FACT SHEET

NPDES Permit Number: ID-G91-0000
Public Notice Issuance Date: June 13, 2006
Public Notice Expiration Date: August 14, 2006

**The U.S. Environmental Protection Agency (EPA)
plans to issue a general National Pollutant Discharge Elimination System (NPDES) permit to discharge pollutants pursuant to the provisions of the Clean Water Act, 33 U.S.C. § 1251 et seq. for**

GROUNDWATER REMEDIATION DISCHARGE FACILITIES IN IDAHO

**and
the State of Idaho Proposes to Certify the Permit**

Technical Contact
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EPA Proposes NPDES Permit Issuance

The EPA proposes to issue a general NPDES permit for groundwater remediation discharge facilities in the state of Idaho. The draft permit sets conditions for the discharge of pollutants to different water bodies of the U.S. within the state of Idaho.

This Fact Sheet includes:

- information on public comment, public hearings and appeal procedures
- a description of the types of facilities covered
- the draft effluent limitations, monitoring schedules and other conditions
- technical material supporting the conditions in the draft general permit

Idaho State Certification

The Idaho Department of Environmental Quality proposes to certify the NPDES general permit under section 401 of the Clean Water Act. The state has submitted a preliminary section 401 certification prior to the public notice.

Public Comment

Persons wishing to provide comments on the draft general permit or request a public hearing for the draft permit may do so in writing before the expiration date of the public notice. A written request

for public hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All written comments should be submitted to EPA as described in the public comments section of the attached public notice. After the public notice expires, and all significant comments have been considered, EPA's Regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance.

Persons wishing to comment on state certification of the general permit should submit written comments by the public notice expiration date to:

Johnna Sandow
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

Within 120 days following EPA's final permit decision under 40 CFR 124.15, any interested person may appeal the general permit in the Federal Court of Appeals in accordance with Section 509(b)(1) of the Clean Water Act. Persons affected by a general permit may not challenge the conditions of the permit in further EPA proceedings (see 40 CFR § 124.19). Instead, they may either challenge the permit in court or apply for an individual NPDES permit.

Documents are Available for Review

The draft general NPDES permit, fact sheet, and related documents can be reviewed or obtained by visiting or contacting the EPA's Operations Office in Boise between 8:30 a.m. and 4:00 p.m. (Mountain Time), Monday through Friday at:

United States Environmental Protection Agency Region 10
Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706
(208) 378-5757

The draft general permit and fact sheet are also available for inspection and copying at the following federal and State offices:

U.S. Environmental Protection Agency Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
206/553-0523 or
1-800-424-4EPA (within Alaska, Idaho, Oregon and Washington)

Idaho Department of Environmental Quality
State Office
1410 North Hilton
Boise, Idaho 83706
208/373-0502

Idaho Department of Environmental Quality
Boise Regional Office
1445 North Orchard
Boise, Idaho 83706-2239
208/373-0550

Idaho Department of Environmental Quality
Twin Falls Regional Office
1361 Fillmore Street
Twin Falls, Idaho 83301
208/736-2190

Idaho Department of Environmental Quality
Pocatello Regional Office
444 Hospital Way, #300
Pocatello, Idaho 83201
208/236-6160

Idaho Department of Environmental Quality
Lewiston Regional Office
1118 F St.
Lewiston, Idaho 83501
208/799-4370

Idaho Department of Environmental Quality
Coeur d'Alene Regional Office
2110 Ironwood Pkwy
Coeur d'Alene, Idaho 83814
208/769-1422

Idaho Department of Environmental Quality
Idaho Falls Regional Office
900 N. Skyline
Idaho Falls, Idaho 83402
208/528-2650

The draft permit, fact sheet, and other information can also be found by visiting the Region 10 website at www.epa.gov/r10earth/waterpermits.htm.

For technical questions regarding the permit or fact sheet, contact Robert Rau at the phone number or e-mail at the top of this fact sheet. Services can be made available to persons with disabilities by contacting Audrey Washington at (206) 553-0523.

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I. BACKGROUND OF GENERAL PERMITS

Section 301(a) of the Clean Water Act (CWA) provides that the discharge of pollutants is unlawful except in accordance with an NPDES permit unless such a discharge is otherwise authorized by the CWA. The EPA's implementing regulations found under Title 40 of the Code of Federal Regulations (CFR), Part 122, Section 28 (40 CFR 122.28) authorize the issuance of "general permits" to categories of discharges. The EPA may issue a general permit to a category of point sources located within the same geographic area whose permits warrant similar pollution control measures.

The Director is authorized to issue a general NPDES permit if there are a number of point sources operating in a geographic area that: 1) involve the same or substantially similar types of operations; 2) discharge the same types of waste; and, 3) require the same or similar treatment technologies or monitoring requirements. In the opinion of the Director, groundwater remediation facilities are more appropriately controlled under a general permit than under individual NPDES permits.

The similarity of the operations, and the technologies used to treat similar chemicals at groundwater remediation facilities resulting in the discharge of similar waste types has prompted EPA to prepare this general permit. When issued, this permit will enable groundwater remediation facilities to maintain compliance with the CWA, will extend environmental and regulatory controls to a significant number of discharges, and reduce some of the permit backlog in Idaho.

II. FACILITIES AND RECEIVING WATERS COVERED BY THE GENERAL PERMIT

A. Facilities Covered by the General Permit

EPA is proposing to issue a general NPDES permit for groundwater remediation discharge facilities in Idaho. The general permit will provide CWA authorization for facilities that are discharging treated groundwater to waters of the United States within the State of Idaho. The majority of these remediation facilities are identified and overseen by federal or state Superfund type programs, Leaking Underground Storage Tank (LUST) and Drinking Water programs, or a Resource Conservation and Recovery Act (RCRA) corrective action.

This general permit is designed to cover two broad types of groundwater remediation facilities: 1) petroleum related site cleanups; and, 2) non petroleum related site cleanups. Petroleum related cleanup sites include those contaminated primarily with fuel oils such as gasoline, diesel, aviation fuel, kerosene and heating oil. Also included in this category are lubricating and hydraulic oils, used oil, and petroleum based or stoddard solvents. Non petroleum related cleanup sites include facilities contaminated with volatile organic compounds (VOCs), wood preservatives, metals, and other contaminants such as polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs).

This general permit covers all *exsitu* groundwater treatment facilities such as pump and treat or seepage water collection systems in which treated groundwater is discharged to waters of the United States in Idaho. This also includes construction/excavation dewatering and aquifer pump testing occurring at a designated or known chemically contaminated site including EPA "Brownfields" sites (or more information on Brownsfields sites, visit Region 10's website at www.epa.gov/r10earth, click on 'Superfund' in the blue corner, and then 'Brownsfields' under community involvement).

B. Pollutants Associated with Groundwater Remediation Facilities

Although contaminated groundwater sites have been known to contain thousands of different chemical pollutants, both petroleum and non petroleum related cleanup sites can usually be associated with "typical" or indicator contaminants of concern (COCs) that are characteristic of the above mentioned types of organic and inorganic chemical materials (i.e., fuels, VOCs, metals, etc.). These indicator COCs will be the focus of the draft general permit. Over the past 25 years, EPA and IDEQ have developed considerable experience in characterizing the nature and extent of contamination at such sites, and in designing and implementating cleanup strategies. The IDEQ guidance document titled *Idaho Risk Based Corrective Action Guidance Document for Petroleum Releases*, identifies some pollutants that are found at many groundwater remediation facilities, and was developed to provide a technically sound, scientifically based approach to risk based decision making. Table 1 of this document, which is provided below, identifies some of the COCs that are typically found at many groundwater remediation facilities in Idaho.

Table 1. Chemicals Typically Found in Contaminated Groundwater

CHEMICAL	PRODUCT								
	Gasoline	Diesel	Fuel Oil #2	Fuel Oil #4	Kerosene	JP-4	JP-5	Used Oil	Solvents
Volatile Organic Compounds									
Benzene	X	X	X	—	X	X	—	X	—
Toluene	X	X	X	—	X	X	—	X	—
Ethylbenzene	X	X	X	—	X	X	—	X	—
Xylenes (mixed)	X	X	X	—	X	X	—	X	—
Ethylene Dibromide (EDB)	X[1]	—	—	—	—	—	—	—	—
1,2 Dichloroethane (DCA)	X[1]	—	—	—	—	—	—	—	X
Methyl Tert-Butyl Ether (MTBE)	X	—	—	—	—	—	—	—	—
Polycyclic Aromatic Hydrocarbons (PAHs)									
Acenapthene	—	X	X	X	X	—	X	X	—
Anthracene	—	X	X	X	X	—	X	X	—

Table 1. Chemicals Typically Found in Contaminated Groundwater

CHEMICAL	PRODUCT								
	Gasoline	Diesel	Fuel Oil #2	Fuel Oil #4	Kerosene	JP-4	JP-5	Used Oil	Solvents
Benzo(a)pyrene	---	X	X	X	X	---	X	X	---
Benzo(b)fluoranthene	---	X	X	X	X	---	X	X	---
Benzo(k)fluoranthene	---	X	X	X	X	---	X	X	---
Benzo(a)anthracene	---	X	X	X	X	---	X	X	---
Benzo(g,h,i)perylene	---	X	X	X	X	---	X	X	---
Chrysene	---	X	X	X	X	---	X	X	---
Fluorene	---	X	X	X	X	---	X	X	---
Fluoranthene	---	X	X	X	X	---	X	X	---
Naphthalene	X	X	X	X	X	X	X	X	---
Phenanthrene	---	X	X	X	X	---	X	X	---
Pyrene	---	X	X	X	X	---	X	X	---
Chlorinated Solvents									
Tetrachloroethylene (PCE)	—	—	—	—	—	—	—	X	X
Pentachlorophenol (PCP)	---	---	---	---	---	---	---	X	X
Trichloroethylene (TCE)	---	---	---	---	---	---	---	X	X
Vinyl Chlorine	—	—	—	—	—	—	—	X	X
Metals									
Lead	X[1]	—	—	—	—	—	—	X	—

[1]**NOTE:** Leaded Regular Gasoline Only
Source: *Idaho Risk Based Corrective Action Guidance Document for Petroleum Releases*

However, Table 1 is not a complete list of chemicals covered by the draft general permit. EPA's list of 126 Priority Toxic Pollutants is identified in federal regulations at 40 CFR 131.36, and provides a more comprehensive list of COCs. IDEQ has also published the *Idaho Risk Evaluation Manual* (July 2004) that includes a list of 186 organic and inorganic chemicals that are typically found at contaminated groundwater sites, and presents initial default target (e.g., Tier 0) cleanup levels for each contaminant. In addition, 40 CFR 261 identifies numerous other listed hazardous wastes and hazardous constituents that are potentially regulated by the draft general permit if they are present in concentrations that could pose a risk to human health or the environment. For example, pesticides and herbicides are not common pollutants at contaminated waste sites, and are not specifically discussed in this Fact Sheet. However, if these chemicals are present at a contaminated groundwater site that is being remediated, and the facility is seeking coverage under the general permit, then these chemicals must be reported on the Notice of Intent (see Section IV). In this situation, effluent limits may be derived on a case by case basis as part of the general permit. Alternatively, groundwater remediation facilities

treating unusual contaminant types (e.g., pesticides, herbicides, dioxin, radioactive materials, or ordinance compounds) will be required to apply for and obtain an individual NPDES permit.

Section V and Attachment A of this Fact Sheet ("Effluent Limitations") include a listing and discussion of 55 different pollutants that are initially covered by the draft permit due to their common presence at contaminated sites in Idaho and across Region 10. These pollutants are referred to as indicator chemicals of concern (COCs). The following discussion provides an introduction to the types of waste sites and a description of the specific types of activities that are covered by the general permit along with the rationale for their inclusion. Table 2 identifies some of the most common sources and types of pollutants or COCs that are present at contaminated groundwater sites. For the purposes of the general permit, groundwater remediation sites fall into one of 6 categories (3 petroleum related and 3 non-petroleum related). As part of the Notice of Intent (NOI) process (see Section IV), a groundwater remediation facility will be required to identify which of these six site classifications most accurately describes their site.

Table 2. Common Types of Groundwater Pollutants and Their Sources

Type of Contaminated Site	Source	Pollutants
Petroleum Related	Gasoline leaks, spills and discharges	Benzene, toluene, ethylbenzene & xylenes (BTEX), naphthalene, ethylene dibromide, methyl tert-butyl ether (MTBE), total petroleum hydrocarbons (TPH), lead, iron
	Fuel/lube oil leaks, spills and discharges	Naphthalene, polycyclic aromatic hydrocarbons (PAHs), benzene, BTEX, nickel, chromium, zinc, iron, TPH
	Primarily petroleum fuel leaks and spills along with other types of organic and inorganic contamination	Primarily petroleum related compounds with associated VOCs, PAHs, and/or metals.
Non Petroleum Related	Industrial/commercial solvent leaks and spills	chlorinated and non-chlorinated volatile organic compounds (VOCs), metals
	Industrial wastes, coal ash	VOCs, Metals, PAHs, polychlorinated biphenyls (PCBs)
	Sites containing primarily metals	Metals with minor amounts of organic contamination.

1. Petroleum Related Site Remediation Activities

Gasoline Only Sites: The general permit is designed to cover discharges resulting from the treatment of contaminated groundwater and remediation related wastewater where gasoline was released. This includes short term dewatering from underground storage tanks (USTs) removal or replacement, long term groundwater pump and treat system, groundwater seepage collection systems, construction dewatering, aquifer pump testing, or other activities where gasoline is a known contaminant. This also includes releases which may contain leaded gasoline (See Table B-1, Attachment B).

Fuel Oils (and Other Oils) Only Sites: The general permit is designed to cover discharges resulting from the treatment of contaminated groundwater and remediation related wastewater where there has been a release of fuel oils such as diesel fuel, kerosene, jet fuel, heating oil, and heavier residual fuel oils. Also included are lube oils, machine oils, hydraulic fluids, mineral oils, and other oil products excluding waste oil. This includes short term dewatering from USTs removal or replacement, long term groundwater pump and treat system, groundwater seepage collection systems, construction dewatering, aquifer pump testing, or other activities where oil is a known contaminant (See Table B-2, Attachment B).

Mixed Petroleum Sites Containing Other Contaminants: The general permit is designed to cover discharges resulting from the treatment of contaminated groundwater and remediation related wastewater where the releases are primarily petroleum contaminants from mixed wastes. Typically, these are sites where petroleum releases have been identified as the primary source; however, other contaminants have also been found. These contaminants may include waste solvents, heavy metals from industrial processes, or waste oils which may be commingled with other contaminants including PAHs and PCBs (See Table B-3, Attachment B).

2. Non Petroleum Site Remediation Activities

Volatile Organic Compound (VOC) Only Sites: The general permit is designed to cover discharges resulting from the treatment of contaminated groundwater and remediation related wastewater where the release of chlorinated VOC compounds is the primary source of contamination. These releases are typically related to improper disposal or spills of solvents, de-greasers, cleaners, paint removers, etc., or from industrial operations, chemical blending, transportation, or other sources (See Table B-4, Attachment B).

VOC Sites With Other Contaminants: The general permit is designed to cover discharges resulting from the treatment of contaminated groundwater and remediation related wastewater where site characterization has identified chlorinated VOC compounds as the primary source of contamination, but where other chemicals are present in small amounts. For example, VOC sites may have varying amounts of petroleum hydrocarbons, metals or other pollutants (See Table B-5, Attachment B).

Sites Containing Primarily Metals: The general permit is designed to cover discharges resulting from the treatment of contaminated groundwater and remediation related wastewater where the release of heavy metals is the primary source of contamination. For example, a sludge lagoon from a former metal plating shop may contain small amounts of other contaminant types; however, the treatment process and discharge limitations are driven by the heavy metals present (See Table B-6, Attachment B).

C. Receiving Waters Covered by the Permit

The permit authorizes discharges of specified pollutants to the waters of the United States in the State of Idaho except those excluded from coverage as protected, special, or at-risk water resources as described below in Section III.C.

The effluent limits for some pollutants in the draft general permit are in part dependent on the designated uses of the receiving water as identified in the current *State of Idaho Water Quality Standards and Wastewater Treatment Requirements*. It is the permittee's responsibility to identify which water body (found under IDAPA 58.01.02.110-160) of the Panhandle basin, Clearwater basin, Salmon basin, Southwest basin, Upper Snake basin, or Bear River basin the discharge is affecting, and what its designated beneficial use is. This information must be provided on the NOI (see Section IV).

III. FACILITIES AND RECEIVING WATERS NOT COVERED BY THE GENERAL PERMIT

A. Facilities Not Covered by the General Permit

1. **On-Scene Coordinator Emergency Response Action.** In accordance with federal regulations at 40 CFR 122.3(d), if a groundwater remediation discharge occurs in compliance with the instructions of an On-Scene Coordinator pursuant to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300), then the discharge is excluded from NPDES requirements.

2. **Federal Superfund Cleanup Actions.** Facilities discharging treated groundwater as part of an on-site response action conducted pursuant to sections 104, 106, 120, 121 or 122 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) are not required to obtain permit coverage. The term *on site* means the aerial extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action.

3. **Individual NPDES Permit.** In accordance with federal regulations at 40 CFR 122.28(b)(3)(iii), if a facility is eligible for coverage under the general NPDES permit and then decides an individual permit is desired, it may request to be excluded from the coverage under the general permit by applying for an individual

NPDES permit. The owner or operator must submit the appropriate EPA application forms, with justification supporting its request for an individual NPDES permit, to EPA Region 10 not later than 90 days prior to commencing operations, or for existing dischargers, not later than 90 days from the effective date of the general permit. The request will be processed in accordance with federal regulations at 40 CFR 124. The request will be granted by issuing an individual permit if the reasons cited by the owner or operator clearly demonstrate that inclusion under the general permit is inappropriate and the application is deemed to be timely and complete.

The Director may consider the issuance of individual permits when:

- The discharge(s) is a significant contributor of pollution;
- The discharger is not in compliance with the conditions of this permit;
- A change has occurred in the availability of the demonstrated technology or practices for the control or abatement of pollutants applicable to the point source;
- Effluent limitation guidelines are promulgated for the groundwater remediation facility;
- A Total Maximum Daily Load (TMDL) containing requirements applicable to such point source is approved; or
- The point source(s) covered by this permit:
    - no longer involves the same or substantially similar types of operations;
    - no longer discharges the same types of waste;
    - no longer requires the same effluent limitations or operating conditions;
    - no longer requires the same or similar monitoring; or
    - in the opinion of the Director, is more appropriately controlled under an individual permit rather than under the general permit.

In anticipation that some facilities may think it is more advantageous to be covered under an individual NPDES permit, EPA has determined that, at a minimum, the effluent limitations, effluent monitoring, and other conditions of an individual permit will include those in the draft general permit.

The Director may require any person authorized by a general permit to apply for and obtain an individual permit. Any interested person may petition the Director to take this action. In accordance with federal regulations at 40 CFR 122.28(b)(3)(iv), the applicability of the general permit is automatically terminated on the effective date of the individual permit.

4. **Other Discharges Not Covered.** The following discharges are either not regulated under the NPDES program, or are not required to apply for coverage under the groundwater remediation general permit:

    - Facilities discharging treated groundwater to a sanitary sewer under an authorized NPDES pretreatment program, or those facilities with the explicit written permission of the Public Works Director or similar authority.

    - Facilities injecting treated groundwater back into the subsurface (either under pressure or by gravity). Underground injection will require a separate permit under authority of the Safe Drinking Water Act issued by the Idaho Department of Water Resources under their delegated UIC program.

    - *Insitu* groundwater treatment systems unless there is subsequent discharge of treated groundwater to surface water.

    - Construction or excavation dewatering at uncontaminated sites.

    - Uncontaminated groundwater seeps or spring water which are covered under the Storm Water Construction General Permit, or the Storm Water Multi-Sector General Permit (MSGP) for Industrial Activities.

B. Pollutants Not Authorized by the Permit

The proposed general permit does not specifically authorize the discharge of any effluents, contaminants or pollutants which are not expressly authorized under Part II of the permit, "Effluent Limitations". However, general permit coverage may be extended on a case by case basis after DEQ and EPA examine the nature of the pollutant, and the influent/effluent concentrations of this chemical(s) as reported on the NOI form. Under these circumstances, effluent limitations for pollutants not included on the list of 55 COCs will be identified through the state's decision document that will serve as DEQ's individual section 401 CWA certification that effluent limits meet state water quality standards. This decision document will be attached to EPA's written authorization letter. No facility can discharge under the general permit without written authorization from EPA (see Part I.H of permit). Alternatively, the facility will be required to apply for and obtain an individual NPDES permit for the discharge.

C. Waters Excluded From Permit Coverage

Groundwater remediation discharges can impact water quality in the receiving stream. Although EPA believes that this general permit meets the criteria for the State's designated uses for the protection of aquatic life and drinking water, it may not be adequate to prevent degradation of protected, special, or at-risk water resources. Therefore, the proposed permit does not authorize discharges to the following protected, special, or at-risk receiving waters based on the State's anti-degradation policy unless a waiver is granted:

1. Waters not fully supporting their designated uses (for which the discharge could potentially have a negative affect on that listed pollutant [i.e., heavy organic load on a dissolved oxygen listing]) as identified within the most recent 303(d) list for the State of Idaho. Exclusions to CWA section 303(d) listings only apply to waters for which the pollutant discharge could potentially have a negative effect on the listed impairment.

2. "Outstanding Resource Waters" identified in *Idaho Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02). Idaho law (IDAPA 58.01.02.055) provides for designation of waters or river segments by the Idaho legislature after nomination of waters by the public and review of those nominations by the Idaho Board of Health and Welfare. The Board gives special consideration to stream segments "generally recognized as constituting an outstanding national resource..., or of exceptional recreational or ecological significance." Outstanding resource water (i.e., Tier 3) designations constitute outstanding national or state resources that require protection from point and nonpoint source activities that may lower water quality (IDAPA 58.01.02.003.70).

3. "Special Resource Waters" identified in *Idaho Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02). Idaho law (IDAPA 58.01.02.056) provides for designation of waters or river segments that are of outstanding high quality, possess unique ecological significance, possess outstanding recreational or aesthetic qualities, or for which intensive protection of the quality of the water is of paramount interest to the people of Idaho. Special resource waters (i.e., Tier 2) may also be designated as such because intensive protection of the quality of water is necessary to maintain an existing, but jeopardized, beneficial use. Idaho law states that "no new point source can discharge pollutants, and no existing point source can increase its discharge of pollutants above the design capacity of its existing waste treatment facility, to any water designated as a special resource water, or to a tributary of a special resource water, if those pollutants can or will result in a reduction of the ambient water quality of the receiving special resource water as measured immediately below the applicable mixing zone."

4. Receiving waters within one hundred yards (100 yds) upstream of, or within a reservation or "Indian Country", managed by the Coeur d'Alene Tribe, the Nez Perce Tribe, the Shoshone-Bannock Tribe, Shoshone-Paiute Tribe, or the Kootenai Tribe. EPA believes that the waiver provision of Section III.D provides for appropriate intergovernmental consultations between EPA and the affected tribe concerning the permitting of any groundwater remediation facility discharging to these surface waters. The consultations are for the purpose of addressing tribal concerns for water quality and environmental protection.

5. Discharges of pollutants to receiving waters which flow into other states or Canada one hundred (100) yards or less upstream from the state or international boundary.

6. In a river segment designated as wild under the Wild and Scenic River Act.

7. Into waters where federally listed threatened, endangered, or candidate species, or designated or proposed critical habitat are present. Listings may be found at http://www.fws.gov/idahoes/, or by contacting the Snake River Fish and Wildlife Office in Boise, Idaho, at (208) 378-5243.

8. Discharges within ½ mile upstream of a permanent drinking water intake for a municipality.

D. Request For a Waiver

In order to obtain a waiver to discharge to receiving waters excluded from permit coverage due to the presence of Special Resource Waters, Outstanding Resource Waters or 303(d) listed waters (see Section III.C.1-3 above), IDEQ must certify that this discharge meets state water quality standards through an individual 401 certification which will serve as their decision document on the matter. This decision document will then be attached to EPA's authorization to discharge letter that will be provided to the facility along with their individual coverage number issued under the draft general permit.

In order to obtain a waiver to discharge to receiving waters excluded from permit coverage due to the presence of threatened, endangered or candidate species (see Section III.C.7 above), the applicant must submit complete and timely discharge information demonstrating "no degradation or adverse effects" of the physical, chemical or biological integrity of the receiving water. This will typically take the form of a Biological Evaluation (BE) concluding a *no effect* or a *not likely to adversely affect* determination, and should be submitted to EPA and IDEQ along with the NOI. For a *not likely to adversely affect* determination, EPA will consult with the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries (the Services) to obtain their comments on the BE, and their concurrence with its effects determination. The waiver will then be provided to the facility as part of the authorization to discharge letter. If the BE determines that the discharge *may adversely affect* any listed threatened, endangered or candidate species, the facility must provide a description in the BE of mitigation or conditions proposed to reduce the likelihood of an adverse affect. If the Services determine that the discharge *may adversely affect* any listed species, the facility shall provide a description of mitigation or conditions proposed to reduce the likelihood of an adverse effect within 30 days of this determination. EPA will initiate formal consultation with the Services, and will seek a no-jeopardy Biological Opinion (BO) with an incidental take statement along with reasonable and prudent measures. If the BO renders a jeopardy conclusion, the facility may have to apply for and obtain an individual NPDES permit (Section III.3).

In order to obtain a waiver to discharge to waters excluded from permit coverage due to the proximity of tribal waters, interstate or foreign waters, waters designated under the Wild and Scenic River Act, or within a ½ mile of a drinking water intake (see Section III.C.4-6 and 8 above), EPA and IDEQ will consult with other federal, tribal and/or local governments, as appropriate, before granting a waiver under this section. IDEQ or tribal authorities may include additional conditions that are deemed necessary to ensure compliance with water quality standards to any waiver approval letter.

IDEQ (or any affected tribe with EPA approved water quality standards) will issue individual section 401 CWA certifications for any waivers granted to excluded wasters. Discharges to excluded waters can not occur until EPA receives the individual 401 certification, and includes it in EPA's written authorization to discharge letter (see Part I.H of permit). Any additional conditions identified in the certification will automatically become conditions of the general permit.

The waiver provision requires that the groundwater remediation discharge facilities: 1) establish a compelling need to discharge to the receiving water; 2) demonstrate that their discharges to such excluded waters will not violate the Idaho Water Quality Standards; and, 3) demonstrate that their discharge is protective of any listed threatened, endangered or candidate species in the area identified under the Endangered Species Act. The information requesting a waiver must be submitted with the Notice of Intent to be covered (as described below in Section IV.).

A groundwater remediation discharge facility wishing to apply for authorization to discharge in the "excluded waters" may also choose to apply for an individual NPDES permit.

IV. NOTIFICATION REQUIREMENTS

A Notice of Intent (NOI) to be Covered

Groundwater remediation discharge facilities that fall under the eligibility requirements of the draft general permit, or which are operating under an effective or administratively extended individual NPDES permit, must apply for coverage under the general permit by submitting a Notice of Intent (NOI). This process is outlined in 40 CFR 122.28(b)(4)(v), and is discussed in this section of the fact sheet. If coverage is granted under the general permit, the facility will also be notified that their individual permit has been deactivated.

All facilities that wish to be covered under the general permit must meet the requirements of the permit, submit a NOI, and **must receive written authorization to discharge by EPA** (see Part I.H of permit). The Director may notify a discharger, pursuant to 40 CFR §122.28(b)(2)(vi), that it is covered by the general permit, even if the discharger has not submitted a NOI to be covered. In addition to coverage under the general permit, groundwater remediation facilities are still required to

obtain any additional local or state authorizations for such a discharge that may be necessary.

There are currently a number of facilities in Idaho that are discharging treated groundwater from approved remediation projects. Some of these facilities have previously submitted applications for an individual NPDES permit, and received an "application complete" letter but have never received a permit. EPA has attempted to identify all of these applicants which still have discharges (Attachment D), and is requiring that these facilities seek coverage under the general permit when it becomes effective.

Existing facilities whose discharges are eligible for coverage under the draft general permit as discussed in Section II of this fact sheet, must submit to the EPA, the IDEQ state and regional office, and any affected tribe, a written NOI to be covered by the general NPDES permit within **90 days** of the effective date of the permit. Future or new groundwater remediation dischargers desiring coverage under the general permit must submit an NOI at least **30 days** prior to commencement of discharge.

To be in compliance with the CWA, all groundwater remediation facilities in Idaho that that are not specifically excluded from coverage as described in Section III.A of this fact sheet, must apply for and obtain coverage under the proposed general permit unless they are seeking individual permit coverage. When a groundwater remediation facility is owned by one person or company, and is operated by another person or company, it is the operators responsibility to apply for and obtain permit coverage [40 CFR 122.21(b)]. For owners/operators of multiple groundwater remediation facilities, a separate NOI must be completed for each site or remediation facility.

The NOI may consist of either a letter, report or a form developed for the purpose of the NOI, along with necessary attachments, which address all of the requirements identified in this section. In addition to submitting a data table summarizing the concentrations of COCs, facilities are encouraged to submit electronic data, preferably in spreadsheet format. An NOI submitted in accordance with the general permit requirements fulfills the requirements for permit applications (40 CFR 122.6, 122.21 and 122.26). The NOI must include the following information to discharge under this general NPDES permit:

1. Owner information. The name and the complete address and telephone number of the owner of the facility and the name of his or her duly authorized representative. Provide ownership status such as a federal, state, private, public or other entity [40 CFR 122.21(f)(4]. The owner may also provide a facsimile machine number or e-mail address.

2. Operator information. The name and the complete address and telephone number of the individual or company operating the facility and the name of

his or her duly authorized representative. The operator may also provide a facsimile machine number or e-mail address.

3. Facility information.

   a. Facility address. The name, address and telephone number of the facility (if any). Indicate if the facility is located on Indian lands [40 CFR 122.21(f)(5)]. If the name of the facility has changed during the last five years, the NOI must include the previous name(s) of the facility and the date(s) of these changes. The facility may also provide a facsimile machine number or e-mail address.

   b. Facility location. Include an area map identifying the location of the facility and its outfall(s). This map should have a scale of resolution of at least 1:24,000 (If USGS map is used, provide title and catalog number)[40 CFR 122.21(f)(7)].

   c. Location information. Include a description of the physical location of the facility and its outfall(s) with latitude and longitude information precise to within at least 7.5 seconds of a degree (~0.125 mile). New facilities not yet operating must also include the date when the facility is scheduled to begin discharging.

   d. A statement as to whether the site is on the state or federal superfund list, the National Priorities List under CERCLA, a RCRA corrective action site, or a state Leaking Underground Storage Tank (LUST) site [40 CFR 122.21(f)(6)].

4. Operations and production information (Project Plan).

   a. A description of the nature and size of facility to be covered by the draft general permit. This must include a description of the treatment train, the number of extraction wells and outfalls, and a process flow diagram [40 CFR 122.21(g)(2)].

   b. A description of any chemical additives or biocides that are used in the treatment process, including chlorinated tap water. Include material Safety Data Sheets (MSDSs) for these chemicals.

5. Nature of Contamination

   a. Section V. and Attachment A contain a list of 55 indicator chemicals that are reasonable expected to be present at contaminated groundwater sites. An NOI must include (at a minimum) the analytical result for each of these 55 COCs for <u>both</u> influent and effluent samples, test methods used, and detection limits. Alternatively, the facility may wish to submit full Priority Pollutant

scans (see 40 CFR 131.36) for both influent and effluent samples. If contaminants are present at the site, but are not identified in Section V. as one of the 55 COCs, the facility must identify each COC that is present in site groundwater, and report both influent and effluent concentrations on the NOI. If available, include both maximum and average influent/effluent concentrations of the treatment system. New groundwater remediation facilities that have not yet discharged shall report remedial action design criteria and/or anticipated effluent concentrations on their NOI.

If a remediation discharger has sufficient historical groundwater monitoring and/or operational data to support a determination that certain COCs are believed absent in site groundwater, then a reduced list of chemical reporting requirements is allowed on the NOI. Under these circumstances, the NOI shall identify which of the 55 COCs are believed absent, and briefly describe the historical testing data and site characterization work that supports this determination.

b. If known, briefly describe the nature of the groundwater contamination and how the contamination originated. Identify the Standard Industrial Classification (SIC) code of the industry that caused the pollution (if applicable)(40 CFR 122.21(f)(3)]. Identify which of the six general classifications of "site types" is best represented by the facility (see Section II.B. and Attachment B). Include a listing of the pollutants that could reasonably be expected to be present at the site given the nature of the contaminants including, but not limited to, those identified in Section V.

6. Description of discharge(s).

a. Include the design flow of water (in gallons per minute) through the facility and the overall anticipated duration of the discharge. If the discharge is not continuous, provide the dates of discharge during a representative year of operation.

b. Identify the temperature of the discharge including minimum, average and maximum temperatures, and the corresponding times of year in which they occur.

7. Receiving water information.

a. The name of the water body receiving the discharge from the facility, and the name of any other receiving water within 1 mile downstream of the discharge.

b. The designated beneficial uses of these waters[1] in the State of Idaho Water Quality Standards.

c. Identify any federally listed threatened, endangered or candidate species in the receiving water using information provided on the USFWS web site at http://www.fws.gov/idahoes, or by contacting the Snake River Fish and Wildlife Office in Boise, Idaho, at (208) 378-5243.

d. An NOI must include the minimum and maximum measured flow (cfs) of the receiving water body and any other receiving water within 100 yards downstream of the discharge. If adequate flow data is available, also include the critical low flow values (i.e., the 7Q10), and how they were calculated.

e. Identify if the receiving water is excluded from permit coverage as described in Section III.C, and state whether the facility is requesting a waiver. If the facility is seeking a waiver under Section III.C.7, submit a waiver request and a Biological Evaluation along with the waiver request.

f. If the receiving water has been included on the state's 303(d) list of impaired waterways, identify the pollutant impairment, and state whether any pollutant(s) proposed to be discharged is indicated as a cause or a contributor to the listing.

g. Identify any public or private drinking water intakes within ½ mile downstream of the subject discharge.

h. Identify a representative hardness value of the receiving water (in mg/l as $CaCO_3$) to be used for calculating effluent limits for metals with hardness dependent criteria (see Section V.D.13.d).

8. Permit information. Identify any EPA NPDES permit number(s) currently or previously assigned to the facility, or any permit or license number assigned by EPA or the IDEQ, commercial permit number assigned by the Idaho Department of Agriculture (IDA), underground injection permit issued by the Dept. of Water Resources, water right number assigned by the IDWR, dredge or fill permits assigned through section 404 of the CWA, and ESA determinations (if any) for potential impacts to endangered species [40 CFR 122.21(f)(6)].

[1] Designated uses can be found in Sections 110 through 160 of the Idaho Water Quality Standards (IDAPA 58.01.02). In accordance with Section 101 of the standards, nondesignated surface waters are protected for primary contact recreation and cold water biota.

9. Request for mixing zone. If a facility is requesting that IDEQ consider a mixing zone for one or more of the pollutants identified in Table 5 or Table 6, the following information shall be included on the NOI:

    a. A request, in writing, that IDEQ consider a mixing zone;

    b. Submit the analytical results from a minimum of one representative ambient background sample for the pollutant(s) in question collected from the receiving water at a location immediately upstream of the outfall. If additional data is available, identify the average and maximum background concentrations of the pollutant(s); and,

    c. Calculate the applicable critical low flow volume (i.e., 7Q10, 1Q10 or 30Q3) in the receiving water and identify the source of the flow data. Calculate a dilution factor as described in Section V.E. and show the calculation.

10. Additional information. The EPA or IDEQ may require an applicant to submit additional information deemed necessary to evaluate whether the subject discharge is consistent with the authorization criteria under the general permit. This information must be provided upon request.

11. Signatory requirements. An NOI must be signed in accordance with federal regulations at 40 CFR 122.22:

    a. For a corporation: by a principal corporate officer;

    b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

    c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official.

    d. A statement that the owner/operator of the facility will not use dilution as a form of treatment in order to comply with the concentration based effluent limits in the general permit.

In general, facilities will be required to monitor for those parameters identified in Tables B-1 through B-6 for whatever site classification or “site type” is most applicable to their discharge. After a review of the NOI, EPA and IDEQ will determine the final list of monitoring parameters for which the permittee will be responsible. In some cases, such as when certain pollutants are believed absent in site groundwater, the list of monitoring parameters can be reduced from what is shown on the appropriate Attachment B table. In other circumstances, such as when additional contaminants are present that are not shown on the applicable Attachment B table, the list of monitoring parameters will be extended to include those chemicals. In either case, EPA will inform the facility of their final list of

monitoring parameters for the purposes of DMR reporting in the written authorization to discharge letter (i.e., a coverage letter). As noted above, it is the responsibility of the facility to identify all COCs in site groundwater in the NOI whether listed in Table Attachment A or not.

Submit the NOI with all supporting information to:

U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101

Idaho Department of Environmental Quality, State office
1410 North Hilton
Boise, Idaho 83706

The appropriate IDEQ regional office and any affected tribe.

B. Notice of Termination of Discharge

The facility must notify EPA and the appropriate IDEQ regional office within 30 days of discharge termination. The notification must be in writing, and include the date of discharge termination, the permit number assigned by EPA, and signed in accordance with the signatory requirements identified in 40 CFR 122.22. In cases such as temporary shutdowns, a facility should not submit a notice of discharge termination as this action results in the termination of NPDES coverage.

V. EFFLUENT LIMITATIONS REQUIRED BY THE GENERAL PERMIT

A. Statutory Requirements for Determining Effluent Limitations

The CWA prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting, prohibitions, and management practices. NPDES permits are developed in accordance with various statutory and regulatory authorities established pursuant to the CWA. The regulations governing the EPA NPDES permit program are generally found at 40 CFR parts 122, 124, 125, and 136.

Sections 101, 301(b), 304, 308, 401 and 402 of the CWA provide the process and statutory basis for the effluent limitations and other conditions in the permit. EPA evaluates discharges with respect to these sections of the CWA and the relevant NPDES regulations in determining which conditions to include in the permit.

EPA first determines which technology-based limits apply to the discharges in accordance with applicable national effluent guidelines and standards. EPA further

determines which water quality-based limits apply to the discharges based upon an assessment of the pollutants discharged and a review of state water quality standards. In general, the CWA requires that the effluent limit for a particular pollutant be the more stringent of either the technology-based limit or the water quality-based limit. Monitoring requirements must also be included in the permit to determine compliance with effluent limitations. The basis for the permit conditions are described in more detail in this section of the Fact Sheet.

Most states and EPA regions have now developed NPDES permits for petroleum related groundwater cleanups, and a few have included a wider range of contaminants such as chlorinated VOCs and metals. EPA Region I has recently developed a comprehensive remediation general permit that not only includes sites contaminated with organic and inorganic pollutants, but construction dewatering, aquifer pump testing, well development/rehabilitation, hydrostatic testing of pipelines and tanks, cleanup of non-residential sumps and dikes, pump-out of utility vaults and manholes, and the dredging drain backwaters (if not covered by a CWA 401/404 permit). As described above however, the draft general permit for Idaho includes only groundwater remediation discharges, construction dewatering, and aquifer pump testing at designated contaminated sites.

B. Evaluation of Technology-based Limitations

1. **Regulatory Background.** EPA is establishing technology-based effluent limitations in the proposed general permit utilizing Best Professional Judgment (BPJ) to meet the requirements of Best Conventional Technology and Best Available Technology Economically Achievable (BCT/BAT). This section provides a discussion of the regulatory background. Section 301 of the CWA requires particular categories of industrial dischargers to meet technology-based effluent limitation guidelines. The intent of a technology-based effluent limitation is to require a minimum level of treatment for industrial point sources based on currently available treatment technologies while allowing a discharger to choose and use any available control technique to meet the limitations.

   The CWA initially focused on the control of "traditional" pollutants (conventional pollutants and some metals) through the use of Best Practicable Technology (BPT). Permits issued after July 1, 1977, must include any conditions necessary to ensure that the BPT level of pollution control is achieved. BPT limitations are based on effluent limitation guidelines (ELGs) developed by EPA for specific industries. Where EPA has not yet developed guidelines for a particular industry, permit limitations may be established using Best Professional Judgment (BPJ) [40 CFR 122.43, 122.44, 125.3, and 402(a)(1)].

   Section 301(b)(2) of the CWA also requires further technology-based controls on effluents. After March 31, 1989, all permits are required by CWA 301(b)(2) and 301(b)(3) to contain effluent limitations for all

categories and classes of point sources which: 1) represent Best Conventional Technology (BCT); and, 2) control toxic pollutants and nonconventional pollutants through the use of Best Available Technology Economically Achievable (BAT). BCT effluent limitations apply to conventional pollutants (pH, BOD, oil and grease, suspended solids and fecal coliform). BAT effluent limitations apply to toxic and nonconventional pollutants. Toxic pollutants are those listed in 40 CFR 401.15 and 131.36. Nonconventional pollutants include all pollutants not included in the toxic and conventional pollutant categories, such as total residual chlorine. In no case may BCT or BAT be less stringent than BPT. Like BPT requirements, BAT and BCT permit conditions may be established using BPJ procedures in the absence of effluent limitations guidelines for a particular industry.

EPA has been developing ELGs for existing industrial and commercial activities since 1972 as directed in the original Federal Water Pollution Control Act (40 CFR 403 through 471 inclusive). However, ELGs have not yet been developed for groundwater remediation dischargers or substantially similar activities. Therefore, and as provided in Section 402(a)(1) of the Act, EPA is establishing technology-based effluent limits in the general permit utilizing BPJ to meet the requirements of BCT/BAT.

2. **History of Groundwater Discharge Limits.** Historically, EPA and the states have established effluent limits at groundwater remediation sites based upon a conservative approach that relied primarily on human health-based water quality criteria such as drinking water standards or maximum contaminant levels (MCLs). Another approach has been to use risk-based decision making to derive groundwater cleanup levels at a particular site (e.g., EPA Region 9 Preliminary Remediation Goals (PRGs)), or use conservative assumptions to derive generic (i.e., Tier 0) initial default groundwater cleanup levels. IDEQ uses both approaches as documented in the *Idaho Risk Evaluation Manual* (July 2004). As such, the draft general permit incorporates both MCLs and risk-based groundwater cleanup levels as a technology-based effluent limit based upon BPJ. Also used as a technology-based criteria is Idaho's Ground Water Quality Rule (IDAPA 58.01.11) which establishes ambient groundwater quality standards, and provides numerical standards based upon the protection of human health. In other circumstances, such as when metals contamination is present, other ELGs such as the Metal Finishing Point Source Category (40 CFR 433) were considered during the BPJ evaluation. In addition, EPA's guidance document titled *Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks* (June 1989), provides a BPJ determination with a suggested effluent limit for total BTEX.

3. **Development of Proposed Technology-based Effluent Limits.** In developing the draft NPDES general permit, EPA reviewed the broad spectrum of potential pollutants which are typically encountered at

contaminated sites and the common technologies used to meet effluent requirements. The majority of discharges contain common groups of pollutants, such as total suspended solids (TSS), petroleum hydrocarbons, volatile organic compounds (VOCs), or semi-volatile compounds including PAHs. Similarly, over the past 10 years, nearly all of the discharges pursuant to remediation projects in Idaho have utilized off-the-shelf, economically viable, and proven treatment systems including: 1) phase separation; 2) sedimentation; 3) filtration; 4) air stripping; and/or, 5) carbon adsorption. Vapor phase carbon or air stripping treatment are also typically utilized for air emission control. For metals removal, typical controls include chemical addition, pH adjustment, filtration, and possibly ion exchange. Although effluent limitation guidelines are developed based upon particular treatment technologies, EPA does not require that dischargers use these technologies.

Some common pollutants are more difficult to treat due to their physical characteristics (including solubility, Henry's law constant, etc.). One example is MTBE, the most common fuel oxygenate in use. To remove contaminants such as these from groundwater, additional operation and maintenance (O&M) may be required. However, the operations data submitted to EPA from the vast majority of dischargers using these systems, indicates that very low effluent concentrations meeting current standards, are routinely achieved. The most common VOC compounds such as BTEX in petroleum releases, and chlorinated solvents such as trichloroethylene (TCE) and tetrachloroethylene (PCE) can typically be treated to below laboratory detection levels by these commonly used technologies.

This permit establishes effluent limitations, and the permittee must insure the application of best management practices (BMPs) to minimize the environmental impacts of the discharge. However, EPA does not prescribe specific technologies required to meet the effluent requirements in the general permit. The information provided here is meant to demonstrate that, in most instances, the contaminants found in these discharges can be successfully and economically managed. In instances where discharges include chemicals other than the COCs covered by this permit, or where applicants encounter particularly difficult pollutant control situations, the owner/operator may need to submit an application for an individual NPDES permit.

Technology-based effluent limitations, including limits based upon BPJ, are the primary mechanism of control and enforcement of water pollution under the CWA. Technology based treatment requirements under section 301(b) of the CWA represent the minimum level of control that must be imposed in a section 402 permit [40 CFR 125.3(a)]. Accordingly, every individual member of a discharge class or category is required to operate their water pollution control technologies according to industry-wide standards and accepted engineering practices. This means that technology-based effluent limits based upon a BPJ determination are applied at end-of-pipe and mixing

zones are not allowed [40 CFR 125.3(a)]. Similarly, since the statutory deadlines for BPT, BAT and BCT have all passed, compliance schedules are also not allowed.

C. Evaluation of Water Quality-based Limitations

Section 301(b)(1)(C) of the CWA requires the establishment of limitations in permits necessary to meet state water quality standards when technology-based effluent limitations are not protective of such standards. All discharges to surface waters within a state must comply with state water quality standards, including the state's antidegradation policy. Discharges to state waters must also comply with limitations imposed by the state as part of its certification of NPDES permits under CWA Section 401, including the authorization of any mixing zones.

The NPDES regulations at 40 CFR 122.44(d)(1) require that permits include limits on all pollutants or parameters which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality."

For the purposes of the proposed general permit, the numeric criteria for toxic substances (IDAPA 58.01.02.210) were the primary basis for establishing water quality-based effluent limits (WQBELs). This includes criteria for the protection of both aquatic life (acute and chronic), and human health for the consumption of water and organisms (i.e., drinking water and eating fish), or organisms only. To provide for a conservative measure of water protection, and to create a general permit that is useable for receiving waters across the state (including ephemeral or intermittent streams), WQBELs are set equal to the wasteload allocation (WLA), which are set equal to the numeric criteria. While WQBELs are applied end-of-pipe at a concentration equal to the criteria, facilities may apply for and obtain a mixing zone through the NOI, and IDEQ will evaluate if a mixing zone is appropriate. Under no circumstances can final effluent limits for water quality-based pollutants exceed the technology-based concentrations (i.e., ceiling value) after applying the mixing zone dilution factor.

In addition to the numeric criteria for toxic substances, other water quality-based effluent limits in the general permit are based on surface water quality criteria for specific aquatic use designations (IDAPA 58.01.02.250-253), and also the state narrative water quality criteria (IDAPA 58.01.02.200).

Expression of Effluent Limitations: Regulations at 40 CFR 122.45(d) require effluent limitations for continuous industrial dischargers to be expressed, unless impracticable, as both maximum daily and average monthly values. Similarly, §122.45(e) allows non-continuous discharges to be described and limited considering the following factors, as appropriate: 1) frequency of discharge; 2) total mass of the pollutant per batch; 3) maximum discharge rate; and, 4) expression of limits using the appropriate measure (i.e., concentration, mass, etc.). As described in Section VI., the draft permit generally requires effluent monitoring and reporting on a quarterly

basis; however, it is anticipated that many groundwater treatment facilities will monitor for COCs in their effluent on a more frequent basis as part of the proper operation and maintenance of the treatment plant. Accordingly, effluent limits in the draft permit are all based on maximum daily values. Since most groundwater remediation facilities will not sample and/or analyze effluent samples more frequently than once a day, in practice, these limits represent "never to be exceeded concentration values".

For WQBELs, the draft permit sets the most stringent criteria (typically chronic exposure for aquatic organisms, or human health for the consumption of water and organisms) equal to wasteload allocation and equal to the maximum daily effluent limitation. In situations where mixing zones are not allowed and end-of-pipe effluent limits are provided, EPA considers only the concentration of the pollutant in the effluent regardless of the upstream flow and concentration. If the concentration of the pollutant in the effluent is less than the most stringent water quality criteria, the discharge cannot cause or contribute to a water quality standards violation for that pollutant. If the statistical procedures described in Chapter 5 of the *Technical Support Document For Water Quality-based Toxics Control* (EPA 1991) were used, the result would be a maximum daily limit and an average monthly limit with concentration values greater than the criteria and less than the criteria, respectively.

Most permits contain both concentration and mass based effluent limits. Mass based effluent limits are often imposed to ensure that dilution is not used as a substitute for treatment. Alternatively, in the absence of concentration limits a permittee would be able to increase its effluent concentration (i.e., reduce the level of treatment) during periods of low flow and still meet its mass-based effluent limit. Because it is anticipated that many of the facilities seeking coverage under the general permit will be discharging over a range of low flow volumes that will vary considerably as a percentage of their average flow, the draft permit includes only concentration based effluent limits. However, the permit specifically prohibits the use of dilution as a form or treatment, or as a means for which to comply with effluent limitations.

D. Pollutant Specific Analysis

This Section provides a brief discussion of the individual pollutants or indicator parameters that are included in the general permit, the proposed effluent limitations, and the rationale for these limits. A summary of the effluent limitations for each of the 58 COCs, along with their basis as technology or water quality limits, is provided in Attachment A.

1. <u>Total Suspended Solids (TSS):</u> The limit for TSS may be both a BAT/BCT and a WQBEL based limitation. Solids are considered a "conventional pollutant" (as opposed to toxic). Suspended materials in water can cause turbidity, discoloration, interruption of light passage for aquatic growth, coating of fish gills, and sedimentation on stream bottoms interfering with egg laying and feeding. They can also act as carriers (through sorption) of toxic materials and cause interference with proper operation and maintenance of the typical treatment systems used for the

pollutant control in this permit (e.g. air stripping, carbon adsorption, ion exchange, etc.). Groundwater, such as from extraction wells used in pump & treat systems, is typically low in TSS. However, TSS is often a problem in construction operations where soils and organic materials are being disturbed and mixed with groundwater or storm water.

EPA has determined that control of TSS in the waste streams from the dischargers covered by the general permit should be required, especially discharges from any sites involving construction or disruption of soils or sediments. A TSS limit is particularly important to maintaining good operation of subsequent treatment units in the system such as carbon adsorption (e.g clogging of pores in the carbon granules), and to aid in the removal of contaminants which are adsorbed to soil particles.

Treatment technology for TSS is well understood, and a properly designed sedimentation and/or filtration system can readily remove TSS to low concentrations. Examples of established effluent limitations for TSS in other permits include: 1) the conventional technology treatment standards promulgated by EPA at 30 milligrams per liter (mg/l) monthly average, and 45 mg/l weekly average for sewage treatment plants; 2) EPA's promulgated effluent guidelines, Part 436 for Mineral Mining, Industrial Sand category, sets TSS limitations of 25 mg/l average and 45 mg/l maximum; and, 3) EPA's proposed effluent guidelines, Part 440 for Ore Mining categories, sets TSS limitations of 20 mg/l average and 30 mg/l maximum. Considering all of these limits and technical factors, this general permit sets a technology based BPJ TSS limit of 30 mg/l.

Effluent Limit for TSS - Maximum Value = 30 mg/l

2. <u>Total Residual Chlorine:</u> Chlorine is not a pollutant typically found at sites or other activities subject to this general permit. Although many toxic organic compounds contain chlorine molecules in their chemical makeup, chlorine compounds are sometimes introduced to the treatment process to control bacterial growth in the system. Similarly, in certain situations such as at construction sites, incidental domestic sewage may be encountered in which case disinfection may be required prior to discharge. As discussed previously, the general permit does not allow the consideration of dilution at a particular site (except for metals). Therefore, if chlorine has been added to the wastewater, the operator will need to de-chlorinate prior to discharge in order to meet the limits.

Addition of chlorine compounds for activities covered by the general permit can be tightly controlled for specific purposes. Facilities who submit information in an NOI indicating that chlorine compounds are used in the treatment system must dechlorinate and monitor for total residual chlorine in the effluent. The Water Pollution Control Federation's *Chlorination of Wastewater* (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/l chlorine residual is maintained after 15 minutes of contact time. Accordingly, 0.5 mg/l total residual chlorine can be adopted as a technology-based, BPJ effluent limit. However, in order to protect water quality, this permit

establishes a WQBEL for chlorine based on the Idaho water quality criteria which is 11 µg/L for the protection of aquatic life through chronic exposure. In all cases, the concentration of the total residual chlorine in the effluent must not exceed a compliance limit of 0.1 milligrams per liter (mg/l) or parts per million (ppm) based on the current minimum reporting level (ML) for chlorine residual.

Effluent Limit for Total Residual Chlorine - Maximum Value = 11 µg/l
Compliance Limit = 0.1 mg/l (100 µg/l)

3. <u>Total Petroleum Hydrocarbons (TPH):</u> EPA has been incorporating TPH as a parameter at many petroleum related site remediation projects nationwide. Historically, "oil & grease" was the primary petroleum related parameter used in many individual NPDES permits, and is a common parameter in many of EPA's promulgated industrial effluent guidelines. However, the "hydrocarbon" fraction of the oil and grease parameter, or TPH, is the most appropriate parameter for inclusion in this permit. A total oil and grease analysis would include other non-petroleum fats and greases in the result which would not be relevant to the activities covered by the general permit.

Similarly, due to the shear number of chemicals contained in refined petroleum products, measurement of all of the component chemicals is not practical, cost effective or needed for adequate attainment of water quality standards. An aggregate measurement of the hydrocarbon compounds serves as an indicator of overall relative pollutant concentration, and as an indicator for assessing water quality impacts. Individual compounds of TPH, such as benzene which is also included in this permit, provide additional chemical specific controls on the discharge. Additionally, the hydrocarbon makeup in the environment changes after the product has been released due to volatilization, biodegradation, sorption, etc. which occurs over a period of many years in the groundwater. This is sometimes referred to as "weathering" of the petroleum release in which the various hydrocarbon fractions change through time.

There is some variability to the quantification of TPH, and there are several EPA approved methods (and modifications allowed) currently being widely used. EPA methods 418.1 (recently replaced by Method 1664 to eliminate the use of Freon) and Modified Method 8100 are both "extraction" procedures which may eliminate certain gasoline range (C_5 to C_9) volatile organic (GRO) compounds. Many states now use an alternative methodology for analysis known as the Volatile Petroleum Hydrocarbon and Extractable Petroleum Hydrocarbon, or VPH/EPH, method. The VPH/EPH method reports results in terms of concentrations of ranges of aliphatic and aromatic hydrocarbons, typically in the C_5 to C_{36} range. However, for the purposes of this general permit, EPA test methods will be used to quantify the concentration of TPH.

In establishing the proposed effluent limit for TPH, EPA reviewed a number of sources including monitoring data being submitted pursuant to approved site remediation projects, other EPA and state issued general permits, and related effluent

guidelines developed by EPA. In general, site remediation projects have consistently required an effluent limit maximum value for TPH of 5.0 parts per million (ppm) or milligrams per liter (mg/l). Review of monitoring information indicates that this limit is readily attainable with standard treatment technology and rarely exceeds 1.0 mg/l in the effluents reported. Typically, the results are "less than" the laboratory reporting levels (0.2 - 0.5 mg/l). EPA is proposing to maintain the technology based TPH limitation of 5.0 mg/l in the general permit.

Regarding monitoring of TPH, EPA recognizes that arguments can be made to not require TPH monitoring at gasoline only sites. However, given the variability of cleanup sites, the historic operations of typical gasoline stations which included general repairs, oil changes, supply of diesel fuel, and other considerations, EPA proposes to retain the limitation and monitoring of TPH for all discharges.

Effluent Limit for TPH - Maximum Value = 5.0 mg/l

4. <u>Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)</u>:

<u>a. Background</u> - The four alkyl benzene volatile organic compounds (benzene, toluene, ethylbenzene, and the ortho, para, and meta xylenes) are common constituents of petroleum fuels. Gasoline may contain approximately 2% ethylbenzene, 5% benzene, and 11-12% toluene and xylenes depending on the formulation. The term BTEX, representing the sum of the concentrations of these four compounds, is commonly used by the petroleum industry in measuring the quality of fuels. This parameter has been adapted for use by EPA and state agencies to serve as a measure of effluent quality of these contaminants in water, and to serve as an "indicator" parameter representing the wide variety of compounds found in petroleum products (see "Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks;" June 1989). In evaluating technology-based effluent limits, the BTEX compounds have similar physical/chemical characteristics which can be used to assess the treatability of the contaminated water. Several important characteristics include the Henry's Law constant, the octanol/water partitition coefficient (K_{ow}), the organic carbon partition coefficient (K_{oc}), and the chemical's solubility in water.

Since air stripping and carbon adsorption are the most widely used treatment technologies for control of volatile, semi-volatile, or non-volatile organic compounds in water, the evaluation of the chemical characteristics will allow an evaluation of the potential ease of removal of contaminants by these treatment methods. In general, the more soluble a substance is in water the more difficult it is to remove by air stripping and carbon treatment. Additionally, the lower the Henry's law constant, the harder the compound is to remove by air stripping alone. Potential for carbon treatment (or natural soil attenuation) can be evaluated by using the partition coefficients (K_{ow} and K_{oc}) which provide an indication of the tendency of organic compounds to "sorb" onto soil or carbon particles (e.g. carbon adsorption). Lower K_{ow} and K_{oc} values (e.g., less than 100) indicate less efficient sorption.

Rather than attempt to establish effluent limits for every compound found in a petroleum release, selection of those compounds that would be most difficult to remove to low levels, coupled with an evaluation of the degree of toxicity of the compound, provides an adequate indicator of removal of the other compounds in the contaminated water being treated with the standard technologies. Benzene has commonly been selected as a primary indicator of effluent quality for these reasons. EPA's Model NPDES Permit for Cleanup of Gasoline (June 1989) discusses the rationale for selection of Benzene and BTEX as appropriate parameters for discharge permits.

b) Setting BTEX Limits - Most of the existing EPA and state issued permits for petroleum remediation discharges limit BTEX as a secondary parameter. All of the BTEX compounds have closely related chemical characteristics to benzene. However, the composition of gasoline is highly variable and for some gasoline products, any one of the four BTEX compounds could be the dominant constituent. Therefore, regulating the total of the four, rather than individually, provides a useful secondary indicator for control of water discharges containing volatile petroleum contaminants.

EPA's *Model NPDES Permit for Discharges Resulting From The Cleanup of Gasoline Released From Underground Storage Tanks* (June 1989), recommends a total BTEX limit of 100 ug/L. This limit is based on the typical removal efficiency of 99.5% or better for BTEX using a commercially available air stripper unit. Based on EPA's model permit and the observed performance of control equipment at historical or existing cleanup sites, EPA is setting a technology based limit for BTEX at 100 µg/l.

c. Setting Benzene Limits - Of the compounds in gasoline, benzene has one of the highest solubilities in water and one of the lowest Henry's law constants. Thus when using air stripping, benzene will be more difficult to remove. Benzene also has a low K_{oc} value. Consequently, it will be the most likely to "break through" when using carbon treatment, and appear in the effluent when the carbon's adsorptive capacity is becoming exhausted and needs replacement. Since benzene is an indicator compound, benzene breakthrough would also indicate that other hydrocarbons are no longer being sorbed as well. Benzene is also one of the most toxic constituents (listed as a carcinogen in EPA's drinking water standards), and is the risk driver at most petroleum contaminated sites. Therefore, an effluent limitation on benzene is needed, and will insure adequate control of the majority of the many other volatile gasoline constituents.

In evaluating a technology-based effluent limit for benzene, EPA examined the current aquatic and health based standards established for this compound. The goal of this permit is to provide conservative protection for the receiving waters since the location of "new" discharges and the receiving water quality is not known for purposes of developing this permit. For many organic compounds, the human health-based standards are most conservative. Health-based standards are typically developed to achieve certain risk-based levels based on long-term (i.e., lifetime)

exposure to the toxic material. For example, a certain concentration in water ingested over a lifetime may cause a one in a million additional cases of cancer.

Discharges covered by this permit will not typically be discharged directly to a drinking water supply, however since the limitations in this permit are not being developed on an individual or site-specific basis, the permit must be protective of all potential uses or exposure scenarios. Since the technologies used to treat benzene, BTEX, and many of the other pollutants covered by this permit, can typically achieve minimum laboratory detection or reporting level concentrations, the lowest established human health or aquatic criteria are usually acceptable for establishing effluent limitations.

The most commonly used technology-based effluent limit for benzene is 5.0 µg/L which is also the current Maximum Contaminant Level (MCL) for benzene in drinking water. The most recent EPA toxics criteria recommended a human health water quality value of 1.2 µg/L (consumption of water + organisms) and 71 µg/L (consumption of organism only). These criteria have been adopted into the Idaho Water Quality Standards. Consequently, a water quality-based effluent limit of 1.2 µg/l is proposed for the draft general permit.

Effluent Limit for Benzene - Maximum Value = 1.2 µg/l
Effluent Limit for Total BTEX - Maximum Value = 100 µg/l

5. <u>Ethylene Dibromide (EDB)</u> - (also 1,2-Dibromomethane) - EDB is included as a parameter in the general permit due to the historic use of this compound as a plant fumigant (pesticide) and as an additive in leaded gasoline (as a lead scavenger, especially in aviation fuels). However, due to its toxicity, most uses of EDB have been eliminated since the mid 1980s. Direct application of EDB and releases of gasoline to the environment have contaminated groundwaters in Idaho. EDB has been identified at a small number of sites where discharges exist which are expected to be covered under this permit. Additional sites may also require coverage for this pollutant for future discharges.

EDB has not been included as a priority pollutant for development of national water quality criteria; however, MCLs have been established under EPA's drinking water program. The current MCL is 0.05 ug/L or 50 parts per trillion, and the groundwater standard in Idaho is also 0.05 ug/L.

EDB is typically found at very low concentrations in contaminated groundwaters. It is typically being treated with granular activated carbon (GAC) treatment systems, although it is somewhat more difficult to remove from water than benzene. Review of monitoring data indicates that an effluent limitation established at 0.05 ug/L can be achieved by current technology. Therefore, EPA is setting a technology based effluent limit of 0.05 ug/L for EDB.

Effluent Limit for Ethylene Dibromide (EDB) - Maximum Value = 0.05 µg/l

6. Methyl-Tert-Butyl Ether (MTBE): Many chemical compounds have been added to petroleum fuels to enhance their performance. Due to the phase-out of leaded gasoline in the early 1980's, several alcohols and ethers began to replace tetraethyl lead as an anti-knock and octane boosting additive. Since 1992, higher concentrations of gasoline "oxygenates" (which improve the combustion of fuel) such as MTBE have been used in many automotive fuels across the country. As a replacement for lead containing compounds, MTBE was used in concentrations of 2-4% and as high as 8% in gasoline. When the 1990 Clean Air Act requirements for cleaner burning fuels took effect (which required additional oxygen content), MTBE concentrations increased to 11-15% by volume. As a result, MTBE and several of the other oxygenate compounds have been detected in significant concentrations in groundwaters due to tank leaks or other releases of petroleum fuels. Idaho has established a groundwater standard for MTBE, but have not done so for some of the lesser used fuel oxygenates such as ethyl tertiary-butyl ether (ETBE), tert-butyl alcohol (TBA), or tertiary-amyl methyl ether (TAME). Consequently, only MTBE will be considered in this general permit.

The solubility, Henry's law, and K_{oc} values for the oxygenates indicate potential treatment effectiveness issues for gasoline oxygenates. For example, MTBE is about 30 times more soluble than benzene, and 10 times less volatile when moving from dissolved phase in water to a vapor phase (e.g. air stripping) due to the lower Henry's law constant. MTBE is also much less likely to sorb to organic carbon due to a lower K_{oc} than benzene. In using air stripper technology, significantly more air capacity is required to strip MTBE from water. Using carbon treatment, additional carbon capacity is necessary and more frequent carbon change-outs are required. Both of these factors increase the cost of operation and maintenance. Therefore, the parameters which make benzene attractive as an indicator of treatment efficiency for the majority of the other constituents in fuels, do not necessarily apply to MTBE.

To establish appropriate effluent limitations for MTBE, EPA evaluated both technology-based and water quality-based requirements. MTBE is not currently listed as priority pollutants by EPA, and as such, has not had either aquatic or human health standards developed under EPA's water quality programs. The majority of work regarding oxygenates has been through the underground storage tank and drinking water programs where the primary concern has been impacts on ground waters and health impacts from drinking water obtained from wells. EPA's drinking water program has not yet established MCLs. However, EPA has issued lifetime health advisories for MTBE in drinking water based primarily on taste and odor thresholds, and these advisory concentrations are also considered protective of human health. An advisory from 1996 established a MTBE concentration level of 70 parts per billion as being protective. The current advisory establishes a concentration of 20 - 40 parts per billion (µg/l) of MTBE in drinking water as a threshold value for taste and odor. Monitoring reports from gasoline remediation sites pursuant to approved site remediation projects demonstrate that using best available treatment (e.g. air stripping and/or carbon) a limit of 20 µg/l is feasible, but difficult. Therefore, EPA is setting a technology based limit for MTBE of 30 µg/l (the median

EPA advisory threshold for taste and odor effects and for the protection of human health).

Effluent Limit for MTBE - Maximum Value = 30 µg/l

7. Naphthalene: Naphthalene is a common constituent of coal tars and petroleum; and is also used as an intermediate in the production of dye compounds, and in the formulation of solvents, lubricants, and motor fuels. It is one of a number of polycyclic (or polynuclear) aromatic hydrocarbon (PAH) compounds (see further information in this section on PAHs) included as priority pollutants under the CWA. Naphthalene is only slightly soluble in water (approximately 30 mg/l); however, it is highly soluble in benzene and other solvents. The model permit for gasoline suggested that benzene would be an appropriate indicator of removal of naphthalene as well as the other BTEX compounds. However, naphthalene is also a significant component of fuel oils (several percent by volume), and is found as a contaminant at a number of older industrial sites such as former coal gas plant facilities, and what is often referred to as "urban fill" sites.

In reviewing data submitted pursuant to approved site remediation projects, naphthalene was noted in a wide variety of discharges. Therefore, EPA is including naphthalene both as a stand alone parameter and with the group of the other 17 PAH compounds (see PAH compounds). EPA evaluated both technology-based and water quality-based effluent limits for naphthalene in the general permit. However, in evaluating analytical data regarding naphthalene in water, it is important to note that this compound may be reported by both volatile petroleum hydrocarbon analysis and extractable petroleum hydrocarbon analysis since it is within the dividing region between purgeable and extractible organics.

The chemical characteristics of naphthalene are similar enough to BTEX compounds such that naphthalene is expected to be removed to low concentrations (at or below laboratory reporting levels) by the standard treatment technologies. EPA has limited naphthalene as a parameter at most petroleum fuel cleanup sites, and at numerous other types of industrial sites. Monitoring reports indicate typical influent concentrations of naphthalene in the range of less than 10 to several thousand parts per billion in waters being treated. Effluent concentrations have typically been at the laboratory reporting levels using combinations of air stripping and/or carbon adsorption treatment.

The available water quality-based information for naphthalene is limited. As with several other petroleum related compounds, EPA has previously published lowest observed effects levels numbers (LOELs) for the acute and chronic effects on freshwater species. The most conservative value is 620 µg/L for freshwater chronic effects. Regarding human health effects, EPA has not published an MCL for naphthalene; however, naphthalene is identified as a Group C compound, a possible human carcinogen. EPA's recommended level for a lifetime exposure via drinking water is 100 µg/L. In Idaho, the current initial target cleanup level for naphthalene in groundwater is 209 µg/L. However, given that lower concentrations are readily

achievable and have been demonstrated with standard treatment technology, EPA is setting a technology based, BPJ limit of 100 µg/L for discharges under this general permit.

Effluent Limit for Naphthalene - Maximum Value = 100 µg/l

8. <u>Chlorinated Volatile Organic Compounds:</u> A number of chlorinated volatile organic compounds have been commonly reported as contaminants in groundwater at many remediation and construction dewatering sites, including those in Idaho. These compounds are typically present in ground waters, or in some cases surface waters, as a result of releases from manufacturing and other operations where these chemicals are (or were) used in production of products such as common industrial solvents or cleaners (e.g. paint thinners and removers, de-greasers, dry-cleaning agents, etc.). The fact that many of these compounds are commonly found in household hazardous wastes contributes to the problem. It is common to find mixtures of chlorinated VOCs present at cleanup sites due either to the use or storage of these chemicals at a certain location, or more typically due to the weathering and chemical breakdown of a parent compound after its release to the environment. The concentrations typically detected range from several hundred to the tens of thousands of parts per billion (µg/l) both as individual compounds and as total chlorinated VOCs.

To select the most appropriate chemicals to include as parameters in the proposed general permit, EPA reviewed many applications and monitoring reports pursuant to approved site remediation projects to determine which of the compounds were most prevalent in discharges. Many of these compounds have similar chemical characteristics which is important in evaluating potential treatment technologies. Based on prior monitoring reports, EPA expects that, in most instances, efficient control or removal of these compounds will also insure removal of other compounds with similar chemical characteristics which are not included as parameters in this permit. However, as a precaution, applicants will be required to identify all other chemical compounds found, or believed to be present at a site, and include them in the NOI for evaluation by EPA and IDEQ.

A number of other chlorinated VOCs were not included as parameters in the general permit due to the infrequency in which a parameter has been reported at sites, its lower toxicity, and/or the probable removal of the chemicals along with others included in the permit by standard technology. Due to treatment similarities, and as per Section III.B. of this fact sheet, it is anticipated that general permit coverage will be extended to most facilities with chlorinated VOCs not identified on the list of 55 COCs, particularly if they are degradation daughter products of compounds identified below.

The following 14 chlorinated volatile organic chemicals are selected as parameters for the general permit.

i) Carbon Tetrachloride;

ii) 1,2 (or o)-Dichlorobenzene (o-DCB);
iii) 1,3 (or m)-Dichlorobenzene (m-DCB);
iv) 1,4 (or p)-Dichlorobenzene (p-DCB);
v) 1,1-Dichloroethane (DCA);
vi) 1,2-Dichloroethane;
vii) 1,1-Dichloroethylene (DCE);
viii) cis-1,2-Dichloroethylene;
ix) Dichloromethane (DCM), or Methylene Chloride;
x) Tetrachloroethylene (PCE);
xi) 1,1,1-Trichloroethane (TCA);
xii) 1,1,2 Trichloroethane;
xiii) Trichloroethylene (TCE); and
xiv) Vinyl Chloride.

In general, the technology-based effluent limitations are sufficient to meet the most conservative water quality standards, which are typically human health-based standards. The available information indicates that with few exceptions, properly designed and operated treatment units including air stripping and/or activated carbon, can achieve effluent concentrations at laboratory reportable values (often referred to as "non-detection" in reports). In the proposed general permit, EPA has set technology-based limits for 7 of the 14 chlorinated VOCs identified above. For many of these compounds, the technology-based limits coincide with, or are more restrictive than, end-of-pipe limits set to Idaho's Water Quality Standards. For example, for 1,4 (or p)-Dichlorobenzene (DCB); 1,2 (or o)-Dichlorobenzene (DCB); 1,3 (or m)-Dichlorobenzene (DCB); and Chloroethene (Vinyl Chloride), the technology-based limits set equal to or below water quality standards. For the 7 chlorinated VOCs for which technology-based effluent limits are proposed, the basis of these limits are the drinking water MCLs, or if no MCL has been promulgated, the EPA Region 9 PRGs for tap water. For these pollutants, mixing zones are not available and the facility must achieve effluent limitations.

However, for the remaining 7 chlorinated VOCs, including Carbon Tetrachloride; 1,2 Dichloroethane, Dichloromethane (methylene chloride), Tetrachloroethylene, 1,1,2 Trichloroethane; Trichloroethylene, and 1,1 Dichloroethylene (DCE), the most restrictive human health water quality criteria (for the consumption of water and organisms) are below technology-based limits. For these COCs, the general permit has adopted WQBELs set equal to the human health criteria for the consumption of water and organisms at end-of-pipe. In each of these cases, mixing zones may be available to the facility pending review of the NOI by IDEQ and EPA. For carbon tetrachloride, 1,2 DCA, and 1,1 DCE, the WQBEL is below the ML so the compliance limit is set equal to the ML at 0.5 µg/l.

Table 3. Effluent Limits for Chlorinated VOCs

Parameter	Basis [1]	Maximum Value (µg/l)
Carbon Tetrachloride	Water Quality [2]	0.25 (ML = 0.5)

Table 3. Effluent Limits for Chlorinated VOCs

Parameter	Basis [1]	Maximum Value (µg/l)
1,4 (or p)-Dichlorobenzene (p-DCB)	Technology (MCL)	75
1,2 (or o)-Dichlorobenzene (o-DCB)	Technology (MCL)	600
1,3 (or m)-Dichlorobenzene (m-DCB)	Technology (PRG)	5.5
1,1 Dichloroethane (DCA)	Technology (PRG)	810
1,2 Dichloroethane (DCA)	Water Quality [2]	0.38 (ML = 0.5)
1,1 Dichloroethylene (DCE)	Water Quality [2]	0.057 (ML = 0.5)
cis-1,2 Dichloroethylene (DCE)	Technology (MCL)	70
Dichloromethane (methylene chloride)	Water Quality [2]	4.7
Tetrachloroethylene (PCE)	Water Quality [2]	0.8
1,1,1 Trichloroethane (TCA)	Technology (MCL)	200
1,1,2 Trichloroethane (TCA)	Water Quality [2]	0.6
Trichloroethylene (TCE)	Water Quality [2]	2.7
Chloroethene (Vinyl Chloride)	Technology (MCL)	2.0

Notes

1. Indicates whether the basis for the permit limit is technology or water quality based. If technology based, MCL indicates it is based on the Maximum Contaminant Level, or PRG indicates a EPA Region 6 Preliminary Remediation Goal if an MCL is not available.

2. For COCs with WQBELs, all have promulgated MCLs of 5 µg/l except for 1,1 DCE where the MCL is 7 µg/l. If mixing zones are approved for these COCs, final effluent limits can not exceed these technology-based concentrations.

9. Pentachlorophenol (PCP): Phenolic compounds are widely used as chemical intermediates such as the manufacture of resins; and as disinfectants, antiseptics, and pesticides. Pentachlorophenol has also been extensively used as a wood preservative. Releases to the environment may occur from the manufacturing use of products containing phenols; and from combustion sources, coal gas, and the natural decay of organic matter. Pentachlorophenol is listed as an EPA priority pollutant, and has organoleptic (i.e., taste and odor) effects in water at low levels. While pentachlorophenol is the only phenolic compound included in this general permit, if the applicant is aware of other nitro or chlorinated phenols at their facility, they should be identified on the NOI such that EPA and IDEQ can determine if an individual permit is needed.

EPA has evaluated existing technology based effluent limits and the need for water quality based effluent limits for pentachlorophenol. PCP is classified as “B2" (probable carcinogen) in EPA’s 2002 drinking water standards update. The toxicity of PCP is also dependent on the pH of the receiving water. The standard values published in EPA’s Toxic Water Quality Criteria (40 CFR 131.36) are calculated at

a pH of 7.8, and IDEQ has adopted this rule. From a technical standpoint, due to a very low Henry's Law constant of approximately 4.5×10^{-7}, PCP will not be effectively removed by air stripping. However, the Koc values for PCP, depending on pH, can range from 1,250 - 25,000, making removal by carbon adsorption effective.

State water quality criteria for PCP are 20 µg/L for freshwater acute and 13 µg/L for freshwater chronic. State water quality criteria for human health are 0.28 µg/l (water and organisms) and 8.2 µg/l (organisms only). The current EPA drinking water MCL, Idaho groundwater standard for PCP is 1.0 µg/L. In order to be conservative, EPA is proposing a water quality-based effluent limitation for PCP at 0.28 µg/L (ppb) with a compliance limit of 1.0 µg/l based on the ML for PCP.

Effluent Limit for Pentachlorophenol - Maximum Value = 1 µg/l
Compliance Limit = 1.0 µg/l (see Attachment C)

10. <u>Bis (2-Ethylhexyl) Phthalate:</u> There are many phthalate compounds which are produced and widely used as plasticizers, resin solvents, wetting agents, and insect repellants among other uses. EPA has included a number of specific phthalate compounds on the CWA priority pollutant list including diethyl and dimethyl phthalate, butylbenzyl phthalate, and others which are not considered highly toxic to aquatic life or human health in water. One widely used phthalate compound, bis(2-ethylhexyl) phthalate is considerably more toxic and is included as a separate parameter in this general permit.

Bis (2-ethylhexyl) phthalate, also known as di(2-ethylhexyl) Phthalate (or DEHP) is one of the most widely produced and used phthalate compounds. Primary use is as a plasticizer for polyvinyl chloride (PVC) and in other applications including insect repellants, cosmetics, soaps and detergents, synthetic rubber, and many other products. It is also in use as a replacement for PCBs as a dielectric fluid in transformers. EPA has listed DEHP as a class B2 compound, or a probable carcinogen in the drinking water standards, and has published human health criteria in 40 CFR 131.36 that has been adopted by Idaho in their Water Quality Standards. Due to it's wide spread use and toxicity, EPA is proposing to include this parameter in the general permit.

EPA has evaluated both technology and water quality criteria in setting an effluent limitation for DEHP. DEHP has a very low Henry's Law constant of approximately 1×10^{-7} which indicates that volatilization and removal by air stripping would not be efficient. However, the very high K_{oc} value indicates that it is not highly mobile in soils and will adsorb readily with carbon treatment. The current EPA/IDEQ human health criteria are 1.8 µg/l for water plus organism intake and 5.9 µg/l for organism intake only. The current MCL, as well as the Idaho groundwater standard for DEHP, is 6.0 µg/l which serves as technology-based effluent limit. In order to be conservative, EPA is proposing a WQBEL for DEHP at 1.8 µg/l with a compliance limit of 5.0 µg/l based upon the ML for DEHP.

Effluent Limitation for Bis(2-ethylehexyl)phthalate - Maximum Value = 1.8 µg/l Compliance Limit = 5.0 µg/l (see Attachment C)

11. <u>Poylcyclic Aromatic Hydrocarbons (PAHs):</u> PAHs include a large group of organic compounds that have similar chemical structures and chemical characteristics. They are found in fossil fuels, oil, coal, wood, and natural gas; and are often associated with releases of petroleum products, resin coatings, dyes, pharmaceuticals, insecticides and many other products. PAHs are found at numerous contaminated wastes sites throughout Idaho and the United States where they tend to bio-accumulate in fish and shellfish at low concentrations in water. PAH compounds are also reported at many contaminated construction dewatering sites located in urban settings due to former industrial activity, local power generation, coal gas production, and the historic disposal of ash from combustion.

EPA has listed 16 PAH compounds as priority pollutants under the CWA, seven of which have been identified as probable carcinogens. Accordingly, the PAHs have been divided into two separate groups for the purposes of this general permit based upon their toxicity:

<u>Group I: Carcinogenic PAHs:</u> a. Benzo(a) Anthracene, b. Benzo(a) Pyrene, c. Benzo(b) Fluoranthene, d. Benzo(k) Fluoranthene, e. Chrysene, f. Dibenzo(a,h) Anthracene, g. Indeno(1,2,3-cd) Pyrene

<u>Group II: Non Carcinogenic PAHs:</u> a. Acenaphthene, b. Acenaphthylene, c. Anthracene, d. Benzo(ghi)- Perylene, e. Fluoranthene, f. Fluorene, g. Naphthalene, h. Phenanthrene, i. Pyrene

The Group I compounds are mostly products of incomplete combustion of fossil fuels and, with the exception of Chrysene, are not produced commercially for use. The Group II compounds are more common at contaminated sites, and are found as significant components of fuels, coal tar products, and from their use in manufacturing other products.

From a technology standpoint, most of the PAH compounds are only slightly soluble in water and have high K_{oc} values ranging from approximately 1×10^3 to 1×10^6 thus making them nearly immobile in soil and amenable to removal by carbon adsorption. All of the Group I and Group II PAH compounds have very low Henry's law constant values at the 10^{-4} to10^{-6} range. Therefore, air stripping alone would not be expected to be adequate for removal of these chemicals. A review of groundwater monitoring data from sites with high concentrations of PAHs in soil generally indicate low aqueous PAH concentrations due to their low solubility and immobility when released. Nevertheless, PAH limitations and carbon treatment are found to be necessary due to the toxicity of the Group I compounds at very low concentrations, and the soil water mixing that occurs during construction.

The Idaho water quality criteria for the Group I carcinogenic PAH compounds have very low calculated concentrations for the protection of human health due to the

toxicity of these chemicals. For the Group I PAHs, the human health criteria for the consumption of water and organisms is 0.0028 µg/l, and 0.031 for the consumption of organisms only. Water quality criteria for the protection of aquatic life have not been established. Water quality criteria for the Group II PAHs vary considerably based on the current scientific information, however the target levels are typically orders of magnitude higher than the Group I compounds. Due to the widely varying nature of the discharges covered by this permit and the respective receiving waters quality, the proposed effluent limits are based on a conservative approach.

The Group I PAH compounds have a WQBEL set at the human health concentration of 0.0028 µg/L, with compliance limits set for each compound at the most stringent minimum levels (MLs) associated with federally approved test methods (see Attachment C).

For the Group II PAH compounds, EPA is proposing a technology based, BPJ limit for the most common parameter, Naphthalene, at 100 µg/L (see discussion above). Additionally, a technology based, BPJ limit of 200 µg/L is being proposed for the sum of the Group II PAH isomers due to the variability of the water quality criteria for each isomer, as well as the ability of adequate current treatment technology to consistently meet this limit.

Effluent Limitation for Group I PAHs - Maximum Value = 0.0028 µg/L
Individual Compounds Compliance Limit =Minimum Level (see Attachment C)

Effluent Limitation for Group II PAH Compounds:
Naphthalene Maximum Value = 100 µg/L
Total of Group II Isomers Maximum Value = 200 µg/L

12. <u>Polychlorinated Biphenyls (PCBs)</u>: PCBs represent a group of chemical compounds originally produced for their properties as insulating dielectric fluids in capacitors and transformers. PCBs were also used as plasticizers in rubber and synthetics, adhesives, de-dusting compounds, inks, cutting oil, pesticides, and sealant compounds. Given their many uses, they are widely distributed in the environment through product use, leaks or spills from electrical equipment, as well as direct discharge from industries using PCBs.

Individual PCB congeners are categorized as Aroclors, and are identified by a four digit number. For example, in Aroclor 1254, the first two digits identify that the substance is a biphenyl and the second two digits represent the approximate weight percent of chlorine (the exception to this is Aroclor 1016 developed later in attempting to reduce the environmental threat of PCBs). Lower chlorinated Aroclors (1221, 1232, 1016, 1242, and 1248) are colorless mobile oils. Increasing chlorine content turns them into viscous liquids (1254) or sticky resin (1260 and 1262). At the high end (1268 and 1270) they are white powders. In November 2002, EPA revised the definition of total PCBs for aquatic life water quality criteria as “the sum of all homologue, all isomers, all congeners, or all Aroclor analyses”.

PCBs are only slightly soluble in water and generally have high Koc values. Therefore, they are easily sorbed to soil and sediments, and are not very mobile in the environment. Since one of the characteristics of PCBs is their resistance to degradation, they tend to persist in the environment and bioaccumulate in living organisms. Due to their chemical characteristics, PCBs are not likely to be released to groundwater. However, treatment of the water is required for all cases regardless of whether the PCB is the only significant pollutant, or whether there are mixtures of other pollutants at the same site. The standard treatment technology currently used for discharges to surface water is carbon adsorption.

In evaluating the water quality requirements for development of a PCB effluent limitation for the permit, EPA reviewed the current Idaho Water Quality Standards which identifies criteria for the "sum of all congener, isomer, or Aroclor analyses", otherwise know as total PCBs. Idaho water quality criteria for the protection of aquatic life is 0.01 µg/l (chronic); while human health criteria is 0.00017 µg/l for both water and organisms and organisms only. The EPA drinking water MCL value, as well as the Idaho groundwater standard, is currently set at 0.5 µg/l.

In setting the effluent limits for PCBs, EPA has considered both the toxicity, along with its persistence and potential for bio-accumulation in the environment. Therefore, the proposed WQBEL for total PCB is based on the current human health criterion of 0.00017 µg/l, with a compliance limitation of 0.5 µg/l (the typical minimal laboratory level using EPA Method 608). Based on past performance data of control technology, it is anticipated that discharges containing PCBs can adequately be treated to "non-detection" levels using carbon adsorption.

Effluent Limitation for Total PCBs - Maximum Value = 0.00017 µg/l
Compliance Limit = 0.5 µg/L

13. <u>Metals:</u>

<u>a. Background</u> - Many types of metals can be found in the ground and surface waters in Idaho, and their concentrations vary widely depending on the geology, soil conditions, and the types of activities that have occurred on the site. Metals such as cadmium, chromium, lead, mercury, nickel, and silver can build up to toxic concentrations through industrial contamination. Many of these metals have been found in groundwater at remediation and construction dewatering sites in the region, particularly in areas with histories of urban, industrial, or mining activity. Other metals, such as arsenic and iron, frequently build up by leaching out of naturally occurring deposits under reducing conditions in surrounding bedrock or soils, or can be deposited as air fallout from smelting operations.

Human exposure to metals can lead to a variety of health problems. Severe effects include reduced growth, cancer, organ damage, nervous system damage, and in extreme cases, death. Exposure to some metals, such as mercury and lead, may also cause development of auto-immunity, in which a person's immune system attacks its own cells. This can lead to joint diseases such as rheumatoid arthritis, and diseases

of the kidneys, circulatory system, and nervous system. The metals linked most often to human poisoning are lead, mercury, arsenic and cadmium. Other metals, including copper, zinc, and chromium, are actually required by the human body in small amounts, but can also be toxic in larger doses.

Metals can be toxic to marine and freshwater organisms, as well as contaminating other plant and animal species. Aquatic organisms are often more sensitive than humans to metals dissolved in water. Ultimately, metals can become concentrated in the human food chain, or in other organisms at higher tropic levels.

b. Selection of Parameters - To select the most appropriate metals regulated under the general permit, EPA reviewed a number of resources, including existing NPDES permits, as well as applications and discharge monitoring reports submitted pursuant to approved site remediation projects, and determined which metals were most prevalent in discharges. The following 13 metals have been selected as parameters to be limited by this general permit:

> **i) Antimony, ii) Arsenic, iii) Cadmium, iv) Chromium (III), v) Chromium (VI), vi) Copper, vii) Iron, viii) Lead, ix) Mercury, x) Nickel, xi) Selenium, xii) Silver, and xiii) Zinc.**

However, not all of EPA's priority pollutant metals were selected for this permit. EPA did not select: **beryllium, thallium, manganese,** and **barium**. The most significant reasons for not establishing an effluent limitation for a particular metal included the infrequency in which it has been reported at sites, lower toxicity, and the probable removal of the contaminant along with other included chemicals by standard technology.

c. Selection of Limits - To establish appropriate effluent limitations for these selected metals, EPA evaluated both the technology and water quality-based information currently available. This included information contained in monitoring reports from site remediation projects, published technology information available on various EPA and other internet sites, and water quality and cleanup standards published by EPA and Idaho. In general, technology-based effluent limitations are sufficient to meet the most conservative water quality standards. The available information indicates that, with few exceptions, properly designed and operated treatment units, including: ion exchange, gravity settling, carbon adsorption, and chemical sequestration, can routinely achieve the effluent concentration limits set in the general permit.

In fact, many of these metals have similar physical or chemical characteristics which are important in evaluating the appropriate control or removal technologies. EPA expects that several of the metals will be removed by employing the same control technologies.

As noted above, many of the metals limited by this permit are more toxic to aquatic organisms than to humans. In general, EPA human health criteria are set at higher

concentrations than those needed to protect aquatic life based on the available published "lowest observed effects levels" (LOELs) for aquatic life. Therefore, for most of the metals, rather than basing the limits on the human health criteria, EPA has adopted the more conservative of the acute or chronic water quality criteria, as effluent limitations. For most metals, the chronic (i.e., criteria continuous concentration or CCC) is the most restrictive criteria (i.e., the lowest), and this was used in establishing water quality-based effluent limitations.

d. Consideration of Hardness - The metals parameters and limitations proposed in the general permit are being considered similar to the way that EPA sets metals limits in most individual permits where the dischargers are not subject to effluent guidelines (as with discharges covered by this permit). With such discharges, as well as other discharges where a water quality-based limit is needed, EPA uses the criteria value in the state water quality standards, adjusted for receiving water hardness (where criteria are hardness dependent) and converts them to "total recoverable metal" limits in the permit.

For metals in which the criteria are hardness dependent, published numeric criteria are generally expressed at a hardness (H) value of 100 mg/L as calcium carbonate ($CaCO_3$) in the receiving water. IDEQ follows this procedure where lookup criteria values for hardness dependent metals (found in IDAPA 58.01.02.210.01) are expressed at a hardness of 100 mg/l. For the hardness dependent metals limited by the general permit (including cadmium, chromium III, copper, lead, nickel, silver and zinc), the effluent limitations described below (and summarized in Table A-1) are presented at an assumed receiving water hardness of 100 mg/l. However, the permit allows for site-specific consideration of receiving water hardness where effluent limits for the seven hardness dependent metals are derived on a case-by-case basis.

For each hardness dependent metal, the value of the numeric criteria increases as receiving water hardness increases in accordance with the equations presented in Table 4. Each of these equations calculates water quality criteria for the protection of aquatic life under the chronic exposure scenario (except for silver which is an acute exposure). In Idaho, the minimum hardness allowed for use in these equations is 25 mg/l and the maximum is 400 mg/l [IDAPA 58.01.02.210.03(c)]. Accordingly, receiving water hardness values above and below these values use them as default input values to the equations in Table 4.

Table 4. Equations for Calculating Criteria for Hardness Dependent Metals

PARAMETER	Criteria Value (µg/L)	Conversion Factors
Cadmium	$= EXP^{(0.7852*LN(hardness) -3.490)}$	0.909
Chromium (III)	$= EXP^{(0.819*LN(hardness) + 0.6848)}$	0.860
Copper	$= EXP^{(0.8545*LN(hardness) – 1.465)}$	0.960
Lead	$= EXP^{(1.273*LN(hardness) -4.705)}$	0.791
Nickel	$= EXP^{(0.846*LN(hardness) + 0.0584)}$	0.997
Silver	$= EXP^{(1.72*LN(hardness) – 6.52)}$	0.85

Table 4. Equations for Calculating Criteria for Hardness Dependent Metals

PARAMETER	Criteria Value (µg/L)	Conversion Factors
Zinc	$= EXP^{(0.8473*LN(hardness) + 0.884)}$	0.986

EXP = base e exponential function; LN = natural logarithm

Provided below is an example calculation that EPA used to determine the total recoverable limits for metals. After performing the appropriate hardness calculation (if necessary), the effluent limitations for metals included in the permit are expressed in a total recoverable basis after application of appropriate conversion factors from dissolved criteria. Federal regulations at 40 CFR 122.45(c) require that NPDES permit limits be expressed on a total recoverable basis whereas state water quality criteria are typically expressed on a dissolved basis as that is the bioavailable portion of the metal more suited for toxicity testing of aquatic life.

Numeric metals criteria must be translated to total recoverable (TR) concentrations using the element specific conversion factors from the state standards which are shown in Table 4. Accordingly, the effluent limitations for metals in this general permit (on a TR basis), are determined by the following equation.

Total recoverable metal concentration = (Dissolved concentration)/(CF)

For purposes of example, the Idaho chronic water quality criteria for lead is 2.5 µg/l (dissolved) with a conversion factor of 0.791. Consequently, the effluent limit for lead in the general permit is 3.16 µg/l (TR) at a hardness of 100 mg/l. This is the effluent limit for lead presented in Table 1 of the general permit, and in Table A-1 of this fact sheet. If the receiving water hardness was 225 mg/l, the effluent limit for lead becomes 8.93 µg/l (TR). The NOI (Section IV.A.7.h) requests a representative hardness value of the receiving water. This value will be used to calculate final effluent limits (if necessary) for each facility for those seven metals with hardness dependent criteria. Final effluent limits will be identified in EPA's authorization to discharge letter prepared for each facility.

e. Description and Rationale for Limits - Below is a brief description of and limit for each of the selected metals:

Antimony - EPA has set the antimony limit in this general permit considering a number of factors including Idaho water quality criteria and MCLs. EPA has not published fresh water acute or chronic quality criteria for antimony, but the human health criteria for antimony are 5.6 µg/L (water and organism) and 640 µg/L (organism only). The MCL for antimony is 6.0 µg/l. Based on the performance of control technology currently in use, EPA is setting the total recoverable limitation for antimony at concentration equal to human health criteria for consumption of water and organisms at 5.6 µg/l.

Arsenic - EPA has set the arsenic limit in this general permit considering a number of factors including Idaho water quality criteria and MCLs. Idaho water quality

criteria for arsenic are 340 µg/L (freshwater acute), 150 µg/L (freshwater chronic). Based on the performance of control technology currently in use, EPA is setting the total recoverable limitation for arsenic at concentration equal to the MCL of 10 µg/l (as of 1/23/06).

Cadmium - Idaho water quality criteria for cadmium are 1.0 µg/L (freshwater chronic at hardness of 100 mg/L CaCO3). The MCL and the Idaho target default cleanup level for cadmium are both 5 µg/l. The most conservative value of 1.0 µg/l has been selected for use in this permit, which translates to an effluent limit of 1.1 µg/l using the conversion factor of 0.909.

Chromium - EPA has set the chromium limit in this general permit considering a number of factors, including the water quality criteria and the MCL. Idaho water quality criteria for chromium III (trivalent) is 570 µg/L (freshwater acute at hardness = 100 mg/L CaCO3) and 74 µg/L (freshwater chronic at hardness = 100 mg/L CaCO3). For chromium VI (hexavalent), water quality criteria are 16 µg/L (freshwater acute) and 11 µg/L (freshwater chronic). While EPA has not yet promulgated chromium III limits for the protection of human health under the Toxics Rule, the MCL for total chromium is 100 µg/l. To provide a conservative measure of surface water protection as part of this permit, limits for chromium III and chromium VI are 74 µg/l and 11 µg/l, respectively. Using the conversion factor of 0.860 for chromium III, the effluent limitation for trivalent chromium is 86 µg/l on a total recoverable basis. Hexavalent chromium does not have a conversion factor as the dissolved concentration is set equal to the total concentration.

Copper - EPA used the Idaho water quality criteria for the protection of aquatic life under the chronic exposure scenario (11 µg/l) to set the copper limit in this permit. Utilizing the conversion factor of 0.960, the copper effluent limit is 11.5 µg/l on a total recoverable basis.

Lead - EPA has set the lead limit in this general permit considering Idaho water quality criteria and the MCL. Water quality criteria for lead are 65 µg/L (freshwater acute at hardness = 100 mg/L CaCO3), and 2.5 µg/L (freshwater chronic at hardness = 100 mg/L CaCO3). The drinking water MCL is 15 µg/l. Using the most conservative of the water quality criteria, EPA is basing the limits for lead on the chronic criteria value. Using the conversion factor of 0.791, the permit effluent limit for lead is 3.16 µg/l on a total recoverable basis.

Mercury - EPA has set the mercury limits in this general permit considering Idaho water quality criteria and the MCL. Water quality criteria for mercury are 2.1 µg/L (freshwater acute), and 0.012 µg/L (freshwater chronic). The drinking water MCL is 2 µg/l. Using the most conservative of the water quality criteria, EPA is basing the limits for mercury on the chronic criteria value. Mercury does not have a conversion factor as the dissolved concentration is set equal to the total concentration (0.012 µg/l).

Nickel - EPA used the Idaho water quality criteria for the protection of aquatic life under the chronic exposure scenario (52 µg/l) to set the nickel limit in this permit. Utilizing the conversion factor of 0.997, the nickel effluent limit remains at 52 µg/l on a total recoverable basis.

Selenium - EPA used the Idaho water quality criteria for the protection of aquatic life under the chronic exposure scenario (5 µg/l) to set the selenium limit in this permit. Selenium does not have a conversion factor as the dissolved concentration is set equal to the total concentration.

Silver - EPA used the Idaho water quality criteria for the protection of aquatic life under the acute exposure scenario (3.4 µg/l) to set the silver limit in this permit. Utilizing the conversion factor of 0.85, the silver effluent limit is 4.0 µg/l on a total recoverable basis.

Zinc - EPA used the Idaho water quality criteria for the protection of aquatic life under the chronic exposure scenario (120 µg/l) to set the zinc limit in this permit. Utilizing the conversion factor of 0.986, the zinc effluent limit is 122 µg/l on a total recoverable basis.

Iron - EPA has reviewed many treatment system operational reports and monitoring reports which outline common treatment system operation and maintenance problems which develop as a result of high levels of naturally occurring iron in groundwater. Ferrous iron (Fe^{+2}) is the soluble reduced form, and will oxidize to insoluble ferric hydroxide (Fe^{+3}) upon mixing and exposure to air As Fe^{+3}, it can foul or clog treatment units, cause growth of iron bacteria in the units, may discolor the effluent, or cause localized sediment deposits in storm drains or receiving waters.

Some operators add chemical sequestering agents specifically developed to keep the ferrous iron in solution through the treatment process and into the discharge due to the added expense of pre-treatment and iron removal. Since most of the discharges covered by the general permit are from contaminated ground waters which may contain elevated iron concentrations, two issues affecting surface water quality need to be addressed: 1) transfer of high iron content ground water to the surface water (e.g. system pass-thru); and, 2) impacts on treatment efficiency of the system being used to control the primary chemicals of concern in the discharge.

While EPA recognizes that iron compounds are generally not toxic in the environment, excessive amounts may cause or contribute to violations of water quality standards including color, turbidity, solids, and odor, as well as fouling of the treatment systems themselves. EPA's freshwater chronic criteria for iron is 1,000 µg/l and the human health criteria for the consumption of water and organisms is 300 µg/l. In setting the limit for this permit, EPA has considered the fact that iron may be "naturally occurring" and that treatment systems are designed primarily for control of more toxic pollutants caused by human activities. Furthermore, EPA has concluded that the iron limit in the general permit must, at a minimum, provide for

the proper operation and maintenance of the kinds of pollution control systems that are anticipated at other clean up activities covered by the permit.

Based on the information available, EPA is setting a water quality-based iron limit of 1,000 µg/l (1 mg/l).

14. Cyanide: Compounds containing the cyanide group (CN) are used in many industrial processes, and can be found in a variety of effluents such as those from steel, petroleum, plastics, synthetic fibers, mining, metal plating, and chemical industries. Cyanide occurs in water in many forms, including: hydrocyanic acid (HCN), the cyanide ion (CN^-), simple cyanides, metallocyanide complexes, and as organic compounds. "Free cyanide" is defined as the sum of the cyanide present as HCN and CN^-. The relative concentrations of these forms depend mainly on pH and temperature.

Both HCN and CN^- are toxic to aquatic life. However, the vast majority of free cyanide usually exists as the more toxic HCN. Since CN^- readily converts to HCN at pH values that commonly exist in surface waters, EPA's cyanide criteria are stated in terms of free cyanide expressed as CN^-. Free cyanide is a more reliable index of toxicity to aquatic life than total cyanide because total cyanides can include nitriles (organic cyanides) and relatively stable metallocyanide complexes.

EPA as set the cyanide limits in this general permit considering both Idaho water quality criteria and the MCL. Water quality criteria for cyanide is 5.2 µg/L (chronic) and 22 µg/L (acute). In order to be most protective, limits are based on the chronic water quality criteria for cyanide at 5.2 µg/L.

Effluent Limitation for Cyanide - Maximum Value = 5.2 µg/l

15. Narrative Criteria: The Idaho WQS specify narrative criteria that apply to all surface waters of the state (IDAPA 58.01.02.200). For the groundwater remediation general permit, narrative criteria for hazardous materials (Section 200.01); toxic substances (Section 200.02); deleterious materials (Section 200.03); floating, suspended or submerged matter (Section 200.05); and excess nutrients (Section 200.06) are applied as effluent limitations that read as follows in the general permit:

- The permittee must not discharge hazardous materials in concentrations that pose a threat to public health or impair the beneficial uses of the receiving water.

- The permittee must not discharge chemicals or toxic pollutants in concentrations that impair the beneficial uses of the receiving water.

- The permittee must not discharge deleterious materials in concentrations that impair the beneficial uses of the receiving water.

- The permittee must not discharge floating, suspended or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair the beneficial uses of the receiving water.

- The permittee must not discharge excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing beneficial uses of the receiving water.

16. pH: The pH of a discharge water is an indicator of the relative acidity or alkalinity of that water. The discharge must have a pH range between 6.5 and 9.0 standard units (IDAPA 58.01.02.250).

17. Temperature: The draft general permit establishes end-of-pipe temperature effluent limits based upon the designated use of the receiving water. It is the permittees responsibility to determine the designated use of the receiving water, and report this use on the NOI. Designated uses can be found in Sections 110-160 of the Idaho Water quality Standards (IDAPA 58.01.02). Discharges to cold water and warm water must have a maximum temperature limit of 19°C and 29°C, respectively. Effluent limits of 9°C or 10°C may apply for cold receiving waters further designated for salmonid [IDAPA 58.01.02.250.02.(f)(ii)] or Bull Trout (40 CFR 131.33) spawning during specific times of the year. In accordance with IDAPA.58.01.02, nondesignated surface waters are protected for cold water biota where discharges can not exceed 19°C (66°F). If natural background temperatures in the receiving water are above these limits, then the discharge may not raise water temperatures more than 0.3°C above the natural condition on a cumulative (i.e., considering all anthropogenic sources) basis. Temperature limits will be specified in the authorization letter.

18. Chemical Additives: Chemical agents are commonly used for the enhancement of wastewater treatment, for the control of undesirable conditions caused during treatment, or due to the chemical makeup of the water being treated. For example, chemical additives are used to control foaming, algae and bacteria growth, and are added to control "naturally occurring" dissolved iron or other minerals in groundwater which may foul treatment systems, discolor the discharge, or cause sediments in the receiving water. While many additives are advertized as being "non-toxic" or "biodegradable," there are instances where specific compounds in the additive may be unacceptable for discharge to certain receiving waters.

EPA has reviewed many requests for chemical addition along with various cover letters, monitoring reports and other information submitted by consultants for use of chemical additives pursuant to approved site remediation projects. EPA has typically required the Material Safety Data Sheets (MSDS) for the proposed product to be submitted for review prior to approving chemical additives. When filing the NOI for coverage under this permit, the operator must identify the chemical additives being used or proposed to be used, the purpose of use of the additive, and attach the MSDS sheet(s) for the additive(s). EPA may request further information regarding the chemical composition of the additive, potential toxic effects, or other information

to insure that approval of the use of the additive will not cause or contribute to a violation of state water quality standards. Approval of coverage under the general permit will constitute approval of the use of the chemical additive(s) that are described in the NOI.

E. Mixing Zones

As described previously in this section, the draft general permit sets the maximum daily effluent limit equal to the most stringent of BPJ technology-based effluent limit, or the Idaho water quality criteria for each of the 55 indicator chemicals of concern. For pollutants with WQBELs, the most stringent water quality criteria are based on either the protection of aquatic life for chronic exposures (i.e., metals), or for the protection of human health through the consumption of water and organisms (i.e., organics). Since technology-based effluent limits represent the minimum level of treatment that must be imposed in a permit under section 402 of the CWA, mixing zones are generally not available for these pollutants [40 CFR 125.3(a)]. However, for the 18 organic and 15 inorganic (including arsenic) pollutants for which WQBELs were derived, mixing zones are available on a case-by-case basis at the discretion of IDEQ (or any affected tribe with approved water quality standards). The single exception is arsenic which is the only metal limited by the general permit with a technology-based effluent limit (set equal to the MCL at 10 µg/l). Since arsenic occurs in relatively high concentrations in some geology environments, and anthropogenic arsenic can be widespread from atmospheric fallout, EPA has decided to allow mixing zones for arsenic which has a very low BPJ technology-based effluent limit.

A mixing zone is an allocated impact zone where state water quality standards can be exceeded so long as acutely toxic conditions are prevented. It is a defined area or volume of the receiving water adjacent to or surrounding a wastewater discharge where the receiving water, as a result of the discharge, may not meet all applicable water quality criteria or standards. A mixing zone is considered a place where wastewater mixes with receiving water, not a place where effluents are treated as wastewater treatment is not an appropriate designated use. Only IDEQ can authorize a mixing zone, and it is based upon the dilution available and the assimilative capacity of the receiving water. Mixing zones should be as small as practicable, and in the case of the draft general permit, can not result in effluent limits that exceed applicable BPJ technology based limits (i.e., ceiling values). State mixing zone policy is stated in IDAPA 58.01.02.060, and is generally limited to 25% of the appropriate critical low flow volume for fluvial receiving waters [IDAPA 58.01.02.060.(e)(iv)].

Under the draft general permit, mixing zones or dilution factors may be granted by IDEQ for metals (including arsenic) and those pollutants with WQBELs. While the effluent limits summarized in Table A-1 can be increased with the application of a mixing zone for those pollutants with WQBELs, the draft permit imposes “ceiling values” representing a never to be exceeded effluent concentration based upon adopted technology based BPJ limits. For organic pollutants, BPJ ceiling values are

either drinking water MCLs, or EPA Region 9 PRGs. For metals, other effluent limitation guidelines were adopted as BPJ ceiling values including those from the Metal Finishing Point Source Category (40 CFR 433), and the Landfill Category (40 CFR 445). Tables 5 and 6 present effluent limitations at various dilution factors in addition to never to be exceeded ceiling values for organic and inorganic pollutants, respectively, for which WQBELs were derived. Mixing zones are available only for these pollutants.

Table 5. Organic Pollutant Effluent Limitations at Selected Dilution Ranges (µg/l)

PARAMETER	DILUTION FACTOR RANGE CONCENTRATION					
	0 - 5	5 -10	10 - 50	50 - 100	>100	CEILING VALUE
Benzene	1.2	5	5	5	5	5 [2]
Carbon Tetrachloride	0.25	1.25	2.5	5	5	5 [1]
1,2 Dichloroethane	0.38	1.9	3.8	5	5	5 [1]
1,1 Dichloroethylene	0.057	0.285	0.57	2.85	5.7	7 [1]
Dichloromethane	4.7	5	5	5	5	5 [1]
Tetrachloroethylene	0.8	4	5	5	5	5 [1]
1,1,2 Trichloroethane	0.6	3	5	5	5	5 [1]
Trichloroethylene	2.7	5	5	5	5	5 [1]
Pentachlorophenol	0.28	1	1	1	1	1 [1]
Bis (2-Ethylhexyl) Phthalate	1.8	4.8	4.8	4.8	4.8	4.8 [2]
Benzo(a) Anthracene	0.0028	0.014	0.028	0.092	0.092	0.092 [2]
Benzo(a) Pyrene	0.0028	0.0092	0.0092	0.0092	0.0092	0.0092 [2]
Benzo(b) Fluoranthene	0.0028	0.014	0.028	0.092	0.092	0.092 [2]
Benzo(k) Fluroanthene	0.0028	0.014	0.028	0.14	0.28	0.92 [2]
Chrysene	0.0028	0.014	0.028	0.14	0.28	9.2 [2]
Dibenzo(a,h) Anthracene	0.0028	0.0092	0.0092	0.0092	0.0092	0.0092 [2]
Indeo(1,2,3-cd) Pyrene	0.0028	0.014	0.028	0.092	0.092	0.092 [2]
Total PCBs	0.00017	0.00085	0.0017	0.0085	0.017	0.034 [2]

1. Based upon drinking water maximum contaminant level (MCL)
2. Based upon EPA Region 9 Preliminary Remediation Goal (PRG) for tap water

Note: Dilution factors shown in Table 5 are inclusive at the end of the range. For example, if the calculated DF is 10.0, the DF is 5, not 10.

Table 6. Inorganic Effluent Limitations at Selected Dilution Ranges (µg/l)

PARAMETER	DILUTION FACTOR RANGE CONCENTRATION					
	1 - 5	**5 -10**	**10 - 50**	**50 - 100**	**>100**	**CEILING VALUE**
Residual Chlorine	11	55	110	500	500	500 [9]
Antimony	5.6[1]	28	56	141	141	141 [2]
Arsenic	10	50	100	500	540	540 [3]
Cadmium [10]	1.1	5.5	11	55	110	260 [6]
Chromium ^{III} [10]	86 [8]	430	860	1,710	1,710	1,710 [6]
Chromium^{VI}	11	55	110	550	1,100	1,710 [4]
Copper [10]	11.5	57.5	115	575	1,150	2,070 [6]
Lead [10]	3.16	15.8	31.6	158	316	430 [6]
Mercury [7]	0.012	0.06	0.12	0.6	1.2	2.3 [2]
Nickel [10]	52	260	520	2,380	2,380	2,380 [6]
Selenium	5	25	50	250	408	408 [2]
Silver [10]	4.0	20	40	200	240	240 [6]
Zinc [10]	122	610	1,220	1,480	1,480	1,480 [6]
Iron	1,000	5,000	6,000	6,000	6,000	6,000 [5]
Cyanide	5.2	26	52	260	520	650 [6]

1. Based on Idaho Water Quality Standards for the consumption of water and organisms.
2. Based on 40 CFR 437.42, "Centralized Waste Treatment Point Source Category" BPT.
3. Based on 40 CFR 445.11, "RCRA Subtitle C Landfill" BPT.
4. Assumes hexavalent chromium reduced to trivalent form during treatment.
5. Based on 40 CFR 434.25, "Coal Mining Point Source Category" NSPS.
6. Based on 40 CFR 433 Subpart A, "Metal Finishing Subcategory".
7. Mercury compliance limit = 0.2 µg/l.
8. Based on Idaho Water quality Standards for chronic exposure to aquatic life
9. Based upon Water Pollution Control Federation's Chlorination of Wastewater Guidelines
10. Effluent limit shown for a receiving water hardness of 100 mg/l. Actual limit will be site-specific

Note: Dilution factors shown in Table 6 are inclusive at the end of the range. For example, if the calculated DF is 10.0, the DF is 5, not 10.

In order to receive a mixing zone for the pollutants identified in Tables 5 and 6, a facility must first request that IDEQ (or an affected tribe with approved water quality standards) consider a mixing zone on the NOI as described in Section IV.A.9. In order to be eligible for a mixing zone, the ambient background concentration in the

receiving water must first be below water quality criteria for that pollutant, and the receiving water must not be listed as impaired for that pollutant. Accordingly, the facility must submit at least one representative analysis from an ambient sample collected from the receiving water at a location immediately upstream of the outfall, and include these results on the NOI. In addition, the permittee must calculate a dilution factor (DF) as follows:

DF = (Qd + Qs)/Qd

Where:

DF	=	**Dilution Factor**
Qd	=	**Maximum flow rate of the discharge in cubic feet per second (cfs) (1.0 gpm = .00223 cfs)**
Qs	=	**25% of receiving water 7Q10 flow (in cfs) (or other appropriate critical low flow measure) where,**
7Q10	=	**The minimum flow for 7 consecutive days with a recurrence interval of 10 years**

For Example:

a) A 100 gpm discharge into a stream with 7Q10 = 1 cfs : DF = 2.1
b) A 50 gpm " " " = 1 cfs : DF = 3.2
c) A 25 gpm " " " = 3 cfs : DF = 14.4
d) A 45 gpm " " " = 10 cfs : DF = 25.9

The 7Q10 for a receiving water may be estimated by use of available information such as nearby USGS stream gauging station, by application of certain "flow factors," using historic stream flow data, calculations based on drainage area, information from state water quality offices, or other means. Whichever method is selected, the source of the low flow value(s) used by the applicant must be included on NOI application form. Stream flow data from USGS gauge sites can be downloaded at the following web site: http://nwis.waterdata.usgs.gov/usa/nwis/discharge. In addition, the computer software program DFLOW is a flow analysis tool for calculating 7Q10 and other critical low flow values, and can be downloaded at http://epa.gov/waterscience/dflow/.

Once the DF is calculated, the corresponding maximum effluent limitations for the various pollutants with allowable mixing zones can be obtained from Table 5 or Table 6. As shown on Tables 5 and 6, five separate dilution ranges are available for the permittee based upon the calculated DF. For example, the effluent limit for lead is 3.16 µg/l for dilution factors of 1-5 (inclusive). This means that if the calculated DF is 4.5, the effluent limit is the end-of-pipe limit at 3.16 µg/l, and no mixing zone is provided. Alternatively, if the calculated DF is 11.6, then the lead limit would be 31.6 µg/l using a DF of 10. Dilution factors shown in Tables 5 and 6 are inclusive at the end of the range. For example, if the calculated DF is 10.0, the DF is 5, not 10.

For those metals in which criteria are hardness dependent, Table 6 shows limits based on a default hardness value of 100 mg/l. If a facility is requesting a mixing zone for any of these seven metals, the final effluent limits will be calculated based

on the receiving water hardness, and provided to the facility through the State's individual certification and EPA's authorization to discharge letter.

After the proper information is submitted on the NOI requesting a mixing zone, IDEQ (or an approved tribe) will consider this request, and determine if a mixing zone is appropriate for the particular receiving water. IDEQ (or an approved tribe) will then prepare a decision document in the form an individual section 401 certification that will grant a mixing zone along with the appropriate effluent limits shown in Tables 5 and 6, adjusted for hardness, where appropriate. Alternatively, IDEQ (or an approved tribe) may deny the request for dilution. The IDEQ (or an approved tribe) mixing zone decision document will then be attached to EPA's written authorization to discharge letter that must be received prior to discharging. The decision document from IDEQ (or an approved tribe) functions as a section 401 certification for an individual discharger to use a mixing zone. IDEQ (or an approved tribe) may also require biological information about the receiving water in order to determine if a mixing zone is appropriate.

F. Antidegradation

In addition to technology-based or water quality-based limitations for pollutants that could cause or contribute to exceedances of numeric or narrative criteria, EPA must consider the state's antidegradation policy (found at IDAPA 58.01.02. 051.01) which is reflected in the state's 401 certification of the permit. Under the policy, water bodies are considered Tier 1, 2, or 3.

Tier 1 water are those where the existing instream uses, and the level of water quality necessary to protect the existing uses, must be maintained and protected. The proposed permit would allow discharges to Tier 1 waters as long as the discharge meets the appropriate water quality standards at the point of discharge, prior to mixing with the receiving waters.

Tier 2 High Quality Waters are those where the existing quality exceeds that required to meet the standards. Tier 2 water quality may be lowered to the level of fishable/swimmable and other existing uses if the provisions of 40 CFR 131.12(a)(2) are met which include the finding that lower water quality is necessary to accommodate important economic or social development. Tier 2 waters can only be covered if IDEQ provides a waiver and an individual 401 certification that will be included in EPA's authorization to discharge letter.

Tier 3 Outstanding Resource Waters are high quality waters where only limited activities are allowed. The activities may only result in short term and temporary changes in water quality. Tier 3 waters are excluded from coverage under the proposed permit. Tier 3 waters can only be covered if IDEQ provides a waiver and an individual 401 certification that will be included in EPA's authorization to discharge letter.

The State of Idaho must determine that the proposed permit conditions will not result in degradation of water quality, and are consistent with Idaho's antidegradation policy. If the state determines that the proposed permit conditions will result in degradation of water quality as stated in their water quality standards (IDAPA 58.01.02), then their CWA Section 401 certification of the permit must include more stringent effluent limitations.

VI. MONITORING AND REPORTING REQUIREMENTS

A monitoring program is required to assess the effects of groundwater remediation discharge facilities on the receiving water. Facilities covered by the general permit will be required to submit quarterly Discharge Monitoring Reports (DMR's) to EPA Region 10, the appropriate IDEQ regional office, and any affected tribe.

A. Effluent Monitoring

The following effluent monitoring requirements have been included in the permit pursuant to Section 308(a) of the CWA and 40 CFR 122.44(i), and are required to be conducted in accordance with 40 CFR 136 unless other test procedures have been specified in Attachment C. For example, EPA's *Model NPDES Permit for Discharges Resulting From the Cleanup of Gasoline Released From Underground Storage Tanks* (EPA 1989) specifies that SW-846 analytical methods (i.e., 8260 and 8270) can be used as a substitute for CWA 600 Series Methods specified in 40 CFR 136 when accompanied by proper quality assurance/quality control (QA/QC) documentation. The EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* is EPA's official compendium of analytical and sampling methods approved for use in complying with RCRA regulations, and is available on-line. Approved analytical test methods for use under this permit are identified in Attachment C.

Each of the CWA test methods identified in 40 CFR 136 (or approved SW-846 Methods) has a minimum level (ML) at which it can accurately quantify the target chemical. Attachment C lists approved test methods and the MLs for each pollutant limited by the permit. Where sample concentrations are above the ML, any of the methods listed for that pollutant in Attachment C may be used. However, where approved methods have MLs above the permit limit, the permittee must use the approved method with the lowest possible ML before the concentration is considered non-detectable.

Monitoring frequencies are based upon the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facilities performance. Consideration is also given to the fact that most groundwater remediation facilities in Idaho have additional and separate reporting requirements to the IDEQ Waste Management and Remediation Division.

All groundwater remediation discharge facilities are required to monitor continuously for flow, and quarterly for all other parameters specified in their authorization to discharge letter. Based upon the information reported in the NOI, the facility will also be required to monitor for applicable parameters and pollutants at the point of discharge for compliance with the permit limitations described in Section V of this fact sheet. In general, facilities will be required to monitor for those parameters identified in Attachment B for whichever "site type" most closely matches their facility. After a review of the NOI, EPA will determine the final list of monitoring parameters for which the permittee will be responsible. In some cases, such as when certain pollutants are believed absent in site groundwater, the list of monitoring parameters may be reduced from what is shown on the appropriate Attachment B table. In other circumstances, such as when additional contaminants are present that are not shown on the applicable Attachment B table, the list of monitoring parameters will be extended to include those chemicals. In either case, EPA will inform the facility of their final list of monitoring parameters for the purposes of DMR reporting in the written authorization to discharge letter (i.e., a coverage letter).

For existing facilities that are currently discharging, **quarterly** monitoring and DMR reporting for those parameters identified in the written authorization letter are applicable. For new facilities that have not yet discharged, **monthly** monitoring and DMR reporting will be required for the first quarter (i.e., 3 months), at which point monitoring will become quarterly. Results will be reported to EPA with a copy to the appropriate IDEQ regional office and any affected tribe. Discharge Monitoring Reports should be sent to EPA at the following address:

U.S. EPA Region 10
1200 6th Avenue, OCE-133
Attn: PCS Data Entry Team
Seattle, Washington 98101

Quarterly monitoring must be summarized on DMRs that are postmarked by the 15th of January, April, July and October. For new dischargers reporting monthly for the first quarter, DMRs must be postmarked by the 15th of the following month. For DMR calculations and reporting requirements, analytical test results less than the method detection limit (MDL) shall be reported as "less than (<) MDL number." For results above the MDL, the actual number shall be reported. EPA will use the interim minimum level or the ML as the compliance evaluation level when the permit limit and/or the MDL is below the ML (see Attachment C).

If additional monitoring of any pollutant is performed more frequently than required by the permit, the results of these tests shall be included in the DMR. Furthermore, the permittee must comply with the effluent limits in the general permit at all times, unless otherwise indicated, regardless the of monitoring frequency or reporting requirements of the permit.

B. Whole Effluent Toxicity (WET) Testing

WET tests are laboratory tests that use small vertebrate and invertebrate species, and/or plants, to measure the aggregate toxicity of an effluent. The effluent concentration that results in the death of 50% of test organisms during a 96-hour exposure determines the short-term (acute) toxicity. The highest effluent concentration that causes reduced growth or reduced reproduction of test organisms and/or plants during a 1-week exposure determines the long-term (chronic) toxicity.

Idaho's water quality criteria for WET is based upon the narrative criteria "no toxics in toxic amounts". EPA and the state have interpreted this criterion as one chronic toxicity unit (1 TU_C). Because EPA feels that the proposed general permit limits are protective of aquatic life, chronic WET testing for one year will only be required upon special request by EPA and/or the State. If WET testing is required, it shall be for larval survival, reproduction, and seven day growth using samples at the point-of-discharge. The results shall be submitted to EPA and the State within 30 days of the test.

The presence of toxicity and reporting of results shall be as specified in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Third Edition, EPA/600/4-91/002, July 1994.

VII. QUALITY ASSURANCE REQUIREMENTS

Federal regulation 40 CFR 122.41(e) requires the permittee to develop a Quality Assurance Plan (QAP) to ensure that the monitoring data submitted are accurate and to explain data anomalies if they occur. The draft general permit requires groundwater remediation discharge facilities to complete and implement a QAP within 90 days of their authorization to discharge.

The permittee is required to follow specific sampling procedures (EPA approved quality assurance, quality control, and chain-of-custody procedures described in *Requirements for Quality Assurance Project Plans* (EPA/QA/R-5) ; and *Guidance for Quality Assurance Project Plans* (EPA/QA/G-5) throughout all sample collection and analysis activities to ensure quality data are collected.

The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting.

VIII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act [16 U.S.C. § 1531 *et al.*]

Section 7 of the Endangered Species Act (ESA) requires Federal agencies to consult with the NOAA Fisheries and the USFWS if their actions could

beneficially or adversely affect any threatened or endangered species or critical habitat. EPA has evaluated the draft permit and has made the determination that issuance of the draft general permit will have *no effect* on any threatened, endangered or candidate species, designated critical habitat, or essential fish habitat. Therefore, consultation between EPA and the Services is not required. This determination is based on the exclusion of receiving waters where federally listed threatened, endangered, or candidate species, or designated or proposed critical habitat are present. Other water bodies excluded from permit coverage are described in Section III.C of this fact sheet.

While a groundwater remediation discharge facility may seek a waiver to discharge into excluded waters as described in Section III.D, they must first demonstrate "no degradation or adverse affects of the physical, chemical or biological integrity of the receiving water. This will typically take the form of a BE concluding a *no effect* or a *not likely to adversely affect* determination, and should be submitted to EPA and IDEQ along with the NOI. EPA will then consult with the Services to obtain their comments on the BE, and their concurrence with its effects determination. The waiver will then be provided to the facility as part of the authorization to discharge letter.

In addition to excluded waters, listed species and critical habitat are protected under the draft general permit through effluent limitations that are generally applied at end-of-pipe with no mixing zone. EPA and IDEQ will work with the Services when reviewing NOIs from facilities seeking a waiver to discharge into excluded waters.

B. National Environmental Policy Act [42 U.S.C. § 4321 *et al.*]

Because groundwater remediation facilities have no promulgated effluent limitation guidelines or new source performance standards in title 40 CFR, Environmental Assessments or Environmental Impact Statements are not required under the National Environmental Policy Act (NEPA).

C. State Certification

Section 401 of the Clean Water Act requires EPA to seek certification from the state that the general permit is adequate to meet state water quality standards, including the state antidegradation policy, before issuing the final permit. The Federal regulations at 40 CFR 124.53 allow for the state to stipulate more stringent conditions in the permit, if the certification sites the Clean Water Act or state law upon which that condition is based. In addition, the regulations require a certification to include statements of the extent to which each condition of the permit can be made less stringent without violating the requirements of state law.

EPA is requesting State officials review and provide appropriate certification for the draft general NPDES permit pursuant to 40 CFR 124.53. Furthermore, in

accordance with 40 CFR 124.10(c)(1), public notice of the draft general permit has been provided for the State of Idaho.

The State of Idaho, Department of Environmental Quality, provided EPA with their CWA § 401 draft certification for the draft general permit on May 15, 2006. As described in their draft certification, and in Section III.D of this fact sheet, IDEQ must also provide individual 401 certifications for any waivers to discharge to excluded areas, or for any mixing zones authorized. Such individual certifications will be attached to EPA's written authorization to discharge letter.

D. Environmental Impact Statement Requirements

The general permit does not authorize the construction of any water resources facility or the impoundment of any water body or have any effect on historical property, and are not major federal activities needing preparation of any Environmental Impact Statement. Therefore, the Wild and Scenic Rivers Act, 16 U.S.C. Sections 470 et seq., the Fish and Wildlife Coordination Act, 16 U.S.C. Section 661 et seq., and the National Environmental Policy Act, 33 U.S.C. Section 4321 et seq., do not apply to the issuance of the general NPDES permit.

E. Permit Expiration

This general permit will expire five years from the effective date of the permit.

F. Presidential Oversight of Federal Regulations [Executive Order 12866]

The Office of Management and Budget (OMB) has exempted this action from the review requirements of Executive Order 12866 providing for presidential oversight of the regulatory process pursuant to Section 6 of that order.

G. Economic Impact [Executive Order 12291]

EPA has reviewed the effect of Executive Order 12291 on this draft general permit and has determined that it is not a major rule under that order. This regulation was submitted previously to the OMB for review as required by Executive Order 12291. The OMB has exempted this action from the review requirements pursuant to section 8(b) of that Order.

H. Paperwork Reduction Act [44 U.S.C. § 3501 et seq.]

EPA has reviewed the requirements imposed on regulated facilities in the general NPDES permit under the Paperwork Reduction Act of 1980. The information collection requirements have been approved by the OMB under submissions made for the NPDES permit program and the NPDES permit.

I. The Regulatory Flexibility Act [5 U.S.C. § 601 et seq.]

EPA has concluded that General NPDES permits are permits under the Administrative Procedure Act (APA), 5 U.S.C. § 551 et seq., and thus not subject to APA rulemaking requirements or the Regulatory Flexibility Act.

J. General Provisions

Specific regulatory management requirements for NPDES permits are contained in 40 CFR 122.41. These conditions are included in the general permit as limitations, monitoring and reporting requirements (Part II), compliance responsibilities (Part III), and general requirements (Part IV). Since these conditions are federal regulations, they cannot be challenged in the context of an NPDES permit action.

IX. ACRONYMS

AML	Average monthly limit
APA	Administrative Procedures Act
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BOD	Biochemical Oxygen Demand
BPJ	Best Professional Judgment
BPT	Best Practicable Control Technology Currently Available
CF	Conversion Factor
CFR	Code of Federal Regulations
COCs	Contaminants of Concern
cfs	Cubic feet per second
CV	Coefficient of variation
CWA	Clean Water Act
DF	Dilution Factor
DMR	Discharge monitoring report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FWS	U.S. Fish & Wildlife Service
GAC	Granular activated carbon
HCP	Habitat conservation plan
IDA	Idaho Department of Agriculture
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDWR	Idaho Department of Water Resources
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MDL	Maximum daily limit or Method detection limit
mg/L	Milligrams per liter
MGD	Million gallons per day
ML	Minimum level
MTBE	Methyl Tert-Butyl Ether

NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NFR	Non-Federal representative
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OMB	U.S. Office of Management and Budget
OWW	Office of Water and Watersheds
PAH	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated Biphenyls
POTW	Publicly owned treatment works
PRG	EPA Region 9 Preliminary Remediation Goal
QAP	Quality Assurance Plan
RCRA	Resource Conservation Recovery Act
TPH	Total Petroleum Hydrocarbon
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USC	United States Code
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	Volatile Organic Compounds
WET	Whole effluent toxicity
WLA	Waste load allocation
WQBEL	Water Quality-Based Effluent Limit
µg/L	Micrograms per liter
UIC	Underground Injection Control
UST	Underground Storage Tank

X. DEFINITIONS

7Q10 flow (seven-day, ten year low flow) means the lowest seven day consecutive mean daily stream flow with a recurrence interval of ten years.

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative (40 CFR 122.2).

Air stripping means the treatment process that increases evaporation and volatilization of VOCs from contaminated water by increasing the surface area of the water exposed to air.

Average monthly limits means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month. It may also be referred to as the "monthly average limits"(40 CFR 122.2).

Best Available Technology Economically Achievable (BAT) means the technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT) means the technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

CAS registration number means the number assigned by the Chemical Abstract Service to uniquely identify a chemical.

Carbon adsorption means the treatment of water or air streams by forcing the fluid through activated carbon which strips the organic contaminants from the fluid.

CFR means the Code of Federal Regulations, which is a codification of the final rules published daily in the *Federal Register*.

Composite sample means a flow-proportioned mixture of not less than four discrete representative samples.

Congener means a member of the same kind, class, or group of chemicals.

Conventional pollutant means BOD, TSS fecal coliform bacteria, oil and grease and pH as defined in 40 CFR 401.16.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, 33 U.S.C. 1251 et seq. (40 CFR 122.2).

Daily discharge means the “discharge of a pollutant” measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limits expressed as mass "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day (40 CFR 122.2).

Designated Use means any of the various uses which may be made of the water of Idaho, including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics (IDAPA 16.01.02.003.04).

The *Director* means the Regional Administrator of EPA Region 10, or the State of Idaho DEQ Director, or an authorized representative thereof.

Discharge when used without qualification means the “discharge of a pollutant.”

Discharge Monitoring Report (DMR) means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees (40 CFR 122.2).

Discharge of a pollutant means:
(a) Any addition of any “pollutant” or combination of pollutants to “waters of the United States” from any “point source,” or
(b) Any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.
This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any “indirect discharger” (40 CFR 122.2).

Draft permit means a document prepared under 40 CFR 124.6 indicating the Director's tentative decision to issue or deny, modify, revoke and reissue, terminate, or reissue a “permit” (40 CFR 122.2).

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of “pollutants” which are “discharged” from “point sources” into “waters of the United States,” the waters of the “contiguous zone,” or the ocean (40 CFR 122.2).

Effluent limitations guidelines means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise “effluent limitations.' (40 CFR 122.2).
Excluded Waters means a water not authorized as a receiving water covered under this general NPDES permit.

General permit means an NPDES "permit" issued under Sec. 122.28 authorizing a category of discharges under the CWA within a geographical area. (40 CFR 122.2)

Grab sample means a single sample or measurement taken at a specific time.

Hazardous Material means a material or combination or materials which, when discharged in any quantity into state waters, presents a substantial present or potential hazard to human health, the public health, or the environment (IDAPA 58.01.02.003.49).

Henry's law constant means the coefficient that represents the equilibrium partitioning factor between water and vapor phases. The higher the constant, the more likely the substance is to volatilize.

Indian Country as indicated by 18 USC 1151 means:

a. All land within the limits of any Indian Reservation under the jurisdiction of the US Government not withstanding the issuance of any patent, and including rights-of-way running through the reservation.

b. All dependent Indian communities within the borders of the US whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and

c. All Indian allotments, the Indian titles to which have not been extinguished including right-of-way running through them.

Ion exchange treatment means the use of ion exchange (a reversible process in which an ion in solution in contact with a crystal replaces an ion in the lattice of that crystal) for water softening or other water-treatment processes.

Influent means the point(s) where the water enters the facility or settling pond(s).

Insitu Treatment means groundwater treatment that occurs within the aquifer in contrast to pump and treat or similar systems where groundwater is removed from the aquifer and treated on the surface.

Isomer means compounds that differ in structure but have the same molecular formula.

Maximum means the highest measured discharge or pollutant in a waste stream during the time period of interest.

Maximum daily discharge limitation means the highest allowable "daily discharge" (40 CFR 122.2).

Monthly average limit means the average of "daily discharges" over a monitoring month, calculated as the sum of all "daily discharges" measured during a monitoring month

divided by the number of "daily discharges" measured during that month (40 CFR 122.2).

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA (40 CFR 122.2).

Nonconventional pollutants means all pollutants that are not included in the list of conventional or toxic pollutants in 40 CFR 401. This includes pollutants such as COD, TOC, nitrogen and phosphorous.

Notice of Intent (NOI) means a request, or application, to be authorized to discharge under a general NPDES permit.

Nuisance means anything which is injurious to the public health or an obstruction to the free use, in the customary manner, of any waters of the State (IDAPA 16.01.02.003.65).

Octanol-water partition coefficient (K_{ow}) means the empirical parameter that represents the equilibrium of an organic compound, which represents a generic organic phase, and the aqueous phase.

Outstanding resource water means a high quality water, such as water of national and state parks and wildlife refuges and water of exceptional recreational significance. ORW constitutes as outstanding national or state resource that requires protection from point and nonpoint source activities that may lower water quality (IDAPA 16.01.02.003.70).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Services means the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service (NOAA Fisheries)

Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Sorption means adhesion or release of molecules or ions on a particle surface including all processes associated with adsorption or absorption.

Special resource water means those specific segments or bodies of water which are recognized as needing intensive protection to preserve outstanding or unique characteristics or to maintain current beneficial use (IDAPA 16.01.02.003.95).

Technology-based permit effluent limitation means wastewater treatment requirements under Section 301(b) of the Clean Water Act that represent the minimum level of control that must be imposed in a permit issued under Section 402 of the Clean Water Act (IDAPA 16.01.02.003.102).

Total Maximum Daily Load (TMDL) means a determination of the amount of a pollutant, or property of a pollutant, from point, nonpoint, and natural background sources (including a margin of safety) that may be discharged to a water body without causing the water body to exceed the water quality criterion for that pollutant.

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance.

Vapor Pressure means the measure of the tendency of a substance to pass from the solid or liquid phase to a vapor state at a given pressure. The partial pressure of a vapor.

Waiver means the intentional relinquishment of a right, claim, or privilege.

Water Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended [42 U.S.C. 2011 *et seq*.)], heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Waters of the United States or waters of the U.S. means:
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate “wetlands;”
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) “Wetlands” adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition (40 CFR 122.2).

XI. REFERENCES

EPA. 1989. Model NPDES Permit for Discharges Resulting From the Cleanup of Gasoline Released From Underground Storage Tanks. Office of Water. June 1989

EPA. 1991. Technical Support Document for Water Quality-Based Toxics Control. U.S. Environmental Protection Agency, Office of Water, EPA/505/2-90-001, March 1991.

EPA. 1996. U.S. EPA NPDES Permit Writers' Manual. U.S. Environmental Protection Agency, Office of Water, EPA/833/B-96-003, March 1991.

EPA. 2002. Region 9 Preliminary Remediation Goals Table, 2002 Update. October 1, 2002.

EPA. SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

IDEQ. 1997 Idaho Risk Based Corrective Action Guidance Document for Petroleum Releases.

IDEQ. 2004. Idaho Risk Evaluation Manual. July 2004

ATTACHMENT A

EFFLUENT LIMITATIONS

Table A-1. Effluent Limitations for Indicator Chemicals

Parameter	Effluent Limit & Basis	Limit Type	Sample Type
1. Total Suspended Solids (TSS)	30.0 mg/l (Technology)	daily maximum	grab
2. Total Residual Chlorine	11 µg/l [1] (Water Quality)	daily maximum	grab
3. Total Petroleum Hydrocarbons (TPH)	5.0 mg/l (Technology)	daily maximum	grab
4a. Benzene	1.2 µg/l (Water Quality)	daily maximum	grab
4b. Total BTEX [2]	100 µg/l (Technology)	daily maximum	grab
5. Ethylene Dibromide (EDB)	0.05 µg/l (Technology)	daily maximum	grab
6. Methyl-tert-Butyl Ether (MTBE)	30.0 µg/l (Technology)	daily maximum	grab
7. Naphthalene	100 µg/l [3] (Technology)	daily maximum	grab
8a. Carbon Tetrachloride	0.25 µg/l [7] (Water Quality)	daily maximum	grab
8b. 1,4 Dichlorobenzene (p-DCB)	75 µg/l (Technology)	daily maximum	grab
8c. 1,2 Dichlorobenzene (o-DCB)	600 µg/l (Technology)	daily maximum	grab
8d. 1,3 Dichlorobenzene (m-DCB)	5.5 µg/l (Technology)	daily maximum	grab
8e. 1,1 Dichloroethane (DCA)	810 µg/l (Technology)	daily maximum	grab
8f. 1,2 Dichloroethane (DCA)	0.38 µg/l [7] (Water Quality)	daily maximum	grab
8g. 1,1 Dichloroethylene (DCE)	0.057 µg/l [7] (Water Quality)	daily maximum	grab
8h. cis-1,2 Dichloroethylene (DCE)	70 µg/l (Technology)	daily maximum	grab
8i. Dichloromethane (Methylene Chloride)	4.7 µg/l (Water Quality)	daily maximum	grab
8j. Tetrachloroethylene (PCE)	0.8 µg/l (Water Quality)	daily maximum	grab
8k. 1,1,1 Trichloroethane (TCA)	200 µg/l (Technology)	daily maximum	grab
8l. 1,1,2 Trichloroethane (TCA)	0.6 µg/l (Water Quality)	daily maximum	grab
8m. Trichloroethylene (TCE)	2.7 µg/l (Water Quality)	daily maximum	grab
8n. Vinyl Chloride (Chloroethene)	2.0 µg/l (Technology)	daily maximum	grab
9. Pentachlorophenol (PCP)	0.28 µg/l (Water Quality)	daily maximum	grab
10. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	1.8 µg/l [8] (Water Quality)	daily maximum	grab
11a. Benzo(a) Anthracene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab
11b. Benzo(a) Pyrene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab
11c. Benzo(b)Fluoranthene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab
11d. Benzo(k)Fluoranthene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab

Table A-1. Effluent Limitations for Indicator Chemicals

Parameter	Effluent Limit & Basis	Limit Type	Sample Type
11e. Chrysene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab
11f. Dibenzo(a,h)anthracene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab
11g. Indeno(1,2,3-cd) Pyrene	0.0028 µg/l [4] (Water Quality)	daily maximum	grab
11h. Total Group II Polycyclic Aromatic Hydrocarbons (PAHs)	200 µg/l (Technology)	daily maximum	grab
11i. Acenaphthene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11j. Acenaphthylene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11k. Anthracene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11l. Benzo(ghi) Perylene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11m. Fluoranthene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11n. Fluorene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11o. Naphthalene	100 µg/l (Technology)	daily maximum	grab
11p. Phenanthrene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
11q. Pyrene	(200 µg/l total Group II PAHs) (Tech)	daily maximum	grab
12. Total Polychlorinated Biphenyls (PCBs	0.00017 µg/l [5] (Water Quality)	daily maximum	grab
13a. Antimony	5.6 µg/l (Water Quality)	daily maximum	grab
13b. Arsenic	10 µg/l (Technology)	daily maximum	grab
13c. Cadmium [6]	1.1 µg/l (Water Quality)	daily maximum	grab
13d. Chromium III (trivalent) [6]	86 µg/l (Water Quality)	daily maximum	grab
13e. Chromium VI (hexavalent)	11 µg/l (Water Quality)	daily maximum	grab
13f. Copper [6]	11.5 µg/l (Water Quality)	daily maximum	grab
13g. Lead [6]	3.16 µg/l (Water Quality)	daily maximum	grab
13h. Mercury	0.012 µg/l (Water Quality)	daily maximum	grab
13i. Nickel [6]	52 µg/l (Water Quality)	daily maximum	grab
13j. Selenium	5.0 µg/l (Water Quality)	daily maximum	grab
13k. Silver [6]	4.0 µg/l (Water Quality)	daily maximum	grab
13l. Zinc [6]	122 µg/l (Water Quality)	daily maximum	grab
13m. Iron	1,000 µg/l (Water Quality)	daily maximum	grab
14. Cyanide	5.2 µg/l (Water Quality)	daily maximum	grab

1.	Although the maximum values for total residual chlorine is 11 µg/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Attachment D (i.e., 100 µg/l).
2.	BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.
3.	Naphthalene can be reported as both a purgeable (VOC) and extractable (SVOC) organic compound. The highest reported value should be used.
4.	Although the maximum value for the individual Group I PAH compounds is 0.0028 µg/l, the compliance limits are equal to the minimum level (ML) of the test method used as listed in Attachment C.
5.	Although the maximum value for total PCBs is 0.00017g/l, the compliance limit is equal to the minimum level (ML) of the test method used as listed in Attachment C (i.e., 0.5 µg/l).
6.	Criteria are hardness dependent. Limit shown represents a default hardness value of 100 mg/l.
7.	Compliance limit of 0.5 µg/l is set equal to the minimum level (ML) in Attachment C.
8.	Compliance limit of 5.0 µg/l is set equal to the minimum level (ML) in Attachment C
Note:	If contaminants of concern are present at the site, but not identified in this table, these pollutants and their influent/effluent concentrations must be provided on the NOI.

ATTACHMENT B

CONTAMINANT SUBCATEGORIES

Table B-1. Gasoline Only Cleanup Sites

Pollutants To Be Monitored	Effluent Limit	Limit Type	Sample Type
Benzene	1.2 µg/l	daily maximum	grab
Total BTEX	100 µg/l	daily maximum	grab
Naphthalene	100 µg/l	daily maximum	grab
Ethylene dibromide	0.05 µg/l	daily maximum	grab
Methyl-t-Butyl Ether (MTBE)	30 µg/l	daily maximum	grab
Total Suspended Solids (TSS)	30.0 mg/l	daily maximum	grab
Total Petroleum Hydrocarbon (TPH)	5.0 mg/l	daily maximum	grab
Lead [1]	3.16 µg/l	daily maximum	grab
Iron	1,000 µg/l	daily maximum	grab

1. Criteria are hardness dependent. Limit shown represents a default hardness value of 100 mg/l.

Table B-2. Fuel Oils (and Other Oils) Only Sites

Pollutants To Be Monitored	Effluent Limit	Limit Type	Sample Type
TPH	5.0 mg/l	daily maximum	grab
Naphthalene	100 µg/l	daily maximum	grab
Polycyclic Aromatic Hydrocarbons (PAHs)	See Attachment A (#'s 11a - 11q)	daily maximum	grab
Benzene	1.2 µg/l	daily maximum	grab
BTEX	100 µg/l	daily maximum	grab
Nickel [1]	52 µg/l	daily maximum	grab
Chromium III (trivalent)	86 µg/l	daily maximum	grab
Chromium VI (hexavalent)	11 µg/l	daily maximum	grab
Zinc [1]	122 µg/l	daily maximum	grab
Iron	1,000 µg/l	daily maximum	grab

1. Criteria are hardness dependent. Limit shown represents a default hardness value of 100 mg/l.

Table B-3. Mixed Petroleum Sites Containing Other Contaminants

Pollutants To Be Monitored	Effluent Limit	Limit Type	Sample Type
All pollutants listed in Attachment A	See Attachment A	See Attachment A	grab

Table B-4. VOC Only Sites

Pollutants To Be Monitored	Effluent Limit	Limit Type	Sample Type
Carbon Tetrachloride	0.25 µg/l	daily maximum	grab
1,4 Dichlorobenzene (p-DCB)	75 µg/l	daily maximum	grab
1,2 Dichlorobenzene (o-DCB)	600 µg/l	daily maximum	grab
1,3 Dichlorobenzene (m-DCB)	5.5 µg/l	daily maximum	grab
1,1 Dichloroethane (DCA)	810 µg/l	daily maximum	grab
1,2 Dichloroethane (DCA)	0.38 µg/l	daily maximum	grab
1,1 Dichloroethylene (DCE)	0.057 µg/l	daily maximum	grab
cis-1,2 Dichloroethylene (DCE)	70 µg/l	daily maximum	grab
Dichloromethane (Methylene Chloride)	4.7 µg/l	daily maximum	grab
Tetrachloroethylene (PCE)	0.8 µg/l	daily maximum	grab
1,1,1 Trichloroethane (TCA)	200 µg/l	daily maximum	grab
1,1,2 Trichloroethane (TCA)	0.6 µg/l	daily maximum	grab
Trichloroethylene (TCE)	2.7 µg/l	daily maximum	grab
Vinyl Chloride (Chloroethene)	2.0 µg/l	daily maximum	grab
TPH	5.0 mg/l	daily maximum	grab
Pentachlorophenol	1.0 µg/l	daily maximum	grab
Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	6.0 µg/l	daily maximum	grab
BTEX	100 µg/l	daily maximum	grab
Iron	1,000 µg/l	daily maximum	grab

Table B-5. VOC Sites With Other Contaminants

Pollutants To Be Monitored	Effluent Limit	Limit Type	Sample Type
All pollutants listed in Attachment A	See Attachment A	See Attachment A	grab

Table B-6. Sites Containing Primarily Metals

Pollutants To Be Monitored	Effluent Limit	Limit Type	Sample Type
All metals listed in Attachment A	See Attachment A	See Attachment A	grab
All organic contaminants listed in Attachment A potentially present.	See Attachment A	See Attachment A	grab
Total Suspended Solids (TSS)	30.0 mg/l	daily maximum	grab

Note: All groundwater remediation facilities will be required to monitor for flow, TSS and pH.

ATTACHMENT C

MINIMUM LEVELS

Table C-1. Minimum Levels

PARAMETER (CAS #)	Minimum Levels and Test Methods [1, 2, 3]				
	GC	GCMS	LC	FAA	Other
Total Suspended Solids (TSS)					5 mg/l Method 160.2
Total Residual Chlorine (TRC)					Method 330.4, 100 µg/l; Method 330.5 20µg/l
Total Petroleum Hydrocarbons (TPH)					5 mg/l Method 1664
Benzene (B) - 71432 -	0.5 ug/l Method 602	2 ug/l Method 624			Method 8260C [2]
Total BTEX	0.5 ug/l Method 602	2 ug/l Method 624			Method 8260C [2]
Ethylene Dibromide (EDB) (1,2- Dibromoethane) - 106934 -	1.0 ug/l , Method 618; 0.01 ug/l Method 504.1	0.1 ug/l Methods 524.2 & 1624			Method 8260C [2]
Methyl-tert-Butyl Ether (MTBE)	0.5 µg/l Method 602 [4]	5.0 ug/l Method 524.2			Method 8260C [2]
Naphthalene - 91203 -	10 ug/l Method 610 GC/FID	2 ug/l Method 625 5 ug/l, Method 524.2	0.2 ug/l Method 610 HPLC		Method 8260C [2] Method 8270D [3]
Carbon Tetrachloride - 56235 -	0.5 ug/l Method 601	2 ug/l Methods 624,1624			Method 8260C [2]
1,4 Dichlorobenzene (p-DCB) - 106467 -	0.5 ug/l Methods 601, 602	2 ug/l Methods 624, 625			Method 8260C [2]
1,2 Dichlorobenzene (o-DCB) - 95501 -	0.5 ug/l Methods 601, 602	2 ug/l Methods 624, 625			Method 8260C [2]
1,3 Dichlorobenzene (m-DCB) - 541731 -	0.5 ug/l Methods 601, 602	2 ug/l Methods 624, 625			Method 8260C [2]
1,1 Dichloroethane (DCA) - 75343 -	0.5 ug/l Method 601	1 ug/l Method 624			Method 8260C [2]
1,2 Dichloroethane (DCA)- 107062 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
1,1 Dichloroethylene (DCE) - 75354 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]

Table C-1. Minimum Levels

PARAMETER (CAS #)	Minimum Levels and Test Methods [1, 2, 3]				
	GC	GCMS	LC	FAA	Other
cis-1,2 Dichloro-ethylene (DCE) -156592-	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
Dichloromethane (Methylene Chloride)- 75092 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
Tetrachloroethylene (PCE) - 127184 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
1,1,1 Trichloro-ethane (TCA) - 71556 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
1,1,2 Trichloro-ethane (TCA) - 79005 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
Trichloroethylene (TCE) - 79016 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
Vinyl Chloride - 75014 -	0.5 ug/l Method 601	2 ug/l Method 624			Method 8260C [2]
Pentachlorophenol (PCP) - 87865 -	1.0 ug/l Method 604 GCFID	5 ug/l Methods 625, 1625			Method 8270D [3]
Bis (2-Ethylhexyl) Phthalate - 117817 -	10 ug/l Method 606	5 ug/l Method 625			Method 8270D [3]
Benzo(a) Anthracene -56553-	10 ug/l Method 610 GC	5 ug/l Method 625	0.05 ug/l Method 610 HPLC		Method 8270D [3]
Benzo(a) Pyrene -50328 -		10 ug/l Method 625	0.1 ug/l Method 610 HPLC		Method 8270D [3]
Benzo(b)Fluoranthene - 205992 -		10 ug/l Method 625	0.05 ug/l Method 610 HPLC		Method 8270D [3]
Benzo(k)Fluoranthene - 207089 -		10 ug/l Method 625	0.1 ug/l Method 610 HPLC		Method 8270D [3]
Chrysene - 218019 -		10 ug/l Method 625	1 ug/l Method 610 HPLC		Method 8270D [3]

Table C-1. Minimum Levels

PARAMETER (CAS #)	Minimum Levels and Test Methods [1, 2, 3]				
	GC	GCMS	LC	FAA	Other
Dibenzo(a,h) anthracene		10 ug/l Method 625	0.1 ug/l Method 610 HPLC		Method 8270D [3]
Indeno(1,2,3-cd) Pyrene - 193395 -		10 ug/l Method 625	0.15 ug/l Method 610		Method 8270D [3]
Acenaphthene - 83329 -	1 ug/l Method 610 GC/FID	1 ug/l Method 625	0.5 ug/l Method 610 HPLC		Method 8270D [3]
Acenaphthylene - 208968 -		10 ug/l Method 625	0.2 ug/l Method 610 HPLC		Method 8270D [3]
Anthracene - 120127 -		10 ug/l Method 625	2 ug/l Method 610 HPLC		Method 8270D [3]
Benzo(ghi) Perylene - 191242 -		5 ug/l Method 625	0.1 ug/l Method 610 HPLC		Method 8270D [3]
Fluoranthene - 206440 -	10 ug/l Method 610 GC/FID	1 ug/l Method 625	0.5 ug/l Method 610 HPLC		Method 8270D [3]
Fluorene - 86737 -		10 ug/l Method 625	0.1 ug/l Method 610 HPLC		Method 8270D [3]
Naphthalene - 91203 -	10 ug/l Method 610 GC/FID	2 ug/l Method 625 5 ug/l, Method 524.2	0.2 ug/l Method 610 HPLC		Method 8270D [3] Method 8260C [2]
Phenanthrene - 85018 -		5 ug/l Method 625	0.05 ug/l Method 610 HPLC		Method 8270D [3]
Pyrene - 129000 -		10 ug/l Method 625	0.05 ug/l Method 610 HPLC		Method 8270D [3]
Total Polychlorinated Biphenyls (PCBs)	0.5 ug/l Method 608				Method 8082 Method 1668A

METALS	Flame AA	ICP	Furnace AA	Other
Antimony	200 ug/l	50 ug/l	5 ug/l	
Arsenic		5 ug/l	2 ug/l	
Cadmium	10 ug/l	5 ug/l	0.5 ug/l	
Chromium (total)	50 ug/l Method 218.8	10 ug/l Method 200, 1620	5 ug/l Method 200.9	50 µg/l
Chromium VI (hexavalent)				10 µg/l Method 218.6, 1636
Copper	20 ug/l	5 ug/l	3 ug/l	
Lead	100 ug/l	40 ug/l	3 ug/l	
Mercury (cold vapor)				0.2 ug/l
Nickel	30 ug/l	10 ug/l	5 ug/l	
Selenium		50 ug/l	5 ug/l	
Silver	50 ug/l	10 ug/l	2 ug/l	
Zinc	30 ug/l	10 ug/l		
Iron		Method 6010B, 200.7 [5]		
Cyanide (CN) - 57125 -				5 ug/l Method 335.3

Notes: GC - Gas Chromatography; GCMS - Gas Chromatography/Mass Spectrometry; LC - High Pressure Liquid Chromatography; FAA - Flame Atomic Absorption; ICP - Inductively Coupled Plasma; HPLC - High Purity Liquid Chromatography.

3. Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory determined method detection limit (MDL) by 3.18 (see 40 CFR part 136, Appendix B). Where the ML is listed but a test method is not specified, the permittee may use any of the available methods approved under 40 CFR 136, including alternatives approved by this permit that meet the ML. For further information, see EPA's *Methods and Guidance for the Analysis of Water* at www.epa.gov/waterscience/methods/. Where test methods are specified but no ML is identified for that method, the lowest ML for listed methods must be used before the concentration can be considered "non-detect".

4. For measuring the concentration of volatile organic compounds, Method 8260C (or the latest version) may be used as a substitute for CWA Methods 524.2, 602, 624, or 1624. Method 8260C must be preceded by Method 5030 as the preparation method. Any method changes must be accompanied by documented QA/QC test results to prove that the analytical measuring process can achieve the lower detection limit of Method 8260C.

5. For measuring the concentration of semivolatile organic compounds (including PAHs), Method 8270D may be used as a substitute for CWA Methods 610, 625, or 1625. Method 8270D must be preceded by Method 3535 or Method 3520C as the sample preparation method. In either case, the QC requirements of Method 3500B must be taken into account. The sample preparation method must be specified with the data analysis records. Method 8270D may be modified to provide lower detection limits using Selected Ion Monitoring (SIM). Any method changes must be accompanied by documented QA/QC test results to prove that the analytical process can achieve the lower detection limits of Method 8270D.

6. For measuring fuel oxygenates, Method 602 must be modified to include a heated purge.

7. Methods 6010b and 200.7 for metals may only be used when the sample is prepared with the SW-846 digestion method, Method 3010.

ATTACHMENT D

EXISTING GROUNDWATER REMEDIATION FACILITIES WITH NPDES PERMIT NUMBERS

Table D-1. Existing Groundwater Remediation Facilities with NPDES Permit Numbers

Name	Owner/Operator	Location	Permit No.	Status
Idaho Falls Pole Yard	PacifiCorp	Idaho Falls	ID-002656-5	Permit active / administratively extended
Franklin United	United oil	Caldwell	ID-002738-3	Permit never issued
Boise Towne Square Mall	Univar USA	Boise	ID-002785-5	Permit never issued
Walla Walla Shopping Center (aka Westpark site)	Univar USA	Boise	ID-002751-1	Permit never issued

Notes:

1. Each of these facilities is required to submit an NOI for coverage under the general permit within 90 days of the effective date of the permit.
2. The Boise Towne Square Mall and the Westpark site are treating different portions of the same groundwater contamination plume but discharge through separate outfalls. Univar also has a third outfall associated with this plume that has not been issued an NPDES number. NOIs should be submitted for all three outfalls.