquid in the subsurface.

Non-Time Critical Removals: [Federal] Those releases or threats of releases not requiring initiation of on-site activity within 6 months after the agency's determination, based on the site evaluation, that a removal action is appropriate.

Notice of Intent (NOI): [State] Under the Voluntary Cleanup Program, the form submitted to DEC by an applicant for acceptance into the program. The NOI describes the history and current situation of the site, and enables DEC to make a determination on whether the site meets the criteria for inclusion in the Voluntary Cleanup Program.

On-Scene Coordinator: The federal or state official who coordinates and directs removal actions and all other site activities associated with an incident involving an emergency response.

Operable Unit: At a complex contaminated site, the site may be divided up into areas, which are grouped together for ease of investigation and cleanup. These groups are frequently called operable units.

Operation and Maintenance (O&M): Activities conducted at a site to ensure the remedy and any monitoring systems are operating properly.

Parts per billion (ppb) Unit commonly used to express concentrations of contamination and ppb is 1/1,000,000,000. An example is 0.005 ppm is 5 ppb.

Parts per million (ppm): Unit commonly used to express concentrations of contamination and ppm is 1/1,000,000.

Permafrost: Soil or other earth material with a temperature that remains below 32 degrees Fahrenheit for two or more years.

Petroleum, Oil and Lubricants (POL): A common acronym used to describe the contents of tanks and associated piping that contains these materials. It also refers to a Dept. of Defense program to clean up petroleum spills or leaks.

Pilot Test: A small-scale version of a larger system that is being tested to anticipate the performance of the larger system. Pilot test results are typically used to design and optimize the larger system.

Plume: A visible or measurable discharge or release of a contaminant from a given point of origin.

Polycyclic aromatic hydrocarbons (PAHs): A group of compounds composed of two or more fused aromatic rings. PAH's are introduced into the environment through the combustion process (i.e. forest fire, automobile exhaust, and fossil fuel power plants).

Polychlorinated Biphenyls (PCBs): A group of toxic, persistent chemicals formerly used in electrical transformers and capacitors for insulating purposes and in gas pipeline systems as a lubricant. The sale and new use of PCBs were banned in 1979. They are classified as a possible carcinogen.

Potentially Responsible Party (PRP): [Federal] An individual or company (such as owners, operators, transporters, or generators of hazardous waste) potentially responsible for, or contributing to, the contamination problems at a Superfund site. Whenever possible, EPA requires PRPs, through administrative and legal actions, to clean up hazardous waste sites they have contaminated.

Preliminary Assessment (PA): [Federal] Initial step of a site assessment under Superfund which involves record review; designed to distinguish between sites that pose little or no threat to human health and the environment and sites that require further investigation.

Proposed Plan: [Federal] This document summarizes for the public the preferred cleanup strategy, rationale for the preference, alternatives presented in the detailed analysis of the remedial investigation/feasibility study. It must actively solicit public review and comment on all the alternatives under consideration.

Public Comment Period: A time period for the public to review and submit comment on various documents and actions. [Federal] A comment period can not be less than 30 days and upon timely request to the lead agency, the comment period will be extended by a minimum of 30 additional days.

Pump and Treat: A groundwater treatment technique that includes removal of the groundwater by pumping it to the surface and treating in it by various methods, such as by air stripping or carbon absorption. Extraction wells are drilled into the contaminated groundwater plume to collect the water, bringing it to the surface for treatment. A non-domestic wastewater discharge permit may be required for operation of the treatment system.

Quality Assurance/Quality Control (QA/QC): A system of procedures, checks, audits, and corrective actions used to ensure that field work and laboratory analysis during the investigation and cleanup meets established sampling and analytical standards.

Record of Decision (ROD): [Federal] A document that explains which cleanup alternative(s) will be used at a site or is used to justify no further action. The ROD is based on information and technical analysis generated during the remedial investigation/feasibility study and consideration of public comments and community concerns.

Remedial Action (RA): [Federal] The actual construction or implementation of the selected cleanup plan.

Remedial Design (RD): [Federal] The phase of the project where engineering plans technical drawings and specifications are developed for the selected cleanup plan.

Remedial Investigation/Feasibility Study (RI/FS): [Federal] Two different, but related studies. Remedial Investigation gathers the data necessary to determine the type and extent of contamination at a site. The Feasibility Study establishes the criteria for cleaning up a site and identifies and screens possible cleanup alternatives. The Feasibility Study also analyzes the technologies and costs of the alternatives.

Removal Action: [Federal] An emergency or short-term action to respond to threats to public health, welfare and/or the environment. These actions are limited in scope and cost. Removal actions are divided into emergency, time-critical or non-time critical.

Residual Range Organics (RR0): A common acronym for heavy fuel products such as Bunker C fuel or asphalt.

Responsiveness Summary: [Federal] A written summary of oral and/or written comments, criticisms, and new relevant information received by the agency during a public comment period and the agency's responses to these comments. A responsiveness summary is an appendix to a Record of Decision.

Responsible Person (RP): [State] A person who is required under AS 46.04.020 or AS 46.09.020 to contain or perform a cleanup of a discharge or release of a hazardous substance.

Resource Conservation and Recovery Act (RCRA): [Federal] A federal law that established a regulatory system to track hazardous and solid wastes from their generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing, and disposing of hazardous wastes. It also provides a framework for management of non-hazardous solid wastes. RCRA is designed to prevent the creation of new, uncontrolled hazardous waste sites.

Restoration Advisory Board (RAB): An advisory board which can be established at Department of Defense sites or Formerly Used Defense Sites which provides a forum through which local communities, installations, and regulatory agencies work together in an atmosphere that encourages discussion and information exchange.

Risk Assessment: A study to determine risks posed by the site if no cleanup action was taken and what cleanup levels need to be established to be protective of human health and the environment. There are two types of risk assessments. Human health risk assessment looks at the risks to humans from contamination at the site and an ecological risk assessment looks at the risks to ecosystems, such as plants, fish, and animals, from contamination at the site.

Risk Management: The process of evaluating and selecting alternative regulatory and non-regulatory responses to risk. The selection process necessarily requires the consideration of legal, economic, and behavioral factors.

Saturated zone: The zone below the water table where, permanently or seasonally, the rock pore spaces are filled with water.

Site: [State] An area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership.

Site Inspection: [Federal] The second stage of a site assessment. Typically includes review of existing data about the site and limited soil and water sampling to determine nature and extent of contamination.

Smear Zone: Soils between the top and bottom of the groundwater table that becomes saturated by the groundwater part of the year due to water table fluctuations. This area may become contaminated if contamination is floating on the top of the groundwater or if soil contamination extends into the smear zone.

Soil Vapor Extraction: A treatment technique that removes vapors from subsurface soils by removing air from the soils through special extraction wells. This system may be combined with air sparging.

Soil Washing: A treatment technique to remove contamination from soils. The contaminated soils are excavated and screened to remove large cobbles, debris, and gravel. The remaining soil is washed using a soap or solvent and the wash liquid is also treated. Very small soil particles, called fines, may not be easily treated in this manner and may require other treatment or disposal methods.

Solidification/ Fixation: A technique that involves physically mixing contaminated soils with cementing agents, creating a solidified mass that immobilizes the contamination and prevents exposure.

Subsurface Soil: [State] Soil that is more than two feet below the ground surface.

Superfund: [Federal] The common name for the Comprehensive Environmental Response, Compensation, and Liability Act. It refers to the trust fund.

Surface Water: Bodies of water that are above ground, such as rivers, lakes, and streams. It could also include wetland areas where water may be present intermittently according to the season. It can also mean the snow melt or rain which is flowing on the ground surface.

Technical Assistance for Public Participation (TAPP): [Federal] A mechanism for community members on a Restoration Advisory Board or Technical Review Committee at a Department of Defense site to obtain technical assistance to help them understand the scientific and engineering aspects of the cleanup. The Department of Defense through the commander of the installation provides funding for this assistance.

Technical Assistance Grant (TAG): [Federal] An EPA grant program that provides funds for qualified citizens' groups at a Superfund site to hire independent technical advisors to help them understand and comment on technical decisions relating to Superfund sites.

Toxic Substances Control Act (TSCA): [Federal] Enacted in 1976, this law requires testing, regulating, and screening all chemicals produced or imported in the U.S. for possible toxic effects. Any existing chemical that poses health and environmental hazards is tracked and reported under this law.

Time Critical Removals: [Federal] Includes emergencies lasting longer than 30 calendar days and where action will take place within six months of the lead agency's determination that a removal action is necessary.

U.S. Army Corps of Engineers (Corps or COE): The federal agency selected by the Department of Defense to be responsible for the investigation and cleanup of Formerly Used Defense Sites and may serve as the contracting agent for other branches of the Department of Defense.

U.S. Environmental Protection Agency (EPA): The federal agency responsible for enforcing or overseeing the federal environmental laws, such as the Clean Water Act, RCRA, and the Superfund laws.

Unexploded Ordnance (UXO): Usually refers to Department of Defense's unexploded munitions, including bullets, missiles, and bombs.

Vadose zone: Zone or layer about the water table in which some water maybe suspended or moving in a downward migration toward the water table or laterally toward a discharge point.

Volatile Organic Compound (VOC): An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature.

Voluntary Cleanup Program (VCP): [State] A state program intended to accelerate the cleanup of less hazardous sites, while continuing to protect human health and the environment.

Water Table: The boundary between the saturated and unsaturated zones. Generally, the level to which water will rise in a well (except an artesian well).

Wellhead: The area immediately surrounding the top of a well or the top of a well casing.

Workplan: Written plan that describes the planned actions, such as sampling and analysis, site investigation, site assessment or risk assessment. It includes the justification and instructions for conducting these activities. It also includes health and safety plans for the workers conducting these tasks.