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# Superfund Record of Decision:

## Libby Ground Water, MT

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<b>TECHNICAL REPORT DATA</b> <i>(Please read instructions on the reverse before completing)</i>		
1. REPORT NO. EPA/ROD/R08-86/006	2.	3. RECIPIENT'S ACCESSION NO.
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	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report	
	14. SPONSORING AGENCY CODE 800/00	
15. SUPPLEMENTARY NOTES		
16. ABSTRACT <p>The Libby Ground Water Contamination site, in the northwest corner of Montana, consists of Champion International Corporation's active lumber and plywood mill, the City of Libby, and surrounding developed but unincorporated areas. The Champion lumber and plywood mill was owned and operated by the J. Nells Lumber Company from 1946-1957, and by St. Regis Company from 1957-1985. Abandoned wood treating operations on the mill property are the source of ground water contamination. Between 1946 and 1969, wood treating fluids were disposed of and spilled at several different mill locations; waste water, formed as vapor in the retorts, was placed in onsite waste pits; and tank bottom sludges from wood treating fluid tanks were periodically removed and hauled to the waste pits. In addition, spills of treating fluid occurred onsite. In 1979, shortly after installation of private wells, some homeowners detected the presence of a creosote odor, and EPA monitoring in 1981 confirmed ground water contamination. Based on 1984 well sample results, Champion implemented the Buy Water Plan. Under this program, individuals with contaminated ground water wells agree to cease using their well and use water from the public water system operated by the City of Libby. Champion, providing monetary compensation to the wellowners to pay for this metered water, also caps and locks the previously operating wells. The program, indefinite in term, would be terminated upon the elimination of the threat of contamination, if the well owner (See Attached Sheet)</p>		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field:Group
Record of Decision Libby Ground Water, MT Contaminated Media: sw, soil Key contaminants: VOCs, organics, PAHs		
18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report) None	21. NO. OF PAGES 81
	20. SECURITY CLASS (This page)	22. PRICE

16. ABSTRACT (continued)

provides a written termination notice, or if other alternatives become available. The primary contaminants of concern include: VOCs; PAHs, PCP, organics, inorganics, heavy metals, and creosote.

The selected remedial action for this first operable unit includes the continuation and expansion of the Buy Water Plan sponsored by Champion and the enactment of an ordinance which prohibits installation of new wells for human consumption and irrigation, but would allow well installation for use in closed systems. The estimated capital cost for this remedy is \$152,000 with annual O&M costs of \$64,000, both to be paid by Champion. Federal funds will be required for oversight of Champion's actions at an estimated annual cost of \$20,000.

RECORD OF DECISION  
ROD ISSUES ABSTRACT  
SUMMARY OF REMEDIAL ALTERNATIVE SELECTION  
COMMUNITY RELATIONS RESPONSIVENESS SUMMARY  
ADMINISTRATIVE ORDER ON CONSENT, DOCKET NO. CERCLA-VIII-83-03

FIRST OPERABLE UNIT  
LIBBY GROUND WATER CONTAMINATION SITE  
LIBBY, MONTANA

SEPTEMBER 19, 1986

RECORD OF DECISION  
REMEDIAL ALTERNATIVE SELECTION FOR FIRST OPERABLE UNIT

SITE

Libby Ground Water Contamination Site  
Libby, Montana

DOCUMENTS REVIEWED

I am basing my decision primarily on the following documents describing the analysis of the cost and effectiveness of the remedial alternatives for the first operable unit of the Libby, Montana Ground Water Contamination Site:

- o Phase IV Remedial Investigation Report, Libby, Montana Ground Water Contamination Site, dated July 1986 and prepared by Woodward-Clyde Consultants for Champion International Corporation
- o Feasibility Study for the First Operable Unit Libby, Montana Ground Water Contamination Site, dated July 1986 and prepared by Woodward-Clyde Consultants for Champion International Corporation
- o Summary of Remedial Alternative Selection
- o Responsiveness Summary
- o Staff Briefing Paper
- o Administrative Order on Consent, Docket No. CERCLA VIII-83-03, October 18, 1983

DESCRIPTION OF SELECTED REMEDY FOR FIRST OPERABLE UNIT

The remedy selected for the first operable unit will reduce human exposure to contaminated ground water. It consists of 2 parts: (1) the continuation and the expansion of the Buy Water Plan instituted by Champion International in 1985 to eliminate exposure to existing contaminated wells; and (2) passage by the City of Libby of a local ground water well installation ordinance.

The Buy Water Plan is an agreement whereby individuals with detectable contaminants in their ground water wells agree to cease using their well, and instead use water from the public water system operated by the City of Libby. The well owner also allows Champion to cap and lock the well. Champion provides monetary compensation to the well owners to pay for costs incurred by using metered public water instead of well water. The source of the public water supply is uncontaminated surface water from an upstream reservoir on Flower Creek.

The local ordinance is in the form of a city-wide well permit system. The permit system precludes the installation of new wells for human consumption and irrigation. Violation of the ordinance is punishable by fine up to \$500.00 and imprisonment up to 6 months.

On July 21, 1986, the City passed the above ordinance on a 90-day emergency basis. This allowed the ordinance to take effect during the 1986 irrigation season. The City has begun the procedural steps necessary to make this a permanent ordinance.

The primary reason for installation of new wells by Libby residents has been to avoid the increasing costs of city water. Water use is highest in the summer lawn and garden irrigation season. In order to provide an incentive for Libby residents to comply with the new ordinance, Champion has entered into an agreement with the City to provide free irrigation water to Libby residents. Champion pays the City directly for a fixed amount of irrigation water per household.

In order to achieve effective implementation, the following conditions must also be part of the remedy:

- (1) If it becomes necessary, Champion must take steps to insure that sufficient water to meet the demands of the Buy Water Plan and the free irrigation water agreement is available until the final remedy is effective;
- (2) The city water system must be tested for all contaminants of concern to demonstrate that it is not contaminated from some other source;
- (3) Champion must continue to monitor wells within and outside of the city limits (including in West Libby) for changes or movement of the plume boundary. If additional wells become contaminated, the recommended remedy should be extended to the owners of those wells;
- (4) Champion must establish a part-per-trillion (ppt) monitoring program for PAH in wells on the fringes of the current plume boundary. A detection limit of 2 ppt or less would be sufficient to demonstrate whether PAH water quality was below the  $1 \times 10^{-6}$  carcinogenic risk level of the Ambient Water Quality Criteria for PAH. If additional wells are found to be contaminated above the  $1 \times 10^{-6}$  risk level, the recommended remedy must be extended to these well owners;
- (5) Without prior written approval from EPA, Champion must not consent to a change in its written agreement with the City to provide free irrigation water to Libby water users;
- (6) Until the final site remedy is complete and effective, for those well owners who decline or discontinue participation in the Buy Water Plan Agreement, Champion must notify the well owner by certified mail that he/she has been offered the agreement, but has declined to participate. A copy of the notification must be sent to EPA;
- (7) Until the final site remedy is complete and effective, Champion must demonstrate annually that all new residents who purchase properties with contaminated wells have been offered the Buy Water Plan agreement in accordance with condition (6) above;

- (8) By matching available public records (such as water service connections and land ownership records), Champion must demonstrate that all residents who do not have water service connections have been offered the Buy Water agreement in accordance with condition (6) above;
- (9) The recommended alternative provides an interim remedy, and its approval assumes that the final remedy will adequately restore ground water quality. If such restoration is determined not to be possible, the first operable unit remedy must undergo substantial improvement or modification before EPA could approve it as a final remedy.

Under the selected remedy, no Federal funds will be requested for operation and maintenance requirements, as Champion will undertake the remedy. However, Federal funds will be necessary to provide for oversight of Champion's activities until the final remedy is effective.

#### DECLARATIONS

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300), I have determined that, as a first operable unit, the Buy Water Plan With Ordinance at the Libby, Montana Ground Water Contamination Site is a cost-effective remedy, is consistent with a permanent remedy, and as a first operable unit provides protection of public health, welfare, and the environment.

The State of Montana has been consulted and agrees with the approved remedy.

I have determined that the selected remedy is only an interim remedy. I have also determined that the action being taken is a cost-effective alternative when compared to the other remedial options reviewed.

Champion recognizes that further remedial action may be required, and is currently undertaking additional remedial investigation and feasibility studies to evaluate alternatives for final site remediation involving control of contaminant migration and contaminant removal. If additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial action(s) for remaining operable unit(s).

Sept 26, 1986  
Date

Alexander B. Smith  
John G. Welles  
Regional Administrator

#### Attachments:

ROD Issues Abstract  
Summary of Remedial Alternative Selection  
Community Relations Responsiveness Summary  
Administrative Order on Consent

## IS AND RESOLUTION

The City of Libby also considered prohibiting the use of existing wells, but counsel for the City advised against such action based upon concerns of inverse condemnation and other taking issues. The "Buy Water" agreement affords adequate protection to those well owners who sign the agreement. Well owners have been informed many times individually and via public meetings, mass mailings, and the media of the existence of contamination, and have been advised by EPA, Champion, the City, and the county sanitarian not to use the ground water. Therefore, it is reasonable to assume that any well owners who do not sign the agreement will have made an informed decision.

Key Words: Water rights, Inverse condemnation

Due to limited city and county resources, enforcement is not expected to play a large part in compliance with the city ordinance restricting well installation. However, the "free irrigation water" incentive is expected to result in a high level of voluntary compliance, as the cost of city water is the primary reason Libby residents have installed wells.

Key Words: Institutional controls

This remedy provides an interim remedy, and simply breaks the exposure link between Libby residents and contaminated ground water. It is anticipated that this remedy will no longer be needed when final remediation is complete and effective. Champion is currently conducting the RI studies necessary to support an FS for aquifer restoration and soil cleanup to complete the site response.

Key Words: Alternate water supply, Temporary remedial alternative, Operable unit, Ground water, Carcinogenic compounds, PAH



## SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

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SUMMARY OF REMEDIAL ALTERNATIVE SELECTION  
LIBBY MONTANA GROUND WATER CONTAMINATION SITE

SITE LOCATION AND DESCRIPTION

The Libby Ground Water Contamination Site is located in and near the city of Libby in the northwest corner of Montana (See Figure 1). The site is located in a glacial valley at an elevation of 2100 feet MSL, surrounded by mountains rising to elevations of over 4500 feet.

The site is bounded on the north by the Kootenai River, on the east by Libby Creek, and on the west by Flower Creek. The site consists of Champion International Corporation's lumber and plywood mill, the City of Libby, and surrounding developed but unincorporated areas (See Figure 2). The Champion mill property, the only known source of the contamination, borders the City of Libby on the east and southeast.

The City of Libby had a 1980 census population of 2748, and the surrounding unincorporated areas had a population of 8212. The entire city is contained within a 1.75 mile radius of the on-plant source areas.

The City obtains its public water supply from a reservoir on Flower Creek, about 3 miles upstream from the site. Ground water is contained within the alluvial material of the Kootenai River, and Libby and Flower Creeks.

SITE HISTORY

Champion presently operates an active lumber and plywood mill on the site. The mill was owned and operated by the J. Neils Lumber Company from 1946-1957, by St. Regis Company from 1957-1985, and is currently owned by Champion International Corporation.

Abandoned wood treating operations on the mill property are the source of the ground water contamination. The wood treating operations began in 1946 and ceased in 1969. Wood treating fluids are known to have been disposed of and spilled at several different locations at the mill during the early operation of the plant. Waste water, formed as vapor in the retorts, was placed in on-site waste pits. The waste water was estimated to be 95 percent water, 3 percent light oil fractions and 2 percent creosote. Tank bottom sludges from wood treating fluid tanks were periodically removed and hauled to the waste pits. In addition to the waste pit operations, spills of treating fluid are known to have occurred in the tank farm area and the butt dip tank. Each of these areas was located near the wood treating retort plant. The retort plant and related facilities were removed shortly after termination of wood treating operations in 1969, and the areas were backfilled and graded.

In 1979, installation of private wells and consumptive use of ground water increased, due in part to a rate increase for the town water supply. The primary purpose of the new wells was for lawn/garden irrigation and heat pump uses. Although most well owners are also connected to the city water system and purchase metered water from the city, some well owners are not connected, and derive all their water from their well.

Shortly after installation, some homeowners detected a creosote odor from their wells. Subsequent field monitoring by the EPA in June 1981

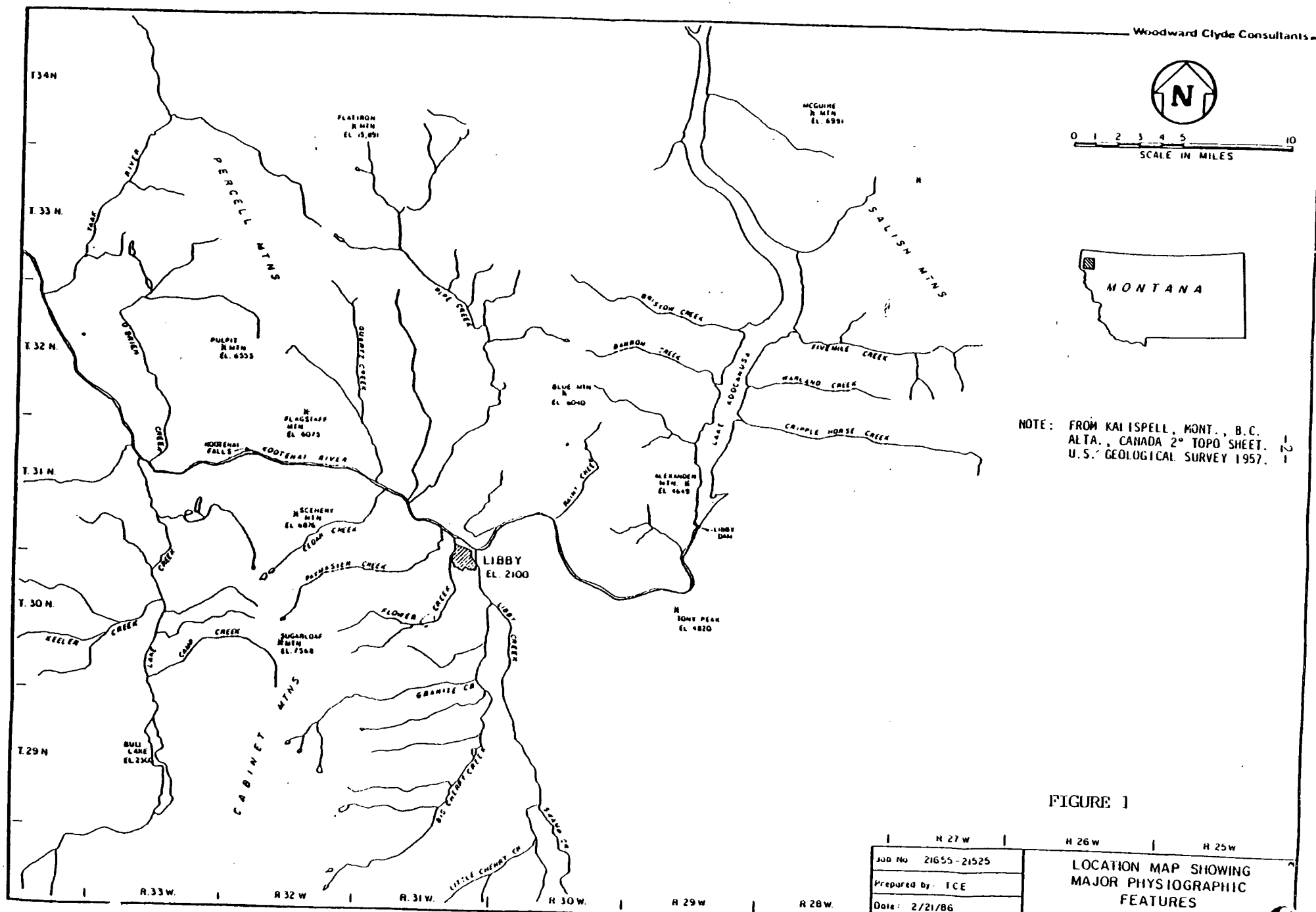


FIGURE 1

R 27 W		R 26 W	R 25 W
JOB No 21655-21525		LOCATION MAP SHOWING MAJOR PHYSIOGRAPHIC FEATURES	
Prepared by: TCE			
Date: 2/21/86			

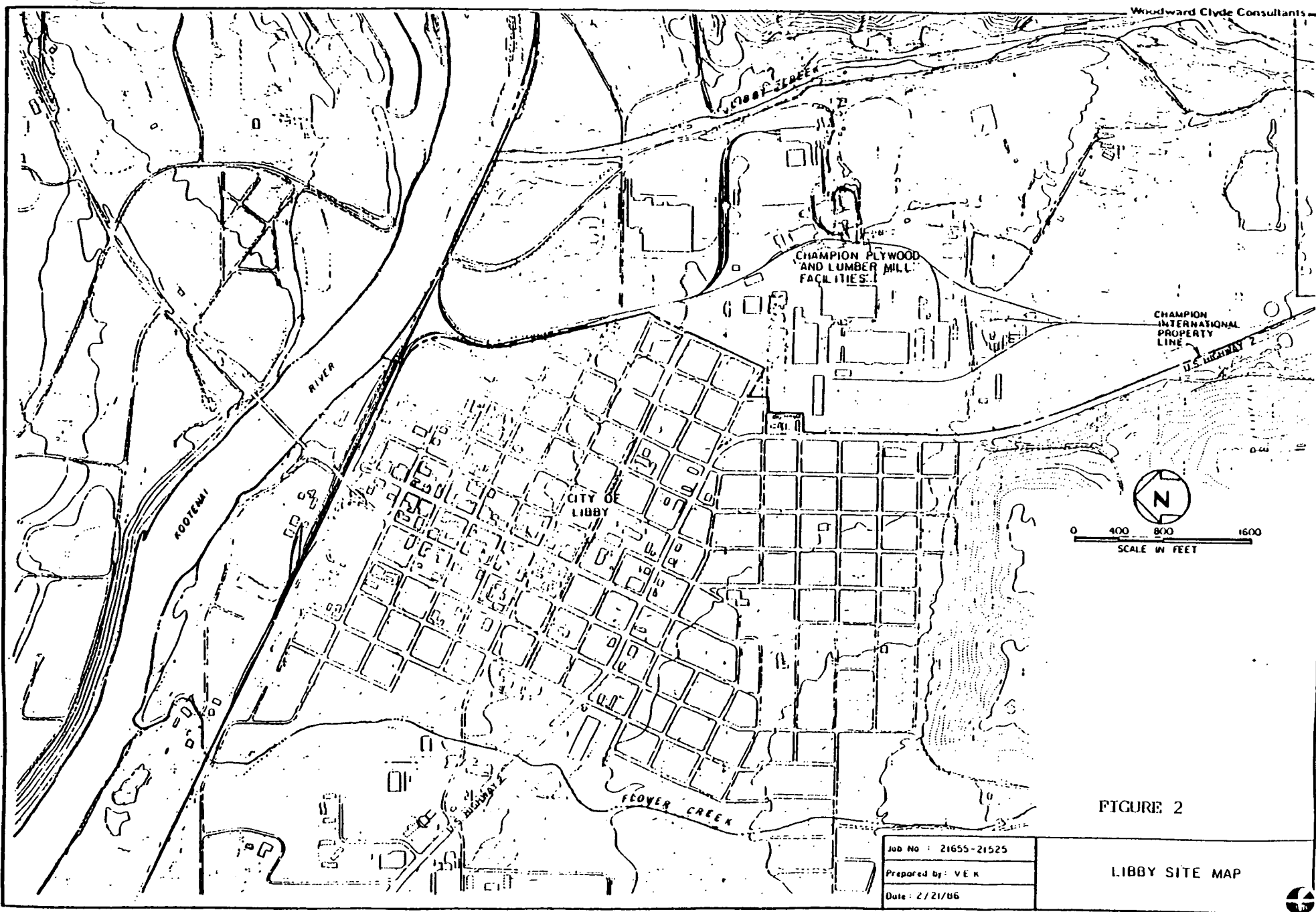


FIGURE 2

Job No : 21655-21525
Prepared by : V E K
Date : 2/21/86

LIBBY SITE MAP



and preliminary sampling of domestic wells by the FIT contractor (Fred C. Hart and Associates), confirmed that ground water contamination had occurred. The consultant team of Alsid-Carr was retained by St. Regis to further study the extent and concentrations of contaminants. An initial investigation (Phase I) commenced in spring 1983, focusing on inventory and sampling of domestic wells.

In December 1982, EPA proposed adding the Libby Ground Water site to the National Priorities List (NPL), and in September 1983, the Libby site was finalized on the NPL.

Following signing of an Administrative Order on Consent by the St. Regis Corporation and EPA on October 18, 1983, a formal RI/FS program began. Phase II consisted of the plan for further field work, and Phase III the field work and report. Monitoring wells were installed and water quality samples were collected from these and selected existing homeowner wells in January, April, July, and October of 1984. The Phase III RI report was submitted in June 1985.

Champion purchased St. Regis in early 1985 and retained Woodward-Clyde Consultants to conduct and prepare the Phase IV RI/FS and Endangerment Assessment. Phase IV field operations were conducted from May 1985 to February 1986, and included expanded well installation and sampling, soil and geotechnical investigations, and sampling of surface water and sediments. The Phase IV RI report, and the Feasibility Study for the First Operable Unit were submitted in July 1986.

During the course of the Phase IV RI, Champion discovered that heavy oil contamination had occurred to a greater depth and areal extent than previously observed. It became apparent that final remediation of the site required further RI studies to determine the extent of the heavy oil contamination. In order to provide for protection of public health in the interim, consideration was given to dividing the site into operable units. In accordance with Section 300.68(c)(3), it was determined that the operable unit approach would be cost effective and consistent with the final remedy. Therefore, the site was divided into operable units.

The first operable unit, and the subject of this ROD, addresses public exposure to contaminated ground water. Field studies are currently being conducted for subsequent operable units which will address aquifer restoration and source cleanup.

#### CURRENT SITE STATUS

Abandoned wood treating operations on the mill property are the source of the ground water contamination. The wood treating operations began in 1946 and ceased in 1969.

Four basic types of wood treating fluids were used at Libby: creosote, pentachlorophenol (PCP), salt treatment, and fire retardant.

Technical grade pentachlorophenol used for wood treating contains 85-95 percent PCP, 5-15 percent other chlorophenols, and 0.1 percent dioxins/furans. (The oils and contaminated soils at this site were found to contain all isomers of the chlorinated dioxins and furans, except the tetra isomer. No dioxin or furan isomers were detected in private well samples.) The light solvent used with PCP in the wood treatment process was a mixture of mineral spirits, polyethylene glycol, and wax.

Creosote is a complex mixture of over 200 organic compounds and contains approximately 85 percent polynuclear aromatic compounds (PAH), 12 percent phenolic compounds and 3 percent heterocyclic nitrogen, oxygen and sulfur compounds.

The ingredients of salt treating fluids were fluoride, chrome, arsenic and dinitrophenol. The fire retardant was composed of zinc chloride, chrome, boric acid and ammonium sulfate.

Ground water contamination has been observed in wells located both on the mill property and on private properties in the City of Libby. Sampling and analysis of 67 private off-site ground water wells was conducted at least once per well in 1985, and most were sampled 3 times (March, June, and September). A total of 32 of these wells are known or suspected (some data are not entirely conclusive or consistent) to be contaminated with PCP, creosote chemicals (PAH), some volatile organic compounds, and some metals. No chlorinated dioxins or furans have been detected in private well samples. A summary of these 1985 data is provided in Table 1. Although private wells both within and outside the city limits have been monitored for contamination, only wells within the city limits were found to be contaminated.

Based on 1984 sampling data, Champion offered Buy Water agreements (an agreement to supply alternate water, described on page 6 of this document) to the 15 owners of contaminated wells in 1985. Eleven of the 15 signed. (After being informed of the possible hazards of using the contaminated water, 4 owners still wished to retain the use of their wells.) Based on 1985 data, a total of 32 wells were identified as being within the contaminant plume. This apparent increase in number of contaminated wells is not due to the migration rate of the contaminant plume. Rather, all private wells had not yet been identified for the 1984 sampling, and some additional wells were installed between samplings. Champion plans to extend Buy Water agreements in 1986 to the 17 additional identified well owners plus the 4 who did not sign in 1985.

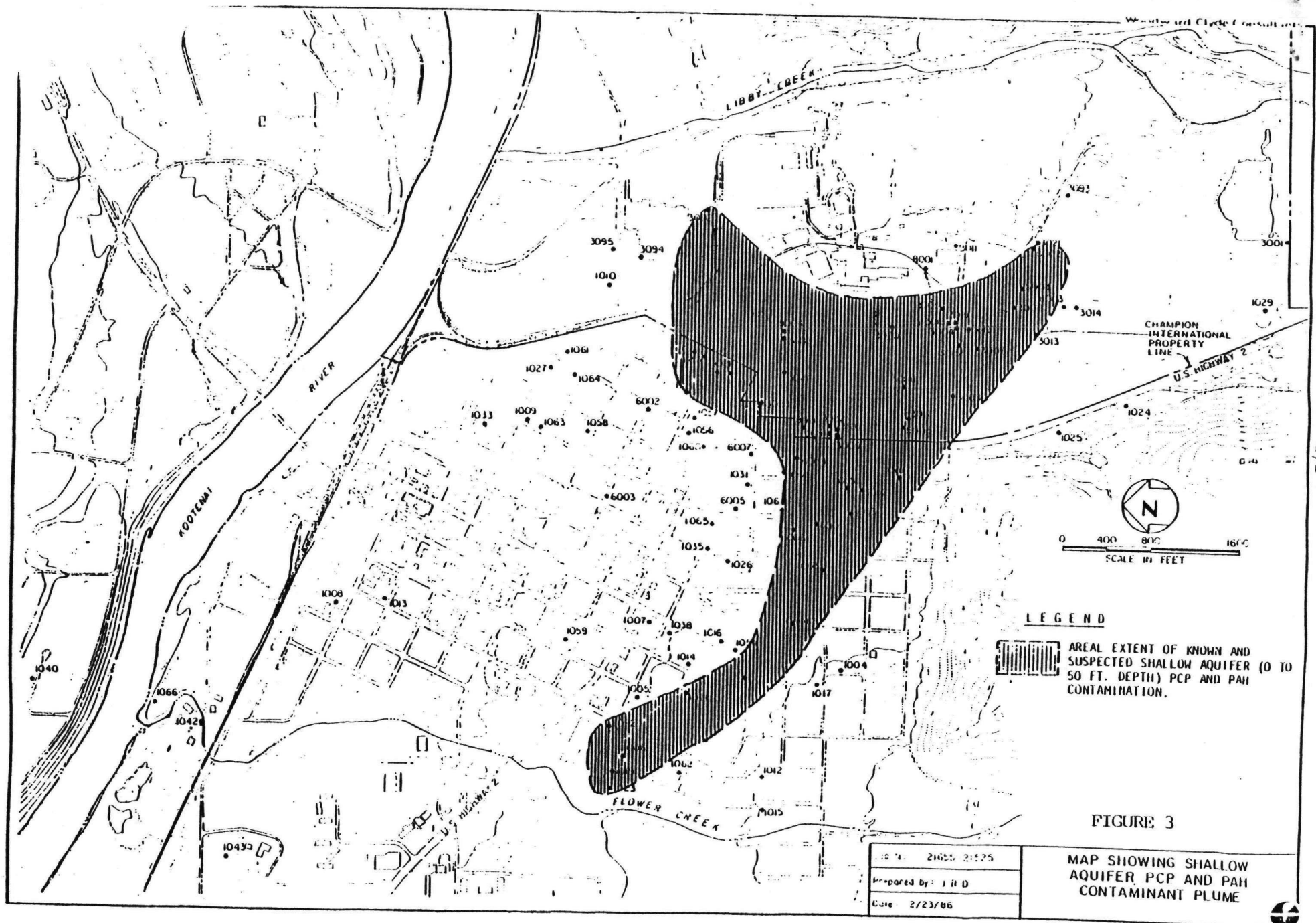
Figure 3 shows the extent of contamination of PCP and PAH compounds in the shallow ground water aquifer (less than 70 feet) based on the location of known and suspected contamination in shallow water wells. Similar analyses delineated plumes for volatile organic and halogenated organic compounds (Figure 4) and metals (Figure 5) in shallow ground water aquifer. The contaminant data for the deeper water bearing units (100 to 170 feet) are more limited. Figure 6 shows the estimated areal extent of heavy oil and of PCP and PAH compounds in the deeper aquifer.

TABLE 1  
CONTAMINANTS DETECTED IN PRIVATE GROUND WATER WELLS  
(ALL PAH COMPOUNDS INCLUDED)

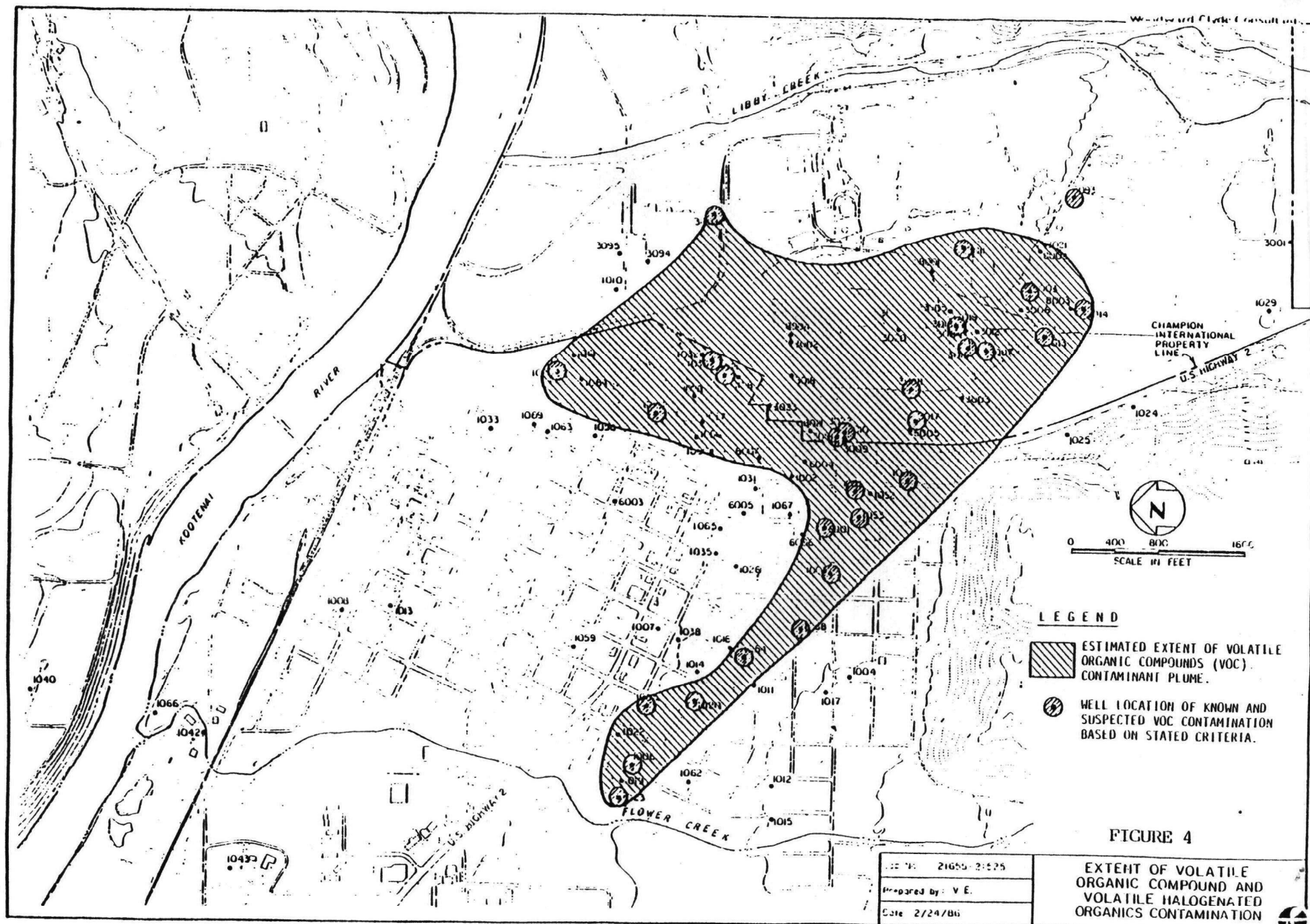
Chemical	Range (ug/l)		Geometric Mean (ug/l) <sup>(1)</sup>	No. of Samples Above Detection
Arsenic	5	- 5	--(2)	2
Zinc	200	- 1,400	551.76	7
Copper	23	- 160	52.58	6
Chromium	6	- 10	7.33	4
Lead	30	- 30	--(2)	1
Nickel	7	- 29	14.25	2
Pentachlorophenol	2.3	- 3,200	89.49	20
Naphthalene	2	- 500	33.23	18
Acenaphthylene	1	- 200	13.95	13
Acenaphthene	3	- 100	24.77	22
Fluorene	0.75	- 48	8.39	23
Phenanthrene	0.82	- 212	8.53	17
Anthracene	0.11	- 15	1.07	13
Fluoranthene	0.12	- 93	0.55	9
Pyrene	0.14	- 44	0.62	6
Chrysene	0.067	- 5	0.47	4
Benzo (a) anthracene	0.093	- 1	0.30	2
Benzo (k) fluoranthene	--	--	--	--
Benzo (b) fluoranthene	--	--	--	--
Benzo (a) pyrene	--	--	--	--
Indeno (123, cd) pyrene	--	--	--	--
Dibenzo (an) anthracene	--	--	--	--
Benzo (ghi) perylene	--	--	--	--
1-methyl naphthalene	7.4	- 250	50.1	9
2-methyl naphthalene	1.1	- 43	9.87	4
Benzene	2	- 20	5.93	9
Toluene	1.2	- 51	5.12	7
Total Xylene	2	- 109	17.55	18
2-Butanone				
(Methyl Ethyl Ketone)	12.1	- 280	103.75	4
1,1,1 Trichloroethane	0.6	- 45	6.92	11
Ethylbenzene	1	- 19	5.62	5
Carcinogen PAH's	0.067	- 93	0.52	21

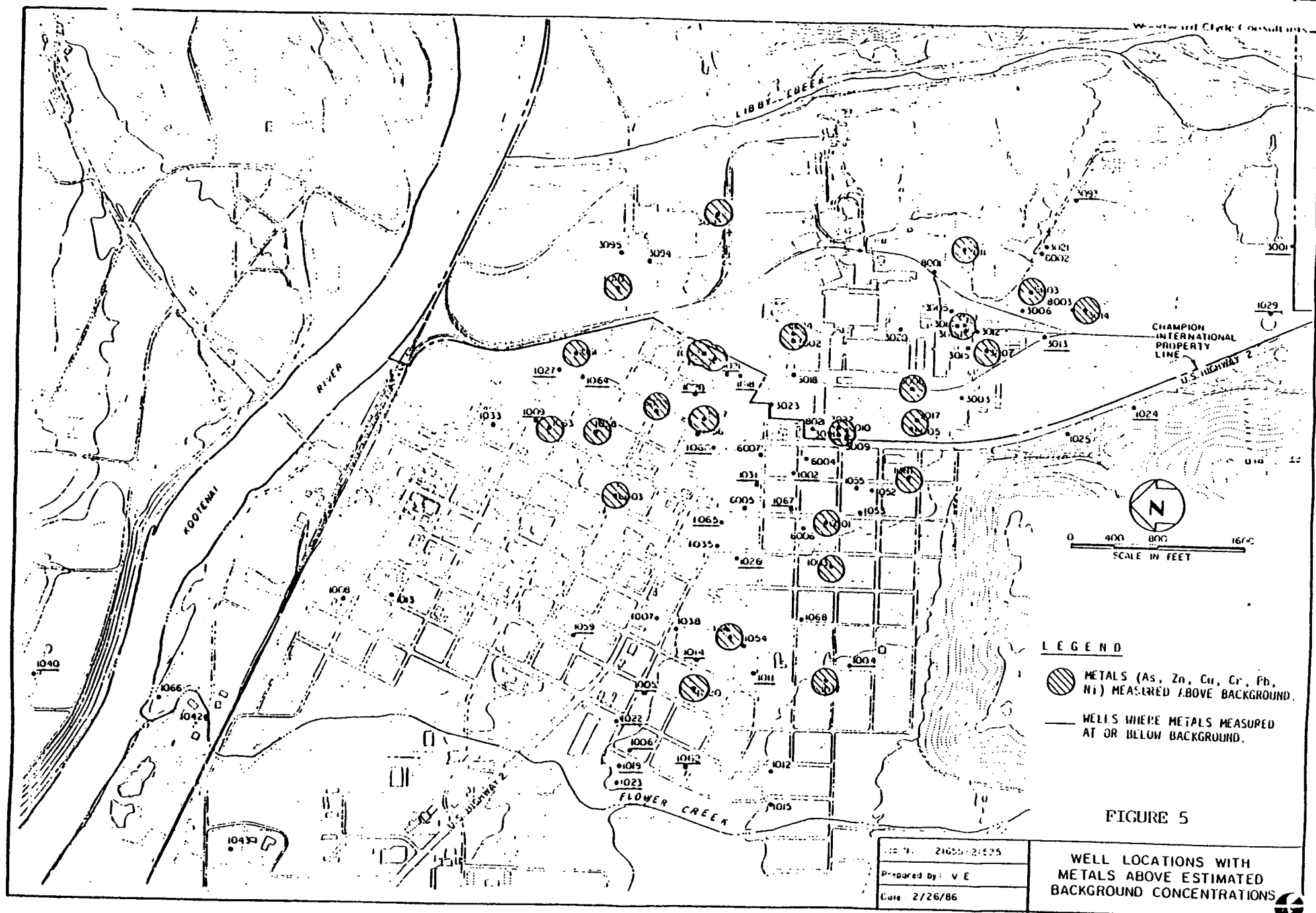
(1) Only values measured above detection were used in calculating the geometric mean.

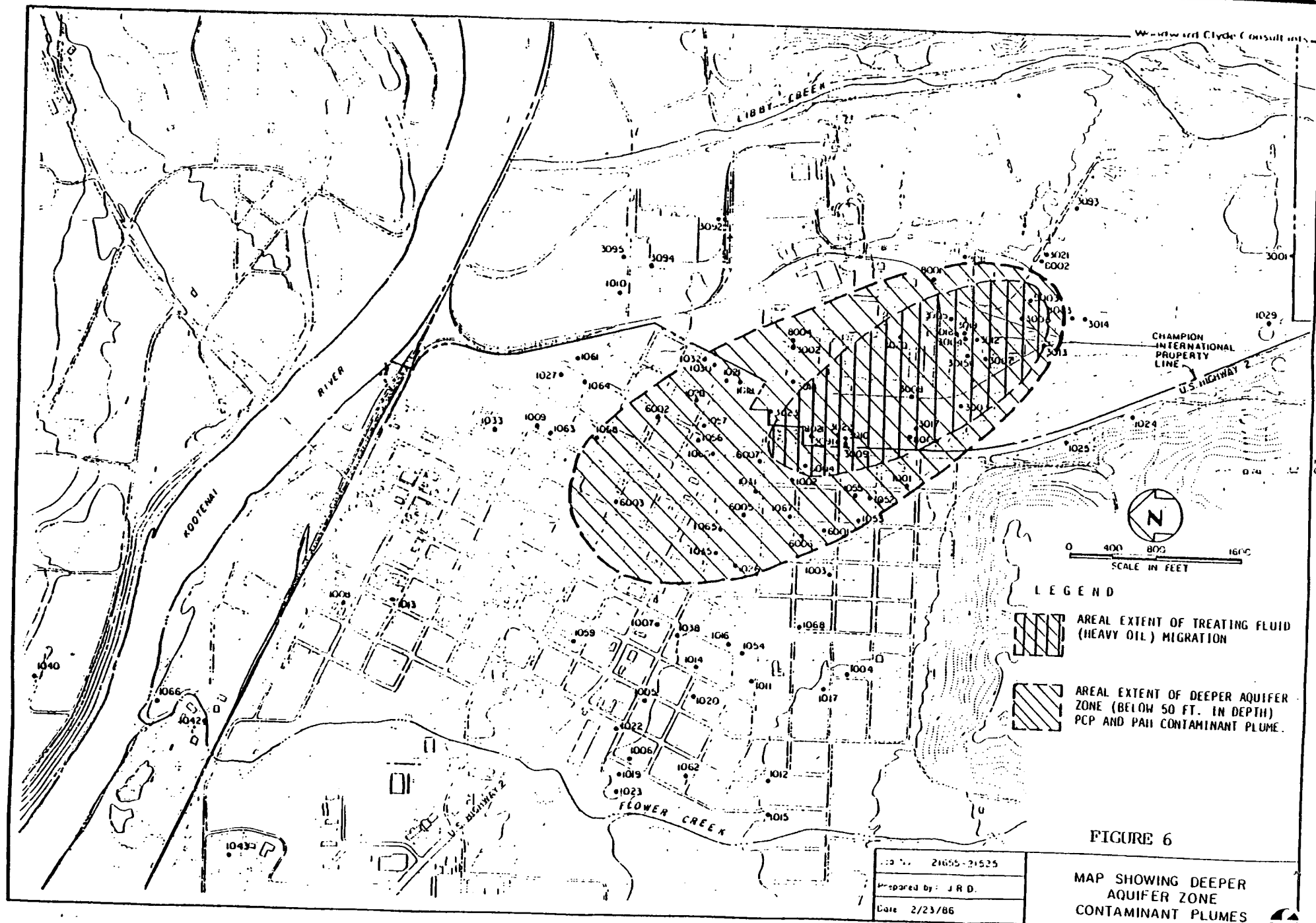
(2) No geometric mean concentration is estimated since the compound was either detected in only one well or only one time during the 1985 sampling program.











Each of the contaminants migrates at a different rate in the ground water depending largely on its solubility in water, soil adsorptive properties and rate of degradation. In general, contaminant concentrations in ground water decrease with distance from the source area due to dispersion in the ground water and because of the factors mentioned above. Thus, private wells located closest to the mill site property are generally those with the highest observed concentrations of contaminants. This generalization is complicated by the highly variable hydrogeology of the site, resulting in apparent ground water channels of higher permeability and higher contamination, as generally exhibited by the northwest contaminant plume arm shown on Figures 3 through 5.

Certain of the contaminants detected in the private wells are known or suspected carcinogens, and others have known toxic effects on humans. Table 2 summarizes the carcinogenic properties of PAH (the major constituents of creosote). Table 3 summarizes the known acute and chronic toxic effects of contaminants found.

A baseline risk assessment (no action alternative) indicates that an elevated carcinogenic risk currently exists at the site (See Table 4). The greatest risks of contracting cancer for individual routes of exposure result from: drinking contaminated water (chance of 1.8 in 10,000); ingestion of contaminated soil by children (chance of 6.8 in 10,000) (soil contaminated by contact with contaminated water, such as lawn and garden watering); ingestion of vegetables irrigated with contaminated water (chance of 3.7 in 10,000 to 6.1 in 1000). Other less significant routes of exposure included dermal absorption and inhalation while bathing or showering. Total carcinogenic risk was estimated to range from 1 chance in 1000 to 6 chances in 1000.

No Maximum Contaminant Levels (MCL) as established by the Montana Water Quality Act (State equivalent of the Safe Drinking Water Act) were exceeded for drinking water in any of the wells measured. However, some water quality criteria, proposed Federal MCL's, proposed Federal Recommended MCLs (RMCL), and drinking water health advisories were exceeded (See Table 5).

The only chronic or acute toxic hazard found was posed by PCP by the drinking water route of exposure (see Table 4).

#### ENFORCEMENT ANALYSIS

In October 1983, the St. Regis Paper Company accepted responsibility for the contamination found in the Libby wells, and signed a CERCLA 106 Administrative Order on Consent with EPA for both RI/FS and RD/RA activities. Champion International Corporation purchased the St. Regis Company in early 1985, and thus inherited St. Regis' responsibilities under the Order.

Champion first began to implement the Buy Water Plan (see Exhibit 1) during the summer of 1985, based on the results of the 1984 well sample results. With the identification of additional contaminated wells in 1985, Champion has already begun to offer the Buy Water Plan to these new owners, and will re-offer the plan to those who did not sign in 1985.

TABLE 2  
HEALTH EFFECTS OF PAH COMPOUNDS DETECTED IN OFF-SITE WELLS

<u>Chemical</u>	<u>Health Effect</u>
Acenaphthene	mutagenic <sup>(2)</sup>
Acenaphthylene	--
Anthracene	skin carcinogen, <sup>(1)</sup> mutagenic, <sup>(2)</sup> negative carcinogenic oral studies <sup>(3)</sup>
*Benzo(a)anthracene	animal carcinogen, <sup>(1)</sup> mutagen and carcinogen, <sup>(2)</sup> animal carcinogenic evidence, <sup>(3)</sup> positive oral carcinogen with other positive data <sup>(4)</sup>
*Chrysene	positive carcinogenic data and co-carcinogenic data not tested orally <sup>(4)</sup>
*Fluoranthene	co-carcinogen <sup>(2)</sup> (with pyrene)
Fluorene	--
1-methyl naphthalene	inhibitor <sup>(2)</sup>
2-methyl naphthalene	inhibitor <sup>(2)</sup>
Napthalene	inhibitor, <sup>(2)</sup> negative carcinogenic studies <sup>(4)</sup>
Phenanthrene	several negative carcinogenic and mutagenic studies (not tested orally) <sup>(4)</sup>
*Pyrene	animal carcinogen, <sup>(1)</sup> co-carcinogen (with fluoranthene) and mutagenic, <sup>(2)</sup> co-carcinogen or initiator with negative carcinogen or in vivo mutagen <sup>(4)</sup>
**Benzo(k) fluoranthene	Negative carcinogen in single carcinogenic study <sup>(4)</sup>
**Benzo(b) fluoranthene	Positive carcinogenic and co-carcinogenic data, not tested orally, <sup>(4)</sup> animal carcinogenic evidence <sup>(3)</sup>
**Benzo(a) pyrene	Positive oral carcinogen and other positive data, <sup>(4)</sup> animal carcinogen and suspected human carcinogen <sup>(1)</sup>
**Indeno(123,cd) pyrene	Co-carcinogen or initiator with negative carcinogens or <u>in vivo</u> mutagen, <sup>(4)</sup>
**Dibenzo(ah)anthracene	Positive oral carcinogen with other positive data, <sup>(4)</sup> animal carcinogen and tumorigen, <sup>(1)</sup> animal carcinogenic evidence <sup>(3)</sup>

TABLE 2  
(Continued)

\*\*Benzo(ghi) perylene - Positive carcinogenic or co-carcinogenic data,  
not tested orally<sup>(1)</sup>

\* Detected off-site and determined to be carcinogenic and the total is  
referred to total carcinogenic PAH compounds.

\*\* Not detected in off-site ground water well samples.

(1) Health Effects of Risk-Assessment Categories, C.F. Cramer et al.,  
Brookhaven National Laboratory, October 1983.

(2) Wood Preservative Pesticides, Creosote, Pentachlorophenol and the  
Inorganic Arsenicals (Wood Uses) Position Document 2/3, U.S. EPA,  
Washington, D.C., P982-229956, March 1982.

(3) Fourth Annual Report on Carcinogens, Draft, U.S. Department of Health  
and Human Services, P9 85-134633, 1985.

(4) An Exposure and Risk Assessment for Benzo(a)pyrene and Other  
Polycyclic Aromatic Hydrocarbons, Volume 1. Summary, EPA-440/4-85-020,  
July 1982.

TABLE 3  
ACUTE AND CHRONIC TOXICITY SUMMARY FOR MEASURED CONTAMINANTS

<u>Chemical</u>	<u>Potential Health Effect</u>
Arsenic	Interferes with certain metabolic processes.
Zinc	Human nutritional element.
Copper	Human nutritional element, but excessive ingestion can result in liver, brain and kidney damage.
Lead	Fatigue, sleep disturbance, colic, neuritis, anemia, heart and kidney damage.
Nickel	Degenerative changes in heart muscle and seminiferous tubules of testes with chronic ingestion.
Benzene	Headache, dizziness, nausea, convulsions, coma, death, birth defects, certain forms of leukemia, various blood disorders, nervous system depression, liver and kidney damage.
Toluene	Nervous system depression, liver and kidney damage.
2-Butanone (methyl ethyl ketone)	Nervous system depression, narcosis, and liver damage with high acute doses. Teratogenic in rats.
1,1,1-Trichloroethane	Nervous system depression, narcosis, liver and kidney damage, and death with chronic inhalation.
Ethylbenzene	Slight to moderate effects on liver, kidney, testes, and body weight in animals with chronic inhalation.
Pentachlorophenol	Teratogenic.

Source: Feasibility Study for the First Operable Unit, Libby Montana Ground Water Site, prepared for Champion International by Woodward-Clyde Consultants, July 1986, Appendix C.

TABLE 4  
SUMMARY OF BASELINE HEALTH RISKS

<u>Route of Exposure</u>	<u>Hazard Index (1)</u>		<u>Carcinogenic Risk (2)</u>
	<u>Acute</u>	<u>Chronic</u>	
Drinking water	0.36 3.1(Teratogenic effect of PCP)	0.27	1.8 in 10,00
Ingestion of soil by children	--	--	6.8 in 10,000
Ingestion of vegetables irrigated with contaminated ground water	--	--	3.7 in 10,000 to 6.1 in 1000
Inhalation of 1,1,1-TCA(3) while showering	$3.2 \times 10^{-9}$	$8.4 \times 10^{-10}$	--
Inhalation of 1,1,1-TCA(3) while bathing	$3.6 \times 10^{-7}$	$9.6 \times 10^{-8}$	--
Inhalation of benzene while showering	--	--	1.5 in 10 billion
Inhalation of benzene while bathing	--	--	1.8 in 100 billion
Dermal absorption of benzene while bathing	$6.7 \times 10^{-6}$	$8.2 \times 10^{-6}$	2.7 in 1 billion

- 1 The hazard indices above provide numerical indications of whether a significant probability exists for acute or chronic health effects to occur from all contaminants acting through the route indicated. The index accounts for the measured concentrations, the route of exposure, and the threshold above which the health effect begins to manifest itself. A hazard index greater than 1.0 is taken to mean that a significant probability exists for the contaminants to produce a health effect through the route indicated.
- 2 Carcinogenic risk provides a numerical indication of the risk or chance of persons exposed by the route indicated to contract "additional" cancers. Lifetime (70 years or more) exposure to the measured concentration is assumed. "Additional" cancers are those that might be contracted over and above those that might be contracted from other routes of exposure, such as smoking, diet, occupational exposure, etc. "1.8 in 10,000" means a person exposed by the route indicated has 1.8 chances out of 10,000 of contracting an additional cancer.
- 3 1,1,1-trichloroethane



TABLE 5  
COMPARISON OF STANDARDS TO EXPOSURE POINT CONCENTRATIONS\*

<u>Chemical</u>	<u>Standard/Criterion</u>	<u>Value of Standard (Criterion <math>\mu\text{g/l}</math>)</u>	<u>Exposure Point Concentration (<math>\mu\text{g/l}</math>)<sup>(2)</sup></u>	<u>Standard/ Criterion Exceeded</u>
Benzo(a)anthracene	No criterion set for this PAH compound. For total carcinogenic PAH, the EPA Water Quality Criteria is used (incremental cancer risk of $10^{-6}$ ).	0.003	0.30 (LTC)	X
Chrysene	No criterion set for this PAH compound. For total carcinogenic PAH, the EPA Water Quality Criteria is used (incremental cancer risk of $10^{-6}$ ).	0.003	0.47 (LTC)	X
Benzene	Proposed MCL	5.0	5.98 (LTC)	X
	Water quality criterion adjusted for drinking water only (incremental cancer risk of $10^{-6}$ ).	0.67	5.98 (LTC)	X
	EPA Drinking Water Health Advisories	0.35	5.98 (LTC)	X
Acenaphthene	Water Quality Criterion Adjusted for Drinking Water Only (organoleptic effects only) <sup>(4)</sup>	20	100 (STC)	X
Fluoranthene	Water Quality Criterion	188	93 (STC)	
Nickel	Water Quality Criterion Adjusted for Drinking Water Only	15.4	29 (STC)	X

TABLE 5  
(Continued)

<u>Chemical</u>	<u>Standard/Criterion</u>	<u>Value of Standard Criterion (µg/l)</u>	<u>Exposure Point Concentration (µg/l)</u>	<u>Standard/ Criterion Exceeded</u>
Total Carcinogenic PAH Compounds	Water Quality Criterion Adjusted for Drinking Water Only (incremental cancer risk of 10 <sup>-6</sup> )	0.0031	0.52 (LTC)	X
Pentachlorophenol	Proposed RMCL	220	3,200 (STC)	X
	Water Quality Criterion Adjusted for Drinking Water Only	1,010	3,200 (STC)	X

(1) Applicable drinking water standards as determined by the EPA

(2) (STC) = Short Term Concentration is maximum concentration measured in any off-site well in 1985

(LTC) = Long Term Concentration is geometric mean above detection of measurements in all off-site wells in 1985

(3) Well 1001 was the only well indicating the presence of arsenic at 5 ppb, the detection limit. No long term concentration has been estimated.

(4) Taste and Odor

\*Only contaminants which exceeded standards or criteria have been included.

EXHIBIT 1

CHAMPION'S 1985 BUY WATER AGREEMENT



In cooperation with the Lincoln County Health Department and the U. S. Environmental Protection Agency, Champion International Corporation is contributing to investigate the extent of groundwater contamination, underlying the Libby area, and the possibilities for remediation.

Some low level contamination has been found in water samples taken from your well or from wells in your immediate vicinity. Although it is not currently known whether or not the use of your well water for lawn and garden irrigation is harmful, until further information is available, Champion requests your assistance by discontinuing the use of this well to ensure that you and your family do not directly consume possibly contaminated water.

In return for your assistance and to compensate you for the cost of using more metered water, Champion agrees to pay you the increased cost of your metered water usage for April through September over and above your minimum monthly billing or \$200.00, whichever is greater. Two hundred dollars will be paid on July 1 of every year and any amount over \$200.00 will be paid on December 1. You agree not to use, or permit anyone else to use, the water well located on your property and not to drill any new water wells on your property. To be sure no accidental use of the water well occurs, Champion requests your permission to install a locking device on the wellhead. We may, from time to time, take samples from the well for testing purposes, after giving you reasonable advance notice.

This agreement may be terminated if it is determined that no threat of contamination to your well exists, other alternatives become available, or after 60 days from receipt of a written request from you to terminate the agreement.

If you find this agreement acceptable, please so indicate by signing in the space(s) below. A check will be sent to you on July 1.

Champion appreciates your cooperation and wishes to thank you for your assistance with this program.

Sincerely,

Doug Kilner

DK:gro

ACCEPTED:

\_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ Date: \_\_\_\_\_

A local ordinance prohibiting the installation of new ground water wells for irrigation or human consumption has been enacted. The ordinance was passed by the City Commission on July 21, 1986 in a temporary, 90-day emergency form (see Exhibit 2). The city is currently taking the procedural steps to enact the ordinance on a permanent basis.

On July 21, 1986, Champion and the City also signed the agreement to provide free irrigation water to Libby water users as an incentive to comply with the new ground water ordinance (see Exhibit 3).

#### ALTERNATIVES EVALUATION

The objective of the first operable unit is to significantly reduce or eliminate human exposure to contaminated ground water. Therefore, the first operable unit FS considers only alternatives that limit or eliminate this exposure. Environmental objectives (e.g., aquifer restoration) were not within the scope of this operable unit, but will be within the scope of subsequent operable units.

In accordance with section 300.68(f) of the NCP, the following remedial alternatives were developed:

#### Alternative Developed:

#### Alternative Complies With:

- |  |   |
|--|---|
| 1. No action   | 300.68(f)(1)(v)   |
| Alternate water supplies:  | 300.68(f)(1)(ii) and (iii):<br>Alternatives that attain or exceed applicable or relevant and appropriate requirements (ARARs) |
| 2. Buy Water Plan with Ordinance, using existing public water supply as the source of alternate water    |   |
| 3. Buy Water plan without Ordinance, using existing public water supply as the source of alternate water |   |
| 4. Alternate water from the Kootenai River   |   |
| 5. Alternate water from the Kootenai River Alluvium  |   |
| 6. Alternate water from Libby Creek  |   |
| Ground water treatment systems:  | 300.68(f)(1)(iv):<br>Alternatives that do not attain ARARs, but reduce the likelihood of present or future threats.           |
| 7. Granulated activated carbon (GAC)   |   |
| 8. Membrane filters  |   |
| 9. Oxidation processes   |   |

EXHIBIT 2

ORDINANCE NO. 1344

AN EMERGENCY ORDINANCE PROVIDING FOR THE ENACTMENT OF AN ORDINANCE PLACING RESTRICTIONS ON THE USE OF GROUNDWATER IN THE CITY OF LIBBY, MONTANA.

WHEREAS, Champion International Corporation has contracted with Woodward-Clyde Consultants, Consulting Engineers, Geologists and Environmental Scientists in an effort to identify certain groundwater contamination from a contamination site located on the premises of Champion International Corporation, Libby, Montana; and

WHEREAS, as a result of Woodward-Clyde Consultants' studies certain compounds and elements have been identified, namely: polynuclear aromatic compounds (pah), pentachlorophenol (pcp), creosote, volatile organics (e.g. benzene) and certain metals (e.g. arsenic). Certain of these compounds are suspected carcinogens and others have known toxic effects to humans; and

WHEREAS, the City of Libby deems it in the best interests of the residents of the City of Libby to provide certain regulations concerning the use of groundwater potentially contaminated with said compounds; and

WHEREAS, the City of Libby has authority pursuant to Sections 7-1-4123, M.C.A. and 7-13-4401, M.C.A. to control the use of ground water within the city limits of the City of Libby;

NOW THEREFORE:

BE IT ORDAINED THAT THE FOLLOWING ORDINANCE BE PASSED AS AN EMERGENCY ORDINANCE TO BE EFFECTIVE ON PASSAGE AND SHALL REMAIN IN EFFECT FOR NO MORE THAN NINETY (90) DAYS.

Section 1 -- Application, Investigation, Permit and Fee.  
Any person desiring to drill, dig, or excavate for a water well within the corporate limits of the City must first apply to the City of Libby, or its designated representative and agent, for a permit therefor and must advise the City of Libby, or its designated representative and agent, of the exact location, size, and purpose of the proposed water well. The application for such permit must contain:

A) That the permittee will submit to annual inspection of wells by the City of Libby, or its designated representative and agent, on or before the anniversary date of the original permit to permittee, and the payment of an inspection fee of Fifteen Dollars (\$15.00) to the City of Libby must be paid on or before the date of inspection.

The applicant will pay a Fifteen Dollar (\$15.00) fee for the permit upon the City of Libby's, or its designated representative or agent, determination that it conforms with the plan submitted.

Section 2 -- Wells For Human Consumption And Irrigation.  
No water well shall be authorized for the purpose of human consumption or irrigation.

Section 3 -- Review. The refusal of the City of Libby, or its designated representative or agent, to grant any such application is subject to review by the City Council of the City of Libby, Montana.

Section 4 -- Control Valves. Any water well drilled, dug

EXHIBIT 2  
(cont'd)

or excavated pursuant to a permit granted hereunder must be equipped with adequate shut-off valves or control valves for the purpose of controlling the flow of water from the water well and for the protection of the City water system in the event of pollution or other hazards.


Section 5 -- Marking. The issuance of a water well permit may be conditioned on marking the water well in a manner to be designated by the City of Libby, or its designated representative or agent, for the purposes of identification, location, and for inspection by the City of Libby, or its designated representative or agent, at reasonable times and as may be required.

Section 6 -- Violations And Penalties. Any person, whether as principal, agent, employee or otherwise, who violates any of the provisions of this Chapter shall be subject to a fine not to exceed Five Hundred Dollars (\$500.00) and imprisonment not in excess of six (6) months in jail.

PASSED BY THE CITY COUNCIL and approved by the Mayor of the City of Libby this 21st day of July, 1986.

  
\_\_\_\_\_  
Mayor

ATTEST:

  
\_\_\_\_\_  
City Clerk

EMERGENCY ORDINANCE EFFECTIVE UPON PASSAGE FOR A PERIOD NOT TO EXCEED NINETY (90) DAYS.

CITY OF LIBBY

LINCOLN COUNTY, MONTANA

POST OFFICE BOX 2  
LIBBY, MONTANA 59923

July 21, 1966

Champion International Corporation  
P.O. Box V-10  
Libby, Montana 59923

Attn: Doug Kilner

Dear Doug:

This letter sets forth and confirms the agreement of the City of Libby, Montana, and Champion International Corporation for cooperation in abating the groundwater contamination within the City of Libby.

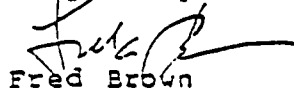
The City has determined that it is in the best interests of the health and welfare of the citizens of Libby to prohibit the installation of any new water wells within the City which could provide water for either direct or indirect human consumption. The City shall immediately proceed to implement said proscription by an emergency ordinance. The City shall also use its best efforts to restrict or prohibit the use of existing wells located within the City limits of Libby.

To ameliorate the increased financial burden on the citizens of Libby which will result from said ordinance, Champion shall pay to the City of Libby the amount of \$30,000.00 per year. Said payment shall be applied to the City to provide City water to each resident of the City of Libby. Said payments shall be made on or before the 1st day of October of each year for a period of ten years commencing October 1, 1966.

This agreement shall be subject to change upon the mutual consent of both the City of Libby and Champion.

If the above provisions and conditions meet with your approval, please endorse this letter and return it to the City of Libby.

Very Truly Yours,



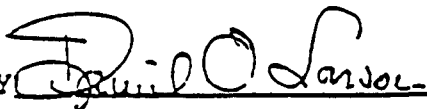
Fred Brown

Mayor of the City of Libby

EXHIBIT 3

READ AND APPROVED BY:  
Champion International

FREE IRRIGATION WATER AGREEMENT

BY   
Duane O. Larson

Since offsite shipment of site wastes such as ground water, soils, or sludges is not within the objective of this operable unit, development of an alternative for offsite treatment or disposal (300.68(f)(1)(i)) is not appropriate.

ARARs for this operable unit are defined in the section of this document titled "Consistency With Other Environmental Requirements."

The Buy Water Plan is a program whereby individuals with contaminated ground water wells agree to cease using their well, and instead use water from the public water system operated by the City of Libby. The well owner also allows Champion to cap and lock the well. Champion provides monetary compensation to the well owners to pay for costs incurred by using metered public water instead of well water. The compensation offered is \$200 per year or the actual cost of additional metered water, whichever is more. Well owners who are not currently connected to the city water system would be hooked up and receive all their water free of charge under the agreement. The agreement is indefinite in term, and would be terminated only if the threat of contamination no longer exists, if the well owner provides written notice that he/she wishes to terminate the agreement, or if other alternatives become available. See Exhibit 1.

The local ordinance is in the form of a city-wide well permit system. The permit system precludes the installation of new wells for human consumption and irrigation, but would allow well installation for use in closed systems, such as heat pumps and swamp coolers. Annual inspection of the well is a condition of the well permit. Violation of the ordinance is punishable by fine up to \$500.00 and imprisonment up to 6 months. Enforcement is conducted by the County sheriff, but due to limited resources, enforcement is not expected to play a large part in the level of compliance. Voluntary compliance with the ordinance is expected to be high due to the "free irrigation water" incentive provided by Champion. As the cost of summer irrigation water is the primary reason residents have installed wells, the prospect of free irrigation water should remove any other monetary incentive for installing new wells. The "free irrigation water" agreement signed by Champion and the City of Libby has a term of 10 years. See Exhibits 2 and 3.

In accordance with section 300.68(g) of the NCP, the identified alternatives were subjected to an initial screening to narrow the list of potential remedial actions for the further detailed analysis.

Oxidation processes and membrane filters (alternatives 8 and 9) were eliminated based on considerations of technological reliability, effectiveness, and cost considerations. These systems were found to have costs which far exceeded costs of other alternatives, did not provide substantially greater public health protection, were of poorer reliability, and would not be more effective than the GAC filter system.

In evaluating alternate water supplies, Libby Creek (alternative 6) was eliminated because of the potential adverse impact of upstream septic tank effluents on water quality. This alternative was therefore deemed to have significant adverse effects, and would not effectively contribute to protection of public health compared to the other available sources.



In accordance with 300.68(h) of the NCP, a detailed evaluation of the remaining alternatives was conducted. Each alternative was evaluated for cost, reliability, effectiveness in achieving the desired human health protection, institutional considerations, and adverse impacts.

### Cost

Table 6 contains the estimated present value costs of each of the remaining alternatives. The Buy Water Plan Without Ordinance is the least costly alternative, but because it does not provide protection from future threats (installation of new wells), it is not the most cost effective alternative.

### Institutional Considerations

Table 7 summarizes the institutional controls needed with each alternative, and the advantages and disadvantages of each. In summary, all alternatives (except no action) either require or would substantially benefit from an institutional control (ordinance).

Montana water law was evaluated, and it was determined that both authority and precedent existed for restricting access to ground water when public health is a concern. The City of Libby determined that it had authority under Sections 7-1-4123 and 7-13-4401 of the Montana Codes Annotated (MCA) to control ground water use within the city limits (see Exhibit 2).

Note in Table 7 that the "Libby Buy Water Plan" (similar to but not the same as Champion's Buy Water Plan) and the "Libby Low Summer Water Rates Plan" are listed separately. These plans do not constitute separate alternatives, but rather are two possible ways to provide Libby residents a financial incentive to comply with the well installation ordinance. Both would provide free irrigation water to Libby residents. As a practical matter, the "Libby Buy Water Plan," under which Champion compensates the city directly, was the method selected. Implementation of the "Libby Low Summer Water Rates Plan" was impractical due to the need for approval of water rate adjustments by the Montana Public Service Commission.

### Reliability

The reliability of alternative water supplies has been demonstrated at other sites where an alternate water supply was selected as the remedial alternative. Engineering reliability is not usually an insurmountable issue with such remedial alternatives, and is not an issue with the alternate water sources considered for Libby.

Reliability is, however, an issue with installation of individual well filters. GAC filters under intermittent use are subject to clogging via biological growth. This growth may also cause human health problems. Because ground water use rates, contaminant loading, individual filter performance, and personal habits vary so greatly, individual GAC filters have practical problems which seriously hamper their reliability. In addition, the use of individual filters on a scale sufficient to protect the health of a large number of people has not been proven.

TABLE 6  
ESTIMATED COSTS OF ALTERNATIVES (\$1,000)

		<u>Buy Water Plan (Without Ordinance)</u>	<u>Buy Water Plan (With Ordinance)</u>	<u>Individual Filters</u>	<u>Supplemental Water (Alluvium)</u>	<u>Supplemental Water (Kootenai River)</u>
City of Libby	1st Year Cost	122	152	1,005	725	835
	Annual Cost	34	64	607	75	125
	Present Value Cost*	318	521	4,501	1,157	1,555
West Libby	1st Year Cost	935	950	1,682	-	-
	Annual Cost	60	75	980	-	-
	Present Value Cost*	1,281	1,382	7,326	-	-
City of Libby and West Libby	1st Year Cost	1,057	1,102	2,687	1,762	2,172
	Annual Cost	94	139	1,557	100	150
	Present Value Cost*	1,598	1,903	11,827	2,338	3,036

\* Computed based on 10 year life at 10 percent discount rate.

TABLE 7

# SUMMARY OF INSTITUTIONAL CONTROLS NEEDED TO IMPLEMENT VARIOUS REMEDIAL ACTION ALTERNATIVES

Alternative	Institutional Controls	Advantages	Disadvantages
No Action	None required	None	Public health is threatened
Continue Champion's Existing Buy Water Plan	None required. However, program would be more effective with support of local ordinance.	Threat to public health is reduced.	Participation would not be mandatory and therefore a health hazard could remain from those continuing to use ground water.
Libby Buy Water Plan	Need local ordinance passed prohibiting use of ground water for irrigation. Need agreement between Libby and Champion for funding cost of irrigation.	Threat to public health is decreased by not allowing future use of ground water. Local residents will not have to pay for use of city water for irrigation. The local ordinance would be easy to enforce since there would be no economic incentive to use well water.	More administrative tasks would be required by the City to work out individual buy water plans. If the ordinance is not retroactive, participation would not be complete.
Libby Low Summer Water Rates Plan	Need local ordinance passed prohibiting use of ground water for irrigation. Need agreement between Libby and Champion for funding difference in costs between winter rates and summer consumption.	Threat to public health is decreased by not allowing future uses of ground water. Local residents will not have to pay for use of city water for irrigation. The local ordinance would be easy to enforce since there would be no economic incentive to use well water.	If the ordinance is not retroactive, participation would not be complete.
Installation of Individual Well Filters	Need local ordinance passed that requires water treatment before using ground water. Need agreement between Libby and Champion for funding and maintaining individual water treatment systems.	Threat to public health is reduced.	CAC systems would need maintenance and changing of filter. A system malfunction would result in use of contaminated water and potentially greater public exposure to contaminants.

### Effectiveness

A numerical projection of the reduction in human health risk brought about by implementation of any of the alternatives has not been made. This is due to the variability in response to the institutional-type controls proposed, and to the unproven effectiveness of the individual GAC filters. Instead, qualitative estimates must be, and have been, made.

The effectiveness of individual GAC filters is questionable for the same reasons that hamper their reliability. These are discussed above. In addition, GAC filters are generally not effective in removing the metal contaminants which were identified.

The effectiveness of the Buy Water agreement in protecting the health of the owner of a contaminated well is dependent upon whether the owner wishes to sign the agreement. If he/she does sign, protection is complete, as exposure to contaminated ground water ceases. If he/she does not sign, exposure continues.

Based upon concerns about inverse condemnation and other taking issues, the Libby city attorney advised the Libby City Commission not to prohibit the use of existing wells. Libby residents have been informed several times via several media of the potential for and actual existence of ground water contamination (see attached Community Relations Responsiveness Summary). In addition, Champion approaches well owners individually to sign the buy water agreement, and at the same time informs the well owner of the results of his/her well sampling. It is therefore reasonable to assume that well owners who choose not to sign the Buy Water agreement will have made an informed decision.

The effectiveness of the city ordinance is dependent on the levels of enforcement and voluntary compliance. The City relies upon the limited resources of the county sheriff to enforce city ordinances, and therefore enforcement is not expected to play a large part in the effectiveness of the ground water ordinance. However, the level of voluntary compliance is expected to be high in light of the "free irrigation water" incentive provided by Champion and the City.

### Adverse Impacts

Adverse impacts that could result from implementation of the GAC filter alternative occur during the operation and maintenance phases. Under conditions of poor GAC filter operation and maintenance, exposure to the contaminants of concern would not improve, and may actually worsen if the filters are not replaced prior to breakthrough. In addition, bacterial growth may provide exposure to a previously unanticipated health problem.

The FS evaluated the possibility of demand exceeding the capacity of the Flower Creek public water supply system. After examining 20 years of historical data, it concluded that the Flower Creek system can meet the new demand even during periods of low flow.

The FS did not evaluate the impact of the new demand on the Flower Creek biota, or on the surface water supplies downstream of the reservoir. Historical data show that Flower Creek flows have varied from well over 66 million gallons per day (MGD) to a recorded low of 2.1 MGD. A minimum flow of 6.8 MGD can be anticipated every 2 years, and a minimum flow of 3.6 MGD can be anticipated every 10 years. The projected total demand of 0.2 MGD would reduce the lowest recorded flow by less than 10%, the 2-year minimum by less than 3%, and the 10-year minimum by less than 6%. Flower Creek is a sport fishery for cutthroat, rainbow, and brook trout. The Montana Department of Fish, Wildlife, and Parks indicated that the projected demand would not significantly affect the quality of the fishery. Any effect which might occur would be far less than the effects which already occur due to operation of the existing dam, and to natural changes in runoff.

Currently, no homes are known to draw their water supply from Flower Creek below the reservoir.

#### COMMUNITY RELATIONS

The Community Relations Responsiveness Summary (attached) describes the responses and concerns of the community regarding the alternatives evaluated in the feasibility study. No negative responses were received regarding the recommended alternative. Although no significant changes to the recommended alternative were required by the comments received, some comments resulted in the attachment of conditions. These conditions are described in the Recommended Alternative section of this document.

#### CONSISTENCY WITH OTHER ENVIRONMENTAL REQUIREMENTS

MCL standards promulgated by the State of Montana under the Montana Water Quality Act, and the need for disposal of the spent GAC filter media to comply with the requirements of the Montana Hazardous Waste Management Act (equivalent of RCRA) constitute the ARARs for this operable unit.

All 3 of the sources for the alternate water supply have been analyzed at least partially for compliance with State MCL standards. The recommended source - the existing Flower Creek system - has been completely tested. Testing of the Kootenai River by the USGS since 1969, and testing of the Kootenai alluvium during a 1978 ground water resources study, indicates that both of these sources meet most of the State's MCL standards. The Flower Creek public water system has been tested since 1976, and has consistently met all State MCL standards.

The GAC filter alternative includes shipment of the spent filter media to the nearest permitted incinerator capable of charcoal regeneration.

### RECOMMENDED ALTERNATIVE

The remedy recommended is the Buy Water Plan with Ordinance, using the existing Flower Creek water system as the source of alternate water (alternative 2). Cost, technology, reliability, administrative and other considerations, and their effect on the public health, welfare, and environment were evaluated in selecting this alternative from among those that provide adequate protection of public health.

In accordance with section 300.68(i)(1) of the NCP, this alternative effectively mitigates and minimizes threats to and provides adequate protection of public health.

The least costly alternative, the Buy Water Plan Without Ordinance (alternative 3), protects those owners of existing contaminated wells who sign the buy water agreement, but does not adequately address protection of future public health (i.e., from installation of new wells which may be or may become contaminated), unless all future well owners sign the agreement. The enactment of an ordinance which prohibits installation of new wells with a monetary incentive for compliance is viewed as a more effective way to accomplish this objective.

The Buy Water Plan with Ordinance is the second least costly alternative, and provides protection from future public health threats as well as existing threats.

All other alternatives are much more costly, and provide either less or no better protection of public health. They therefore do not constitute cost-effective alternatives.

Capital and O&M costs to Champion for the recommended alternative follow:

1.	Provide annual payments to City of Libby to offset summer water irrigation costs (Estimated by City of Libby)	\$ 30,000
2.	Connect 10 houses to the existing water distribution system, with approximately 250 feet per house of line required for 2,500 feet total at \$35/foot	\$ 88,000
3.	Purchase water at \$200 per year for each of approximately 170 wells (annual cost)	<u>\$ 34,000</u>
	Total First Year Cost	\$152,000
	Annual Cost	\$ 64,000

To insure the effective implementation, the following conditions should be attached to the recommended alternative:

- (1) If it becomes necessary, Champion must take steps to insure that sufficient water to meet the demands of the Buy Water Plan and the free irrigation water agreement is available until the final remedy is effective;
- (2) The city water system must be tested for all contaminants of concern to demonstrate that it is not contaminated from some other source;
- (3) Champion must continue to monitor wells within and outside of the city limits (including in West Libby) for changes or movement of the plume boundary. If additional wells become contaminated, the recommended remedy should be extended to the owners of those wells;
- (4) Champion must establish a part-per-trillion (ppt) monitoring program for PAH in wells on the fringes of the current plume boundary. A detection limit of 2 ppt or less would be sufficient to demonstrate whether PAH water quality was below the  $1 \times 10^{-6}$  carcinogenic risk level of the Ambient Water Quality Criteria for PAH. If additional wells are found to be contaminated above the  $1 \times 10^{-6}$  risk level, the recommended remedy must be extended to these well owners;
- (5) Without prior written approval from EPA, Champion must not consent to a change in its written agreement with the City to provide free irrigation water to Libby water users;
- (6) Until the final site remedy is complete and effective, for those well owners who decline or discontinue participation in the Buy Water Plan Agreement, Champion must notify the well owner by certified mail that he/she has been offered the agreement, but has declined to participate. A copy of the notification must be sent to EPA;
- (7) Until the final site remedy is complete and effective, Champion must demonstrate annually that all new residents who purchase properties with contaminated wells have been offered the Buy Water Plan agreement in accordance with condition (6) above;
- (8) By matching available public records (such as water service connections and land ownership records), Champion must demonstrate that all residents who do not have water service connections have been offered the Buy Water agreement in accordance with condition (6) above;
- (9) The recommended alternative provides an interim remedy, and its approval assumes that the final remedy will adequately restore ground water quality. If such restoration is determined not to be possible, the first operable unit remedy must undergo substantial improvement or modification before EPA could approve it as a final remedy.

## OPERATION AND MAINTENANCE (O&M)

There are no EPA or State funds projected for O&M costs for the first operable unit remedy, except for federal funds needed for oversight of Champion's actions. These oversight costs are estimated to be about \$20,000 per year. O&M costs to Champion are listed above.

## SCHEDULE

The following schedule reflects the fact that Champion and the City of Libby have already begun to implement the recommended alternative.

	<u>Milestone</u>	<u>Start Date</u>	<u>End Date</u>
o	Enact Emergency Ordinance	July 21, 1986	July 21, 1986
o	Enact Permanent Ordinance	July 22, 1986	*
o	Sign "Free Irrigation Water" Agreement	NA	July 21, 1986
o	Approve Remedy (sign ROD)	NA	Sept. 30, 1986
o	Extend Buy Water Plan	Already begun	**
o	Cap Existing Wells	Already begun	**
o	Complete Public Water Supply Connections	Already begun	**
o	Provide Free Irrigation Water	Completed with enactment of emergency ordinance and signing of free irrigation water agreement	

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\* A period of 90 days and 2 public readings of the proposed ordinance are required to enact a permanent ordinance within the City of Libby.

\*\* The time necessary to sign all owners of contaminated wells, cap the wells and provide public water system connections depends on the individual well owners' willingness to sign. Most, but not all, are expected to sign the agreement. Champion anticipates implementation of the remedy to be complete for those willing to sign by approximately September 30, 1986.

## FUTURE ACTIONS

A subsequent feasibility study which addresses aquifer restoration and source cleanup is required to complete site response. Champion is currently conducting the RI studies necessary to support such a feasibility study (FS), and the FS report is anticipated in early 1987.



## COMMUNITY RELATIONS RESPONSIVENESS SUMMARY

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## RESPONSIVENESS SUMMARY

### LIBBY GROUND WATER SITE

LIBBY, MONTANA

September 1986

This community relations Responsiveness Summary is a part of the Enforcement Decision Document for the first operable unit of the Libby Ground Water Superfund site. The Responsiveness Summary is divided into the following sections:

- Section I. Background on Community Involvement. This section provides a brief history of community interest and concerns raised during the remedial planning activities at the Libby Ground Water site.
- Section II. Summary of Major Comments Received and the Environmental Protection Agency's (EPA) Responses. This section categorizes written and oral comments by relevant topics and provides a general indication of the source of the comments in each category. Responses to these comments are also provided.
- Section III. Remaining Concerns. This section describes remaining concerns that EPA is aware of regarding remedial design and remedial action at the Libby Ground Water site and EPA's plans for addressing these concerns.

In addition to the above sections, Attachment A, included as part of this Responsiveness Summary, identifies the community relations activities conducted thus far by EPA during remedial response activities at the Libby Ground Water site.

#### I. BACKGROUND ON COMMUNITY INVOLVEMENT

Community interest in the Libby Ground Water site has generally been low. Over the years, many Libby residents have worked for Champion International, or its predecessor, the St. Regis Company. Most residents take their water from the public water system which comes from a reservoir

on Flower Creek three miles upstream from the site. The Libby-area population directly affected by the ground water contamination is a small percentage of the population. Champion International is conducting the remedial investigation and feasibility study (RI/FS) at the site. The public has been informed of RI/FS progress and potential health effects of creosote and pentachlorophenol through articles in the local papers and mass mailings sponsored by EPA and Champion International. Early in the Superfund process, the Lincoln County sanitarian was established as a key contact person to maintain two-way communication between EPA and the community.

Copies of completed portions of the RI/FS have been placed in the information repositories located in the Lincoln County sanitarian's office and the Montana office of the EPA.

Thus far, EPA has held three public meetings at the site, all in conjunction with regularly-scheduled meetings of the County Board of Health. The first meeting, in October 1983, attracted about ten area residents in addition to the federal and local officials and company representatives. The purpose of the meeting was to discuss results of studies conducted as of that time and to urge residents not to use their wells if another source of water was available. A second meeting was held in July 1985. In addition to County Board of Health members, the meeting attracted one interested citizen. EPA updated residents on site activities and again urged residents not to use well water or drill new wells.

The third meeting was held on July 15, 1986, at the beginning of the public comment period on the first operable unit. EPA and Champion International provided the local media with press releases regarding the meeting and the proposed corrective measures. Before the public meeting, each of the local papers carried at least two news stories on the planned meeting and the proposed alternatives. In addition, EPA prepared a fact sheet on the site, with particular emphasis on the first operable unit. This fact sheet was distributed as an insert in a local newspaper that is

delivered to 3,600 homes. Further, Champion International wrote letters to homeowners who had responded to a site-related survey the company had taken earlier. This letter notified them of the time, place, and purpose of the meeting.

This public meeting opened the three-week public comment period held from July 15 through August 8, 1986. The purpose of the meeting was to describe Champion International's proposed actions, inform people about overall site activities and the Superfund program, receive questions and comments, and answer questions on the Feasibility Study on the First Operable Unit (FS report) for the Libby Ground Water site. EPA placed the draft report in the information repository located in the county sanitarian's office. The turnout at the meeting included fifteen local citizens plus an additional ten representatives of the Lincoln County and City of Libby governments.

## II. SUMMARY OF MAJOR COMMENTS RECEIVED AND RESPONSES

Although no one at the public meeting on the FS report made a formal written statement, the majority of public questions and comments on the draft FS report were made at this meeting. Other comments were later made in writing to EPA or to the Lincoln County sanitarian, or by telephone to EPA in Helena.

The atmosphere at the meeting was generally amicable, with citizens raising questions that clearly concerned them. No one voiced opposition to Champion International's preferred alternative (see the full Enforcement Decision Document). As requested in the preferred alternative, an ordinance restricting the drilling of new wells passed unanimously without opposition at the City Council meeting the following week.

The majority of the comments made and questions and concerns raised came from local officials and area residents. The Montana Solid and

Hazardous Waste Bureau (SHWB) also made several comments. These comments, questions, and concerns are summarized and grouped into the following five categories:

- o Remedial alternative preferences;
- o Concerns about health and the environment;
- o Cost issues;
- o Technical questions; and
- o Community relations issues.

The comments, questions, and concerns are summarized below and each is followed by a summary of the responses. Some responses at the public meeting were provided by Champion International or its consultants. These responses are identified; otherwise, the responses were made by EPA.

#### Remedial Alternative Preferences

1. Comment: The Montana SHWB concurred with the preferred alternative. It recommended planning ahead, however, in case future demands are greater than the capacity of the system. Other citizens supported this comment as well.

Response: In its study of the proposed remedial alternatives, Champion International analyzed historical water flow and demand, and found that Flower Creek at its lowest flow would be adequate to meet the demands. Champion International also examined the possibility of using the Kootenai River and the Kootenai shallow ground water as municipal water sources. The cost to do this would be very high, however, and EPA is not aware of any plans to develop these or other water resources. Another possible source of increased water supply might come from alterations to the existing water distribution system, which currently appears to lose a major portion of its water, probably through leakage.

Champion International has informed the City of Libby of this problem, and the City may be exploring ways to improve the situation.

2. Comment: The Montana SHWB recommended that the ten residences within the contaminated area that are not on the city supply system should be connected to that system.

Response: EPA agrees with this recommendation, with the note that the cost of connecting these residences to the public water system has already been included in the "buy water plan with ordinance," which is being implemented.

3. Comment: The SHWB recommended that monitoring and sampling by Champion International should be continued, especially in the West Libby area and Flower Creek.

Response: EPA agrees, and has included this as part of the remedy.

4. Comment: SHWB recommended that observations of the ground water and contaminant plume movement as a result of decreased ground water use should be made.

Response: A significant change in the rate or direction of contaminant movement is not expected. Champion International will continue to monitor both ground water levels and plume movement, however.

#### Concerns About Health and the Environment

1. Comment: Several citizens were concerned about the extent of the contamination. They wanted to know how deeply the ground water is

contaminated, whether use of wells outside the contaminated area will draw the contamination in the direction of such wells, and how the spread of the contamination can be halted.

Response: The EPA and Champion International representatives answered that the contamination is at all levels of the ground water; there is no known safe level from which citizens might draw their water. While wells outside the contaminated area may tend to draw contamination toward themselves, individual wells are not a significant factor in the overall spread of the contamination.

2. Comment: One citizen wanted to know if the contamination tends to bioaccumulate, that is, collect and concentrate in living tissue.

Response: The consultant for Champion International answered that the information collected thus far does not show bioaccumulation. Plants do take up the contamination, but they do not concentrate it. A bigger risk comes from watering the lawn; the creosote tends to stick to the soil and in that way concentrates it. Few tests have been done on animals, but indications thus far are that they tend to shed the creosote easily.

3. Comment: One citizen asked what is being done to protect residents of Libby Flats, south of Libby.

Response: The consultant for Champion International responded that the ground water flows away from that area; thus, action need not be taken in that area now.

4. Comment: One citizen asked if there has been any evidence of increased cancer in Libby.

Response: EPA does not know of any increased incidence of cancer in Libby. Cancer as a result of long-term exposure, however, is hard to pin to a single cause.

### Cost Issues

1. Comment: One resident asked how Champion International's payment to the City of Libby for extra water use in the summer will affect the individuals already subscribing to the "buy water" plan.

Response: The Champion International representative answered that residents subscribing to the "buy water" plan will save additional money during the summer months.

2. Comment: A resident asked how much the installation of an activated charcoal filter on a well would cost.

Response: The Champion International consultant responded that the installation cost is \$3,000 plus the operational costs.

3. Comment: One resident asked whether the "buy water" plan is a year-to-year agreement, or extends for ten years.

Response: The Champion International representative answered that it is a year-to-year agreement. The agreement is reviewed annually to determine if a threat to the well owners still exists, and if other suitable alternatives have become available.

It is EPA's position that the "buy water" agreements are written with an indefinite term. They may be terminated when a contaminant threat to the well no longer exists, when other alternatives become available, or when the well owner requests termination in writing. The payment of compensation is made on a yearly basis.



4. Comment: A citizen asked how the Champion International payment to the City will affect individual sewer rates.

Response: The Mayor of Libby responded that the sewer rates will not be affected.

5. Comment: A Libby resident expressed concern that his well might become contaminated in the future, which could cost him as much as \$150 to \$250 per year, an expense he cannot afford.

EPA Response: If any wells become contaminated in the future, Champion International will offer the "buy water" plan to the well owner, which will cover any additional costs the well owner might encounter.

6. Comment: A citizen asked if the proposed options will be funded indefinitely, or if the costs will revert to the responsibility of the water users.

Response: EPA is not aware of any plans to make the water users bear costs that are now being borne by Champion International for the "buy water" or the "free irrigation water" plans.

#### Technical Questions

1. Comment: One resident suggested that EPA consider drilling down to the contaminated area of the ground water, inserting a device similar to a big wick and burning the oil off as it rises to the surface.

Response: A Champion International consultant responded that his company is now investigating a similar treatment in pumping ground water from the contaminated area and drawing off the oil for disposal.

2. Comment: A resident asked if the site is expected to increase in size.

Response: As technology makes it possible to detect contamination in smaller amounts, the boundary of the site may become broader to include areas contaminated by more minute quantities of chemicals.

3. Comment: A local couple asked whether sufficient water pressure would be available to each house so that irrigation and domestic usage can go on simultaneously.

Response: This question is actually part of a broader question of whether water pressure was considered when the "free irrigation water" plan was proposed. The answer to the broader question is that potential water pressure problems were considered, but not completely resolved. It appears that if any pressure problems develop, they might be due to the problems inherent in the water distribution system rather than to the additional demand. It appears that the water distribution system loses a major portion of its water, probably through leakage.

4. Comment: In March 1985, a party with an interest in the county's plan to drill a well in Libby asked if it would be safe to drill that well.

Response: EPA responded in May 1985 that it would be best to postpone the drilling of this well pending results of new tests in

the area. In July 1986, EPA advised the same party that the City of Libby had restricted the drilling of new wells inside the city limits.

#### Community Relations Issues

1. Comment: Several citizens asked why the fact sheets were not printed sooner and delivered to area residents, particularly those who are participating in the "buy water" plan.

Response: The fact sheets were printed as soon as the information became available, and were sent to all subscribers of the Western News as an insert to the July 16, 1986 edition.

2. Comment: One person asked whether there will be another public meeting at the end of the July-August, 1986 comment period.

Response: Another public meeting at the end of the public comment period is not now planned. At the end of this public comment period, EPA will study all the relevant information, including public comments, and then select a remedy.

3. Comment: One citizen asked if EPA will consider individual citizens' suggestions for correcting the problems at Libby.

Response: EPA will consider any suggestions submitted. Since there are many other considerations, however, there are no guarantees that any individual suggestion will be adopted without change.

### III. REMAINING CONCERNS

There were two questions raised during the public comment period on the FS report that EPA was unable to answer fully during remedial planning activities.

1. Comment: A resident asked how the contamination can finally be cleaned up.

Response: The EPA and Champion International representatives answered that there has not been a complete answer to that question anywhere yet.

2. Comment: Several commenters focused on the question of providing water to area residents who live outside the city limits of Libby. SHWB recommended that a plan to supply water to West Libby residents not on the city water system but who may in the future be identified as living within the contaminant plume area should be considered. The county sanitarian asked what remedy, if any, would be extended to those Libby-area residents that live within the plume boundary, but not within the city limits. A non-Libby resident who takes his water from the Libby system and whose home is within the contaminant plume boundary expressed the opinion that Champion International should buy water for all residents, including those outside the city limits. And one citizen asked whether a city ordinance or similar legislation would apply to a property owner outside both the city limits and the plume boundaries.

Response: Currently, no contamination has been found in wells outside of the city limits. Individuals who already have wells that may later become contaminated would be protected by the "buy water" plan, provided they notify Champion International of the existence of their well. This applies to well owners whether they

are inside or outside of the city limits. At such time as contaminated wells are discovered outside of the city limits, EPA believes it would then be appropriate for EPA, Champion International and Lincoln County to discuss some county action to preclude the use of ground water in the area.

EPA advises all property owners in the broader Libby area, including those outside the plume boundary as it is now drawn, not to drill wells, as there is a possibility that the wells could be contaminated. The possibility is greater for those within the plume boundary, but the boundary of the plume is approximate, and it is not possible to say whether even those outside the boundary would be guaranteed to have clean water.

ATTACHMENT A

COMMUNITY RELATIONS ACTIVITIES CONDUCTED  
AT THE LIBBY GROUND WATER SITE

- o EPA established Lincoln County sanitarian as key contact person (1979).
- o EPA issued news releases and fact sheets when the Libby Ground Water site was placed on the National Priorities List (January 1983).
- o Results of data collection from Phase I of the RI/FS Work Plan were sent by Certified Mail to each homeowner whose well was tested (October 1983).
- o Three-week comment period with public meeting held on Phase I results and the CERCLA 106 Administrative Order on Consent with St. Regis Company, Champion International's predecessor (October 1983).
- o Information repositories were established in the Lincoln County sanitarian's office and the Montana EPA office (1983).
- o Through the cooperation of the Lincoln County sanitarian, EPA, Champion International, and the City of Libby, a fact sheet recommending that residents limit well installation and use was sent to area residents (April 1984).
- o EPA prepared a community relations plan (October 1984).
- o EPA responded to occasional telephone queries from Libby residents (ongoing throughout RI/FS).
- o A fact sheet advising residents to avoid using contaminated ground water and to refrain from drilling wells in Libby was mailed to Libby area residents (May 1985).
- o EPA held a public meeting in Libby to inform the public of information gained from studies at the site (July 1985). The meeting was announced by a press release.
- o Champion International surveyed homeowners to determine the extent of public contact with contaminated ground water (February 1986).
- o Feasibility Study on the on First Operable Unit report released for public review and comment (July 1986).
- o EPA issued a press release announcing the public meeting and FS public comment period (July 1986).

- o EPA held a public meeting at the Lincoln County Annex in Libby to discuss the FS report and answer questions from the public (July 1986). A summary of this meeting is available in the EPA Montana office.
- o EPA held a three-week public comment period from July 15 to August 8, 1986.

ADMINISTRATIVE ORDER ON CONSENT, DOCKET NO. CERCLA -VIII-83-03

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Docket No. CERCLA VIII 83-03

# ADMINISTRATIVE ORDER ON CONSENT

This Order is issued without trial or final adjudication on any issue of law or fact. Neither St. Regis' consent to this Order, nor anything in this document shall constitute an admission by St. Regis with respect to any factual or legal matter except as otherwise stipulated herein.

## FINDINGS AND STIPULATIONS

1. A preliminary field investigation of the groundwater in Libby, Montana, completed by EPA in October 1981, identified pentachlorophenol and polynuclear aromatic hydrocarbons associated with creosote in samples taken from three domestic irrigation wells within the Libby city limits.

2. Pentachlorophenol and polynuclear aromatic hydrocarbons are hazardous substances, as defined by Section 101(14) of CERCLA, and are characteristic constituents of wood treating, among other, operations.

3. In September 1983, EPA included the area of groundwater contamination within Libby on the National Priorities List, pursuant to Section 105(8)(B) of CERCLA. (Libby Groundwater Site.)

4. St. Regis, formerly known as St. Regis Paper Company, a New York Corporation authorized to conduct business in Montana, owns and operates a lumber and plywood mill in Libby, Montana, which previously included a wood treating operation. Waste water from the former wood treating operation, containing pentachlorophenol and polynuclear aromatic hydrocarbons, was placed by former owners and operators, and by St. Regis into evaporation ponds at the mill beginning in the early 1940's.

5. St. Regis discontinued the wood treating operation in the late 1960's, filled the ponds with earth, and incorporated them into a log deck storage area. St. Regis believes that

these ponds, which remain in St. Regis' ownership, were clay lined and designed to reduce release to the environment.

6. Neither the State nor EPA has definitely determined that hazardous substances have migrated from the St. Regis facility. However, based on the age of the evaporation ponds at the St. Regis facility and their proximity to the three contaminated wells, EPA believes that these evaporation ponds may present a threat of release of hazardous substances into the groundwater in the Libby Groundwater Site, and that these conditions may present an imminent and substantial endangerment to public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. 9606(a).

7. Since the spring of 1982, St. Regis, in consultation with EPA and the State, has been investigating the extent and sources of contamination of the groundwater at the Libby Groundwater Site and developing a plan to evaluate and implement remedial action as necessary. The Remedial Investigation/Action Plan set forth herein in Exhibit A is the culmination of St. Regis' proposal, which the parties now seek to implement through this Order.

8. EPA has jurisdiction to issue this Order under Section 106(a) of CERCLA, 42 U.S.C. 9606, based on its findings as stipulated in paragraph 6, above.

9. St. Regis consents to the issuance of this Order, but does not admit that conditions at the Libby Groundwater Site

constitute an imminent and substantial endangerment, within the meaning of Section 106 of CERCLA. St. Regis retains the right to contest allegations concerning imminent and substantial endangerment in any other proceeding brought by EPA or any other person, and enters into this Order for the purpose of expediting an investigation of the Libby Groundwater Site in cooperation with EPA and the State.

#### ORDER

Based on the foregoing, it is hereby agreed and ORDERED:

10. Remedial Investigation and Action

Upon issuance of this Order, St. Regis shall implement the remedial investigation, feasibility study, and remedial action programs as set forth in Exhibit A, entitled Remedial Investigation/Action Plan.

St. Regis or a qualified independent consultant(s), retained by St. Regis shall prepare all proposals, studies, and reports required by this Order to be conducted or submitted by St. Regis.

11. Coordinators

Within fifteen days of entry of this Order, EPA and St. Regis shall name coordinators who shall be responsible for the administration of their respective responsibilities pursuant to this Order and receive all written materials required by this Order, and shall submit the names of those coordinators to each other.

12. Quality Assurance

St. Regis shall use sampling, quality assurance, quality control, and chain-of-custody procedures acceptable to EPA throughout all activities conducted pursuant to this Order. St. Regis shall consult the EPA in planning for sampling and analysis.

13. Notice

St. Regis shall provide advance notice to EPA and the State of any excavating, drilling, or sampling to be conducted pursuant to the Order at least five working days in advance of the date of such activity and, upon request in advance, shall provide EPA and/or the State with a split of any sample taken pursuant to this Order.

14. Site access

St. Regis shall permit EPA, the State, and their contractors and consultants to have access to St. Regis' property and to monitor any activity conducted pursuant to this study. EPA will provide five days prior notification for access whenever possible, consistent with its responsibilities.

Persons other than those bound by this Order presently own portions of the Libby Groundwater Site. The Parties to this agreement shall use best efforts to obtain voluntary site access agreements from the present owners necessary to fulfill the Parties' respective responsibilities under this Order. In the event St. Regis is unable to obtain the necessary access, it shall notify EPA.

15. Information exchange

St. Regis, EPA, and their respective contractors and consultants shall cooperate and make available to the others in a timely manner, the results of sampling, testing, or other data generated by any of them or on their behalf, and any relevant information in their possession regarding the actions called for by this Order, except as exempt or protected by law from such disclosure.

16. Preservation of information

The parties shall preserve, during the pendency of this Order and for three (3) years after its termination, all records and documents in their possession, or the possession of their employees or agents, which relate to the Libby Groundwater Site.

17. Reporting

St. Regis shall report to EPA in accordance with the Plans submitted pursuant to this Order. St. Regis shall promptly notify EPA of any failure to meet any date in an approved schedule, or any other significant delays, including in such report, a statement of the causes of such delays, the date by which the delayed activities will be completed, and their effects on St. Regis' ability to meet the remaining schedule for completion.

18. Force Majeure

Any failure by St. Regis to comply with the terms of this Order shall be excused, and the times for St. Regis'

performance extended to the extent St. Regis demonstrates such failure is caused by circumstances beyond its control. St. Regis shall notify EPA of any such delay as provided in paragraph 17, above.

19. Opportunity to Confer/Modification

At any time in the course of implementation of the Remedial Investigation/Action Program, St. Regis or its consultants may confer with EPA concerning the program. St. Regis may request EPA approval of a program modification based on new information or changed circumstances. Such modification shall be implemented upon its approval. EPA shall provide approval or disapproval of requested modifications.

20. Resolution of Disputes

In the event that EPA does not approve any recommended course of action, or part thereof, as submitted by St. Regis, the disapproval shall be in writing, shall state reasons for the disapproval, and may include requests for amendments or revisions.

Within thirty days after receipt of any notice of disapproval of any required recommendation or proposed action, St. Regis shall submit a revised recommendation or shall state in writing the reasons why the recommendation, as originally submitted, should be approved. If within the thirty days, (1) St. Regis has not submitted a revised recommendation and the disapproval has not been withdrawn, or (2) St. Regis has

submitted a revised recommendation which has not been approved, EPA retains the right to require such further action as it deems necessary, by issuing further administrative orders or seeking judicial recourse, pursuant to its authority under Section 106 of CERCLA, 42 U.S.C. 9606, or any other relevant provision of law. Nothing in this Order shall be construed to limit St. Regis' right to contest any such further orders or judicial action brought by EPA, or to require St. Regis to undertake any action not set forth in the Order submitted by St. Regis in its recommendation or revised recommendation.

21. Confidentiality

St. Regis may, if it desires, assert a business confidentiality claim covering part or all of the information requested by this Order in the manner described by 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is received by EPA, EPA may make it available to the public without further notice to St. Regis.

22. Publicity

Each Party shall inform the other Party to this Order in advance of any formal press release made relating to this Order and the work conducted thereunder. Either Party may respond to inquiries about the Order without consultation with the other Party when such inquiries are made in a manner that precludes prior notice. Any Party may promptly release technical data as necessary to protect public health, provided



however, that, if possible, the Parties will be given an opportunity to review such information and provide comments on the information's technical accuracy. Any release of such information shall insure that the public is informed in a responsible manner.

23. Incorporation of Documents

Any reports, plans, specifications, and schedules required by the terms of this Order are, upon approval of EPA, incorporated into this Order.

24. Compliance with Applicable Laws

All action required pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations.

25. Endangerment

In the event that activities implementing this Order, an emergency situation, or a release or threat of release not addressed in this Order is creating an imminent and substantial endangerment to the public health, welfare, or the environment, EPA and/or St. Regis may take whatever additional action may be necessary to prevent or abate the endangerment.

26. Release From Liability

Full performance by St. Regis of all commitments made in this Order, including implementation of an approved course of remedial action, shall constitute a full and final disposition of this and any other civil proceeding which may have been

brought by EPA against St. Regis with respect to groundwater contamination in the Study Area. However, as provided herein, in the event of final disapproval of any course of action proposed by St. Regis, EPA retains the right to seek judicial enforcement of this Order or require further action under Section 106 of CERCLA or any other relevant provision of law, and St. Regis retains the right to raise any and all defenses, except as stipulated herein.

27. Enforcement

Compliance with the terms of this Order shall be enforceable by EPA pursuant to Section 106(b) of CERCLA, 42 U.S.C. 9606(b).

Nothing herein shall prevent EPA from taking whatever action may be necessary to prevent or abate any imminent and substantial endangerment to health and the environment.

28. Coordination with Other Government Agencies

EPA and St. Regis shall make all reasonable efforts to coordinate all actions taken under this Order with other appropriate government agencies, including provision of notice and duplicate samples, upon request.

29. Applicability of Order

This Order shall apply to and be binding on St. Regis and its employees, agents, and contractors acting with respect to the Libby Groundwater Site, and to successors and assigns of St. Regis' said Lumber and Plywood Mill.

30. Rights Reserved

EPA retains the right to conduct such other investigations and activities at the Libby Groundwater Site, consistent with the commitments or activities required by this Order, and further retains all rights against third parties which may arise out of the facts on which this Order is based.

31. Other Claims

Nothing in this Order is intended to release any claims, causes of action or demands in law or equity of any party against any entity not a signatory to this document for any liability it may have arising out of or relating in any way to the Libby Groundwater Site.

32. Liabilities

The United States shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by St. Regis or its agents or contractors in carrying out activities pursuant to this Order, nor shall the United States be held as a party to any contract entered into by St. Regis or its agents or contractors in carrying out activities pursuant to this Order.

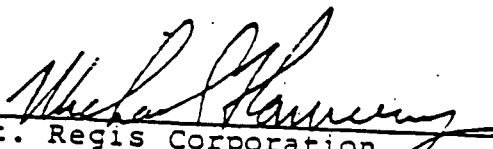
The St. Regis Corporation shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by the United States or its agents or contractors in carrying out activities pursuant to this Order, nor shall the St. Regis Corporation be held as a party to any contract entered

into by the United States or its agents or contractors in carrying out activities pursuant to this Order.

33. Termination

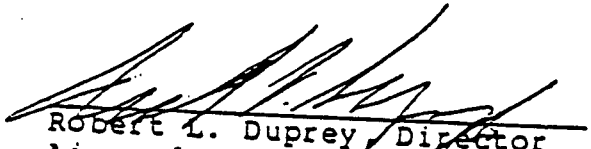
The provisions of this Order shall terminate upon St. Regis' receipt of written notice from EPA that St. Regis has demonstrated, to the satisfaction of the Agency, that all of the terms of the Remedial Investigation/Action Plan have been completed.

It is so agreed:

  
St. Regis Corporation  
by Michael Flannery, Vice President

10/11/83  
Date

It is so Ordered:

  
Robert L. Duprey, Director  
Air and Waste Management Division  
U.S. Environmental Protection  
Agency, Region VIII

10/15/83  
Effective Date

## EXHIBIT A - REMEDIAL INVESTIGATION/ACTION PLAN

### I. Purpose

The purposes of this study are to develop facts and data to:

- a. Characterize the physical and chemical groundwater conditions that exist in the "Study Area", as defined below, through sound, well managed scientific investigations.
- b. Evaluate, to the extent possible, the degree of suspected groundwater contamination in the Study Area.
- c. Identify, to the extent possible, the source or sources of suspected groundwater contamination.
- d. Notify, when and where appropriate, public health officials of potential public health implications associated with the Study Area.
- e. Evaluate remedial action alternatives, recommend alternative(s) as appropriate, and implement any final approved remedial action(s) to address any identified threats to health and the environment from release of hazardous substances in the Study Area.

### II. Objectives

The objectives of the Study are:

- a. Describe the geology and hydrology of the Study Area through the compilation and evaluation of well data.
- b. Utilize well data to estimate the water-bearing characteristics of materials underlying the Study Area, to estimate the rate and direction of groundwater flow, and to develop a water table map for the Study Area.
- c. Sample and analyze groundwater from wells to determine the presence and concentration of Target Substances, as defined in Appendix I of this exhibit, in the Study Area.
- d. Utilize the above data to evaluate, develop, and recommend remedial action alternatives to address any identified threats to health and the environment from release of hazardous substances in the Study Area.

### III. Study Area

The Study Area consists of Sites A and B as described on Map 1:

- a. Site A is a portion of the property owned by St. Regis where the St. Regis Libby Lumber and Plywood Facility operates. Study Site A is defined as follows:
  1. The Southern Boundary runs from a point just south of an irrigation well and near a mill log yard road at the intersection with the Western Boundary, east to the intersection with the Eastern Boundary.
  2. The Eastern Boundary runs along the eastern high-water mark of Libby Creek, from an intersection with the Southern Boundary, north to the intersection with the Fifth Street Extension, which crosses Libby Creek approximately 1,000 feet from the southern bank of the Kootenai River.
  3. The Northern Boundary follows the Fifth Street Extension from the east side of Libby Creek, to an intersection with the St. Regis property line at the plywood plant.
  4. The Western Boundary runs from an intersection with the Northern Boundary, south following the St. Regis property line until it connects with U. S. Highway Number 2, then paralleling U. S. Highway Number 2 to an intersection with the Southern Boundary.
- b. Site B is a section of residential property, located to the west of Site A. Site B is defined as follows:
  1. The Southern Boundary runs west from the western boundary of U. S. Highway Number 2 down the northern right-of-way of Maple Street to the western high-water mark of Flower Creek.
  2. The Eastern Boundary runs along the western right-of-way of U. S. Highway Number 2, where U. S. Highway Number 2 runs north and south within the town of Libby, from an intersection with the Southern Boundary north to an intersection with Minnesota Avenue.

3. The Northern Boundary is the southern right-of-way of U. S. Highway Number 2, where the U. S. Highway Number 2 runs east and west through the town of Libby, running from the intersection of Minnesota Avenue west to the western high-water mark of Flower Creek.
4. The Western Boundary is the western high-water mark of Flower Creek, running north from an intersection with the Southern Boundary to an intersection with the Northern Boundary.

#### IV. STUDY PLAN

##### A. PHASE I - Field Investigation

1. Within ten days after the effective date of this Order, St. Regis shall obtain available well log data on all existing wells located on Map I of this Exhibit. Data collected shall include well construction information (e.g., depth, diameter, elevation, screened intervals, and casing type), and hydrogeologic information (e.g., lithologies, water bearing characteristics and evaluations, and identity of water bearing zone).
2. Within ten days after the effective date of this Order, St. Regis shall measure well depths and static water levels on the wells identified in paragraph 1 above, where possible.
3. Within fifteen days after the effective date of this Order, St. Regis shall submit to EPA for approval a plan for sampling and analysis of all existing wells to evaluate the extent of contamination and describe contamination plumes in the Libby Groundwater Site. Samples will be analyzed for the Target substances listed in Appendix I.
4. Within seven days of EPA's approval, St. Regis shall implement the sampling and analysis Plan submitted pursuant to paragraph 3, above, as approved by EPA.
5. Within fifteen days after the effective date of this Order, St. Regis shall evaluate existing stream flow data from Libby and Flower Creeks to determine the relationship between surface and groundwater in the area.
6. Within thirty days of completion of the activities in Phase I, St. Regis shall submit a report including data

collected, sampling results, and an evaluation of the need for further field investigation to characterize adequately the extent and pathway of contamination at the Libby Groundwater Site.

B. PHASE II - Field Investigation

1. Within thirty days of submittal of the Phase I report, St. Regis shall develop and submit to EPA a plan, including a schedule for implementation, for continuing the sampling, analysis, and other data gathering necessary to evaluate the extent and pathways of groundwater contamination at the Libby Groundwater Site.

The plan will include, inter alia, the design and installation of additional groundwater monitoring wells, and quarterly well sampling for a period of one year.

2. Within thirty days of submittal of the Phase I report, EPA will evaluate alternatives and develop a plan for interim remedial measures to protect public health and the environment as appropriate, including restrictions on use of contaminated groundwater, if any.

C. PHASE III - Field Investigation

1. Within fifteen days of EPA's approval, St. Regis shall implement the Plan submitted in Phase II for continued field investigations and interim remedial measures, as approved by EPA.
2. Within sixteen months after initiating the additional field investigation, St. Regis shall submit to EPA a draft and final field investigation report including the data gathered during Phase III and an evaluation of the extent and the pathways of any groundwater contamination in the study area.

D. PHASE IV - Feasibility Study

1. Within 15 days after submittal of the Phase III Report, St. Regis shall submit to EPA for approval a proposal for studying alternative remedial measures to mitigate and control the release and past release of hazardous substances at the Libby Groundwater Site. The proposal shall provide for any additional data gathering that may be necessary to evaluate alternatives. The Study



shall be conducted in accordance with the National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. 300.68. The proposal shall identify alternative measures, including source control and off-site action, necessary to provide a permanent remedy to prevent effectively or minimize to the greatest extent feasible the migration of a release of hazardous substances into the environment.

The alternative measures proposed for study will include among others, containment, on-site treatment, removal, management alternatives such as continued monitoring, and may include no action.

2. Within sixty days of EPA's approval of the feasibility proposal, St. Regis shall complete the study of remedial alternatives, recommend a preferred alternative(s) for remedial action, and submit a final report to EPA for approval.

E. PHASE V - Remedial Action

1. Within thirty days of EPA's approval of remedial measures proposed pursuant to paragraph D.2., above, St. Regis shall submit to EPA for approval detailed plans which include specifications for and operation, maintenance, and monitoring of remedial measures, and a proposed implementation schedule.
2. Within fourteen days of EPA's approval of the remedial action plans, specifications, and schedules, St. Regis shall initiate the approved remedial actions.
3. St. Regis shall operate, maintain, and monitor quarterly the performance of the remedial actions in accordance with the approved plan.

F. Milestones

	<u>Milestone</u>	<u>Date</u>
Phase I	Initiate Phase I	Completed
	Submit sampling and analysis plan	Completed
	Complete Phase I data collection	Completed
	Submit Phase I Report	Sept. 15, 1983
Phase II	Submit plan for supplemental field investigation	Oct. 15, 1983
	Evaluate and develop plan for interim remedial measures	Oct. 15, 1983
Phase III	Initiate supplemental field investigation and interim remedial measures	Nov. 15, 1983
	Submit Phase III report	March 15, 1985
Phase IV	Submit proposal for feasibility study	March 30, 1985
	Submit feasibility study report	June 15, 1985
Phase V	Submit plans, specifications, implementation schedule for approved remedial alternative(s)	July 30, 1985
	Implement remedial alternative(s)	as scheduled

## APPENDIX I - PROTOCOL

### I. Sampling

Groundwater elevation measurements and well sampling will be performed in accordance with the following procedures:

#### a. Log book

All the field observations noted during the well evaluations shall be recorded in a Field Sample Log Book used for well studies. The Field Sample Log Book shall be kept at St. Regis offices in Libby.

#### b. Ground water elevation measurements

Ground water elevations shall be determined by sounding the water depth with an electronic sounder that will measure the level to a reference point on top of the well. This reference point will be surveyed to the nearest 0.01 foot elevation. The elevations will be recorded on the "Water Well Information Form," Figure 1.

#### c. Sample Protocol

(1) Water sample bottles will be obtained from Laucks Lab and will contain all the necessary preservatives as outlined in Table II, 44 Fed. Reg. 69464 (December 3, 1979), and Laucks Laboratory Manual, Attachment 1. No residual chlorine is anticipated in the well water and therefore additives will not be necessary for these water samples. The sample bottles, specific preservatives, and holding times to be used with each target compound are listed in the table below:

<u>PARAMETER</u>	<u>CONTAINER</u>	<u>PRESERVATIVE</u>	<u>HOLDING TIME</u>
Pentachlorophenol	amber glass bottle	Cool to 4 C	7 days to extract 30 days to analysis
PAH/Compounds	amber glass bottle	Cool to 4 C	7 days to extract 30 days to analysis
Total Phenols	glass bottle	CuSO <sub>4</sub> H <sub>3</sub> PO <sub>4</sub>	28 days

The bottles shall be assembled into specific well packets, containing the bottles required for the water analyses at each well. The well packets shall be shipped in storage and shipping cooler boxes to St. Regis Co., Libby, by common carrier for each sample series.

- (2) Prior to well sampling, the static water level of the well will be measured.
- (3) Each well will be purged according to the instructions found on the "Water Well Information Form," Figure 1.
- (4) Each purge will consist of discharging between 3 to 5 well volumes as determined in the well elevation study. Any well having insufficient water for the specified purge shall be discharged until a stable pH, temperature, and conductivity is obtained.
- (5) Labels on each bottle will be completed during the purging. The sample label is shown in Figure 2.
- (6) After purging, all the sample bottles in the well packets shall be filled to the top with water using a bailer or submersible pump, either of which must be stainless steel. The bottles shall not be flushed or allowed to run over as preservatives have been pre-added to each bottle.
- (7) The chain-of-custody record, Figure 3, shall be completed and a seal attached to the top of each bottle and signed by the sample collector.
- (8) The filled water bottles shall be placed in the cooler box containing ice for storage.
- (9) The Field Sample Log Book shall be completed, including, but not limited to, the following data: date; time; well name; location; samples taken; sampling team; well owner; sample splits taken; on-site water analysis results, if completed; water physical characteristics; and remarks.
- (10) One additional sample shall be taken by St. Regis for a random field replica and a field blank will be carried with all samples.
- (11) After all the wells are sampled, the cooler boxes will be checked for ice and prepared for shipment to Lauçks Lab in Seattle.
- (12) Two copies of the Field Sample Log Book will be placed in a water tight plastic bag and accompany the samples.

(13) If the samples are to be hand delivered to Laucks, a copy of the chain-of-custody form will be placed in one of the containers. If the samples are to be shipped by common carrier, the chain-of-custody form for each cooler box shall be attached to the top inside of the box and signed by the common carrier.

(14) The cooler boxes will be sealed and shipped to Laucks Lab, Seattle, within 48 hours of collection.

(15) The Field Sample Log Books will be placed in a secure location at St. Regis plant at Libby.

## II. Analysis

### a. Target Substances

Unless otherwise approved by EPA, all samples will be analyzed for the following Target Substances:

Total phenols	Anthracene
Pentachlorophenol	Total polynuclear aromatic
Napthalene	hydrocarbons (PAH) as
Penathrene	identified by Method 610

### b. Field Analysis

Field analyses will follow "Standard Methods for Evaluating Water and Waste Water," 15th Edition 1980, or manufacturers recommendations as approved by EPA. Each instrument will be calibrated or internally calibrated at least every morning, noon, and after the last sample of the day. The calibration results will be recorded prior to adjusting the instrument. The results of each well sampled shall be noted on the "Field Chemical Analysis Form," Figure 4.

### c. Laboratory Analysis

Upon receipt of the samples, the boxes will be examined for broken seals. The boxes will be opened, the chain-of-custody record signed, and any broken seals on the boxes or bottles noted. A laboratory number will be assigned and the bottles placed in storage for preparation and analysis. The methods used for the analyses of the targeted compounds are outlined in 40 C.F.R. 136.3, Tables 1B and C, as specified below:

### Description of Methods and Comments

### Reference

1. Pentachlorophenol Solvent extraction of sample followed by methylation of extract. GC analysis will be performed using packed column methodology and ECD detector.

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater U.S. EPA, July, 1982. Method 604, or EPA-approved equivalent.

2. PAH/Specific compounds. Solvent extraction of sample followed by HPLC analysis of extract. Specific compounds quantified by reference to a calibrated curve. Compounds include, but are not limited to Napthalene, Phenanthrene and Anthracene.

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, U.S. EPA, July, 1982. Method 610, or EPA-approved equivalent

3. Total PAH

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, U.S. EPA, July, 1982. Method 610, or EPA-approved equivalent

4. Total Phenols. Automated distillation colorimetric 4-aminoantipyrine

"Methods for Chemical Analysis of Water and Wastes," U.S. EPA, March, 1983. Method 420.2, or EPA-approved equivalent.

Surrogate compounds will be added to samples prior to extraction in the pentachlorophenol and PAH analysis. One each duplicate, spike, field blank and field replicate will be analyzed for all parameters. Reagent blanks will be processed for all determinations.

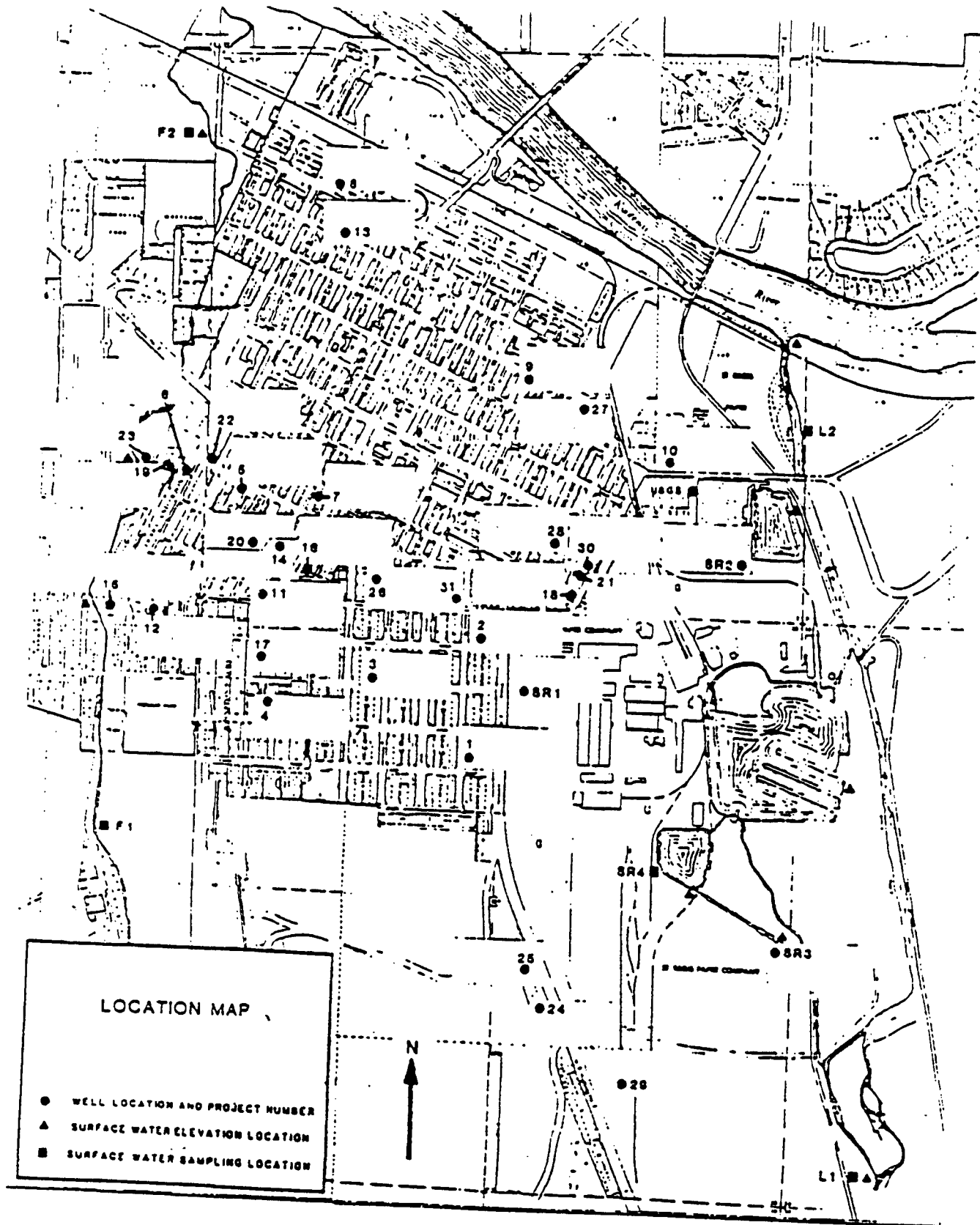
### III. Quality Assurance/Quality Control (QA/QC)

QA/QC procedures shall be in accordance with EPA document SW 846, "Test Methods for Evaluating Solid Waste," Section 10, Second Edition, July 1982.

#### IV. Training and Safety

Before the sampling is started and before the first sample of the day, training on the correct sampling procedures and QA/QC will be provided by the person in charge of the sampling team.

No chemicals hazardous to the level warranting special equipment have been detected and therefore no special safety requirements are necessary at this time.



# INVESTIGATION OF GROUND WATER QUALITY

LIBBY, MONTANA

SCALE: 1"=800'



LAB# \_\_\_\_\_ SAMPLE# \_\_\_\_\_  
SAMPLE LOCATION \_\_\_\_\_  
SAMPLED BY \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
WITNESSED BY \_\_\_\_\_  
RES. \_\_\_\_\_ ADDED BY \_\_\_\_\_ DATE \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
**LAUCKS TESTING LABS., INC**

## 6 / SAMPLING - Chain of Custody

Figure 3. Example of chain-of-custody record.

3- 0605

LIBBY, MONTANA  
FIELD CHEMICAL ANALYSIS FORM

Well Owner \_\_\_\_\_ Well Project No. \_\_\_\_\_  
Address \_\_\_\_\_ Date \_\_\_\_\_  
City/State \_\_\_\_\_ Time \_\_\_\_\_  
Location T \_\_\_\_\_ N, R \_\_\_\_\_ W \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4, Sec \_\_\_\_\_  
County \_\_\_\_\_ Quad \_\_\_\_\_

Sampling Data

Sample taken from: \_\_\_\_\_

Pump operated \_\_\_\_\_ minutes before sampling.

Sample is marked: \_\_\_\_\_

Field Chemical Analysis

Analyst	Time	Date	Conductance	Total	ph	Dissolved	Iron	
			micro mhos/cm	Hardness as Ca CO <sub>3</sub>		Oxygen	(Total mg/l)	
1								
2								
3								
4								
5								
6								

Scheduled by \_\_\_\_\_  
J.R. Carr/Associates

## COMMUNITY RELATIONS RESPONSIVENESS SUMMARY

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## RESPONSIVENESS SUMMARY

### LIBBY GROUND WATER SITE

LIBBY, MONTANA

September 1986

This community relations Responsiveness Summary is a part of the Enforcement Decision Document for the first operable unit of the Libby Ground Water Superfund site. The Responsiveness Summary is divided into the following sections:

- Section I. Background on Community Involvement. This section provides a brief history of community interest and concerns raised during the remedial planning activities at the Libby Ground Water site.
- Section II. Summary of Major Comments Received and the Environmental Protection Agency's (EPA) Responses. This section categorizes written and oral comments by relevant topics and provides a general indication of the source of the comments in each category. Responses to these comments are also provided.
- Section III. Remaining Concerns. This section describes remaining concerns that EPA is aware of regarding remedial design and remedial action at the Libby Ground Water site and EPA's plans for addressing these concerns.

In addition to the above sections, Attachment A, included as part of this Responsiveness Summary, identifies the community relations activities conducted thus far by EPA during remedial response activities at the Libby Ground Water site.

#### I. BACKGROUND ON COMMUNITY INVOLVEMENT

Community interest in the Libby Ground Water site has generally been low. Over the years, many Libby residents have worked for Champion International, or its predecessor, the St. Regis Company. Most residents take their water from the public water system which comes from a reservoir

on Flower Creek three miles upstream from the site. The Libby-area population directly affected by the ground water contamination is a small percentage of the population. Champion International is conducting the remedial investigation and feasibility study (RI/FS) at the site. The public has been informed of RI/FS progress and potential health effects of creosote and pentachlorophenol through articles in the local papers and mass mailings sponsored by EPA and Champion International. Early in the Superfund process, the Lincoln County sanitarian was established as a key contact person to maintain two-way communication between EPA and the community.

Copies of completed portions of the RI/FS have been placed in the information repositories located in the Lincoln County sanitarian's office and the Montana office of the EPA.

Thus far, EPA has held three public meetings at the site, all in conjunction with regularly-scheduled meetings of the County Board of Health. The first meeting, in October 1983, attracted about ten area residents in addition to the federal and local officials and company representatives. The purpose of the meeting was to discuss results of studies conducted as of that time and to urge residents not to use their wells if another source of water was available. A second meeting was held in July 1985. In addition to County Board of Health members, the meeting attracted one interested citizen. EPA updated residents on site activities and again urged residents not to use well water or drill new wells.

The third meeting was held on July 15, 1986, at the beginning of the public comment period on the first operable unit. EPA and Champion International provided the local media with press releases regarding the meeting and the proposed corrective measures. Before the public meeting, each of the local papers carried at least two news stories on the planned meeting and the proposed alternatives. In addition, EPA prepared a fact sheet on the site, with particular emphasis on the first operable unit. This fact sheet was distributed as an insert in a local newspaper that is

delivered to 3,600 homes. Further, Champion International wrote letters to homeowners who had responded to a site-related survey the company had taken earlier. This letter notified them of the time, place, and purpose of the meeting.

This public meeting opened the three-week public comment period held from July 15 through August 8, 1986. The purpose of the meeting was to describe Champion International's proposed actions, inform people about overall site activities and the Superfund program, receive questions and comments, and answer questions on the Feasibility Study on the First Operable Unit (FS report) for the Libby Ground Water site. EPA placed the draft report in the information repository located in the county sanitarian's office. The turnout at the meeting included fifteen local citizens plus an additional ten representatives of the Lincoln County and City of Libby governments.

## II. SUMMARY OF MAJOR COMMENTS RECEIVED AND RESPONSES

Although no one at the public meeting on the FS report made a formal written statement, the majority of public questions and comments on the draft FS report were made at this meeting. Other comments were later made in writing to EPA or to the Lincoln County sanitarian, or by telephone to EPA in Helena.

The atmosphere at the meeting was generally amicable, with citizens raising questions that clearly concerned them. No one voiced opposition to Champion International's preferred alternative (see the full Enforcement Decision Document). As requested in the preferred alternative, an ordinance restricting the drilling of new wells passed unanimously without opposition at the City Council meeting the following week.

The majority of the comments made and questions and concerns raised came from local officials and area residents. The Montana Solid and

Hazardous Waste Bureau (SHWB) also made several comments. These comments, questions, and concerns are summarized and grouped into the following five categories:

- o Remedial alternative preferences;
- o Concerns about health and the environment;
- o Cost issues;
- o Technical questions; and
- o Community relations issues.

The comments, questions, and concerns are summarized below and each is followed by a summary of the responses. Some responses at the public meeting were provided by Champion International or its consultants. These responses are identified; otherwise, the responses were made by EPA.

#### Remedial Alternative Preferences

1. Comment: The Montana SHWB concurred with the preferred alternative. It recommended planning ahead, however, in case future demands are greater than the capacity of the system. Other citizens supported this comment as well.

Response: In its study of the proposed remedial alternatives, Champion International analyzed historical water flow and demand, and found that Flower Creek at its lowest flow would be adequate to meet the demands. Champion International also examined the possibility of using the Kootenai River and the Kootenai shallow ground water as municipal water sources. The cost to do this would be very high, however, and EPA is not aware of any plans to develop these or other water resources. Another possible source of increased water supply might come from alterations to the existing water distribution system, which currently appears to lose a major portion of its water, probably through leakage.



Champion International has informed the City of Libby of this problem, and the City may be exploring ways to improve the situation.

2. Comment: The Montana SHWB recommended that the ten residences within the contaminated area that are not on the city supply system should be connected to that system.

Response: EPA agrees with this recommendation, with the note that the cost of connecting these residences to the public water system has already been included in the "buy water plan with ordinance," which is being implemented.

3. Comment: The SHWB recommended that monitoring and sampling by Champion International should be continued, especially in the West Libby area and Flower Creek.

Response: EPA agrees, and has included this as part of the remedy.

4. Comment: SHWB recommended that observations of the ground water and contaminant plume movement as a result of decreased ground water use should be made.

Response: A significant change in the rate or direction of contaminant movement is not expected. Champion International will continue to monitor both ground water levels and plume movement, however.

#### Concerns About Health and the Environment

1. Comment: Several citizens were concerned about the extent of the contamination. They wanted to know how deeply the ground water is

contaminated, whether use of wells outside the contaminated area will draw the contamination in the direction of such wells, and how the spread of the contamination can be halted.

Response: The EPA and Champion International representatives answered that the contamination is at all levels of the ground water; there is no known safe level from which citizens might draw their water. While wells outside the contaminated area may tend to draw contamination toward themselves, individual wells are not a significant factor in the overall spread of the contamination.

2. Comment: One citizen wanted to know if the contamination tends to bioaccumulate, that is, collect and concentrate in living tissue.

Response: The consultant for Champion International answered that the information collected thus far does not show bioaccumulation. Plants do take up the contamination, but they do not concentrate it. A bigger risk comes from watering the lawn; the creosote tends to stick to the soil and in that way concentrates it. Few tests have been done on animals, but indications thus far are that they tend to shed the creosote easily.

3. Comment: One citizen asked what is being done to protect residents of Libby Flats, south of Libby.

Response: The consultant for Champion International responded that the ground water flows away from that area; thus, action need not be taken in that area now.

4. Comment: One citizen asked if there has been any evidence of increased cancer in Libby.

Response: EPA does not know of any increased incidence of cancer in Libby. Cancer as a result of long-term exposure, however, is hard to pin to a single cause.

### Cost Issues

1. Comment: One resident asked how Champion International's payment to the City of Libby for extra water use in the summer will affect the individuals already subscribing to the "buy water" plan.

Response: The Champion International representative answered that residents subscribing to the "buy water" plan will save additional money during the summer months.

2. Comment: A resident asked how much the installation of an activated charcoal filter on a well would cost.

Response: The Champion International consultant responded that the installation cost is \$3,000 plus the operational costs.

3. Comment: One resident asked whether the "buy water" plan is a year-to-year agreement, or extends for ten years.

Response: The Champion International representative answered that it is a year-to-year agreement. The agreement is reviewed annually to determine if a threat to the well owners still exists, and if other suitable alternatives have become available.

It is EPA's position that the "buy water" agreements are written with an indefinite term. They may be terminated when a contaminant threat to the well no longer exists, when other alternatives become available, or when the well owner requests termination in writing. The payment of compensation is made on a yearly basis.

4. Comment: A citizen asked how the Champion International payment to the City will affect individual sewer rates.

Response: The Mayor of Libby responded that the sewer rates will not be affected.

5. Comment: A Libby resident expressed concern that his well might become contaminated in the future, which could cost him as much as \$150 to \$250 per year, an expense he cannot afford.

EPA Response: If any wells become contaminated in the future, Champion International will offer the "buy water" plan to the well owner, which will cover any additional costs the well owner might encounter.

6. Comment: A citizen asked if the proposed options will be funded indefinitely, or if the costs will revert to the responsibility of the water users.

Response: EPA is not aware of any plans to make the water users bear costs that are now being borne by Champion International for the "buy water" or the "free irrigation water" plans.

#### Technical Questions

1. Comment: One resident suggested that EPA consider drilling down to the contaminated area of the ground water, inserting a device similar to a big wick and burning the oil off as it rises to the surface.

Response: A Champion International consultant responded that his company is now investigating a similar treatment in pumping ground water from the contaminated area and drawing off the oil for disposal.

2. Comment: A resident asked if the site is expected to increase in size.

Response: As technology makes it possible to detect contamination in smaller amounts, the boundary of the site may become broader to include areas contaminated by more minute quantities of chemicals.

3. Comment: A local couple asked whether sufficient water pressure would be available to each house so that irrigation and domestic usage can go on simultaneously.

Response: This question is actually part of a broader question of whether water pressure was considered when the "free irrigation water" plan was proposed. The answer to the broader question is that potential water pressure problems were considered, but not completely resolved. It appears that if any pressure problems develop, they might be due to the problems inherent in the water distribution system rather than to the additional demand. It appears that the water distribution system loses a major portion of its water, probably through leakage.

4. Comment: In March 1985, a party with an interest in the county's plan to drill a well in Libby asked if it would be safe to drill that well.

Response: EPA responded in May 1985 that it would be best to postpone the drilling of this well pending results of new tests in

the area. In July 1986, EPA advised the same party that the City of Libby had restricted the drilling of new wells inside the city limits.

#### Community Relations Issues

1. Comment: Several citizens asked why the fact sheets were not printed sooner and delivered to area residents, particularly those who are participating in the "buy water" plan.

Response: The fact sheets were printed as soon as the information became available, and were sent to all subscribers of the Western News as an insert to the July 16, 1986 edition.

2. Comment: One person asked whether there will be another public meeting at the end of the July-August, 1986 comment period.

Response: Another public meeting at the end of the public comment period is not now planned. At the end of this public comment period, EPA will study all the relevant information, including public comments, and then select a remedy.

3. Comment: One citizen asked if EPA will consider individual citizens' suggestions for correcting the problems at Libby.

Response: EPA will consider any suggestions submitted. Since there are many other considerations, however, there are no guarantees that any individual suggestion will be adopted without change.

### III. REMAINING CONCERNS

There were two questions raised during the public comment period on the FS report that EPA was unable to answer fully during remedial planning activities.

1. Comment: A resident asked how the contamination can finally be cleaned up.

Response: The EPA and Champion International representatives answered that there has not been a complete answer to that question anywhere yet.

2. Comment: Several commenters focused on the question of providing water to area residents who live outside the city limits of Libby. SHWB recommended that a plan to supply water to West Libby residents not on the city water system but who may in the future be identified as living within the contaminant plume area should be considered. The county sanitarian asked what remedy, if any, would be extended to those Libby-area residents that live within the plume boundary, but not within the city limits. A non-Libby resident who takes his water from the Libby system and whose home is within the contaminant plume boundary expressed the opinion that Champion International should buy water for all residents, including those outside the city limits. And one citizen asked whether a city ordinance or similar legislation would apply to a property owner outside both the city limits and the plume boundaries.

Response: Currently, no contamination has been found in wells outside of the city limits. Individuals who already have wells that may later become contaminated would be protected by the "buy water" plan, provided they notify Champion International of the existence of their well. This applies to well owners whether they

are inside or outside of the city limits. At such time as contaminated wells are discovered outside of the city limits, EPA believes it would then be appropriate for EPA, Champion International and Lincoln County to discuss some county action to preclude the use of ground water in the area.

EPA advises all property owners in the broader Libby area, including those outside the plume boundary as it is now drawn, not to drill wells, as there is a possibility that the wells could be contaminated. The possibility is greater for those within the plume boundary, but the boundary of the plume is approximate, and it is not possible to say whether even those outside the boundary would be guaranteed to have clean water.



ATTACHMENT A

COMMUNITY RELATIONS ACTIVITIES CONDUCTED  
AT THE LIBBY GROUND WATER SITE

- o EPA established Lincoln County sanitarian as key contact person (1979).
- o EPA issued news releases and fact sheets when the Libby Ground Water site was placed on the National Priorities List (January 1983).
- o Results of data collection from Phase I of the RI/FS Work Plan were sent by Certified Mail to each homeowner whose well was tested (October 1983).
- o Three-week comment period with public meeting held on Phase I results and the CERCLA 106 Administrative Order on Consent with St. Regis Company, Champion International's predecessor (October 1983).
- o Information repositories were established in the Lincoln County sanitarian's office and the Montana EPA office (1983).
- o Through the cooperation of the Lincoln County sanitarian, EPA, Champion International, and the City of Libby, a fact sheet recommending that residents limit well installation and use was sent to area residents (April 1984).
- o EPA prepared a community relations plan (October 1984).
- o EPA responded to occasional telephone queries from Libby residents (ongoing throughout RI/FS).
- o A fact sheet advising residents to avoid using contaminated ground water and to refrain from drilling wells in Libby was mailed to Libby area residents (May 1985).
- o EPA held a public meeting in Libby to inform the public of information gained from studies at the site (July 1985). The meeting was announced by a press release.
- o Champion International surveyed homeowners to determine the extent of public contact with contaminated ground water (February 1986).
- o Feasibility Study on the on First Operable Unit report released for public review and comment (July 1986).
- o EPA issued a press release announcing the public meeting and FS public comment period (July 1986).

- o EPA held a public meeting at the Lincoln County Annex in Libby to discuss the FS report and answer questions from the public (July 1986). A summary of this meeting is available in the EPA Montana office.
- o EPA held a three-week public comment period from July 15 to August 8, 1986.

ADMINISTRATIVE ORDER ON CONSENT, DOCKET NO. CERCLA -VIII-83-03

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UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION VIII

Docket No. CERCLA VIII 83-03

In the Matter of:	)	
	)	
- ST. REGIS CORPORATION	)	
	)	ADMINISTRATIVE ORDER
	)	ON CONSENT
	)	
Proceeding under Section 106	)	
of the Comprehensive Environ-	)	
mental Response, Compensation,	)	
and Liability Act (CERCLA),	)	
42 U.S.C. 9606 (1980)	)	

ADMINISTRATIVE ORDER ON CONSENT

This Administrative Order on Consent (Order) is issued to St. Regis Corporation (St. Regis) upon consent of the parties by the United States Environmental Protection Agency (EPA) pursuant to Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9606(a). Notice of this Order has been provided to the Montana Department of Health and Environmental Sciences (State) pursuant to Section 106(a) of CERCLA, 42 U.S.C. 9606(a).

This Order is issued without trial or final adjudication on any issue of law or fact. Neither St. Regis' consent to this Order, nor anything in this document shall constitute an admission by St. Regis with respect to any factual or legal matter except as otherwise stipulated herein.

### FINDINGS AND STIPULATIONS

1. A preliminary field investigation of the groundwater in Libby, Montana, completed by EPA in October 1981, identified pentachlorophenol and polynuclear aromatic hydrocarbons associated with creosote in samples taken from three domestic irrigation wells within the Libby city limits.
2. Pentachlorophenol and polynuclear aromatic hydrocarbons are hazardous substances, as defined by Section 101(14) of CERCLA, and are characteristic constituents of wood treating, among other, operations.
3. In September 1983, EPA included the area of groundwater contamination within Libby on the National Priorities List, pursuant to Section 105(8)(B) of CERCLA. (Libby Groundwater Site.)
4. St. Regis, formerly known as St. Regis Paper Company, a New York Corporation authorized to conduct business in Montana, owns and operates a lumber and plywood mill in Libby, Montana, which previously included a wood treating operation. Waste water from the former wood treating operation, containing pentachlorophenol and polynuclear aromatic hydrocarbons, was placed by former owners and operators, and by St. Regis into evaporation ponds at the mill beginning in the early 1940's.
5. St. Regis discontinued the wood treating operation in the late 1960's, filled the ponds with earth, and incorporated them into a log deck storage area. St. Regis believes that

these ponds, which remain in St. Regis' ownership, were clay lined and designed to reduce release to the environment.

6. Neither the State nor EPA has definitely determined that hazardous substances have migrated from the St. Regis facility. However, based on the age of the evaporation ponds at the St. Regis facility and their proximity to the three contaminated wells, EPA believes that these evaporation ponds may present a threat of release of hazardous substances into the groundwater in the Libby Groundwater Site, and that these conditions may present an imminent and substantial endangerment to public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. 9606(a).

7. Since the spring of 1982, St. Regis, in consultation with EPA and the State, has been investigating the extent and sources of contamination of the groundwater at the Libby Groundwater Site and developing a plan to evaluate and implement remedial action as necessary. The Remedial Investigation/Action Plan set forth herein in Exhibit A is the culmination of St. Regis' proposal, which the parties now seek to implement through this Order.

8. EPA has jurisdiction to issue this Order under Section 106(a) of CERCLA, 42 U.S.C. 9606, based on its findings as stipulated in paragraph 6, above.

9. St. Regis consents to the issuance of this Order, but does not admit that conditions at the Libby Groundwater Site

constitute an imminent and substantial endangerment, within the meaning of Section 106 of CERCLA. St. Regis retains the right to contest allegations concerning imminent and substantial endangerment in any other proceeding brought by EPA or any other person, and enters into this Order for the purpose of expediting an investigation of the Libby Groundwater Site in cooperation with EPA and the State.

#### ORDER

Based on the foregoing, it is hereby agreed and ORDERED:

10. Remedial Investigation and Action

Upon issuance of this Order, St. Regis shall implement the remedial investigation, feasibility study, and remedial action programs as set forth in Exhibit A, entitled Remedial Investigation/Action Plan.

St. Regis or a qualified independent consultant(s), retained by St. Regis shall prepare all proposals, studies, and reports required by this Order to be conducted or submitted by St. Regis.

11. Coordinators

Within fifteen days of entry of this Order, EPA and St. Regis shall name coordinators who shall be responsible for the administration of their respective responsibilities pursuant to this Order and receive all written materials required by this Order, and shall submit the names of those coordinators to each other.

12. Quality Assurance

St. Regis shall use sampling, quality assurance, quality control, and chain-of-custody procedures acceptable to EPA throughout all activities conducted pursuant to this Order. St. Regis shall consult the EPA in planning for sampling and analysis.

13. Notice

St. Regis shall provide advance notice to EPA and the State of any excavating, drilling, or sampling to be conducted pursuant to the Order at least five working days in advance of the date of such activity and, upon request in advance, shall provide EPA and/or the State with a split of any sample taken pursuant to this Order.

14. Site access

St. Regis shall permit EPA, the State, and their contractors and consultants to have access to St. Regis' property and to monitor any activity conducted pursuant to this study. EPA will provide five days prior notification for access whenever possible, consistent with its responsibilities.

Persons other than those bound by this Order presently own portions of the Libby Groundwater Site. The Parties to this agreement shall use best efforts to obtain voluntary site access agreements from the present owners necessary to fulfill the Parties' respective responsibilities under this Order. In the event St. Regis is unable to obtain the necessary access, it shall notify EPA.



15. Information exchange

St. Regis, EPA, and their respective contractors and consultants shall cooperate and make available to the others in a timely manner, the results of sampling, testing, or other data generated by any of them or on their behalf, and any relevant information in their possession regarding the actions called for by this Order, except as exempt or protected by law from such disclosure.

16. Preservation of information

The parties shall preserve, during the pendency of this Order and for three (3) years after its termination, all records and documents in their possession, or the possession of their employees or agents, which relate to the Libby Groundwater Site.

17. Reporting

St. Regis shall report to EPA in accordance with the Plans submitted pursuant to this Order. St. Regis shall promptly notify EPA of any failure to meet any date in an approved schedule, or any other significant delays, including in such report, a statement of the causes of such delays, the date by which the delayed activities will be completed, and their effects on St. Regis' ability to meet the remaining schedule for completion.

18. Force Majeure

Any failure by St. Regis to comply with the terms of this Order shall be excused, and the times for St. Regis'

performance extended to the extent St. Regis demonstrates such failure is caused by circumstances beyond its control. St. Regis shall notify EPA of any such delay as provided in paragraph 17, above.

19. Opportunity to Confer/Modification

At any time in the course of implementation of the Remedial Investigation/Action Program, St. Regis or its consultants may confer with EPA concerning the program. St. Regis may request EPA approval of a program modification based on new information or changed circumstances. Such modification shall be implemented upon its approval. EPA shall provide approval or disapproval of requested modifications.

20. Resolution of Disputes

In the event that EPA does not approve any recommended course of action, or part thereof, as submitted by St. Regis, the disapproval shall be in writing, shall state reasons for the disapproval, and may include requests for amendments or revisions.

Within thirty days after receipt of any notice of disapproval of any required recommendation or proposed action, St. Regis shall submit a revised recommendation or shall state in writing the reasons why the recommendation, as originally submitted, should be approved. If within the thirty days, (1) St. Regis has not submitted a revised recommendation and the disapproval has not been withdrawn, or (2) St. Regis has

submitted a revised recommendation which has not been approved, EPA retains the right to require such further action as it deems necessary, by issuing further administrative orders or seeking judicial recourse, pursuant to its authority under Section 106 of CERCLA, 42 U.S.C. 9606, or any other relevant provision of law. Nothing in this Order shall be construed to limit St. Regis' right to contest any such further orders or judicial action brought by EPA, or to require St. Regis to undertake any action not set forth in the Order submitted by St. Regis in its recommendation or revised recommendation.

21. Confidentiality

St. Regis may, if it desires, assert a business confidentiality claim covering part or all of the information requested by this Order in the manner described by 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is received by EPA, EPA may make it available to the public without further notice to St. Regis.

22. Publicity

Each Party shall inform the other Party to this Order in advance of any formal press release made relating to this Order and the work conducted thereunder. Either Party may respond to inquiries about the Order without consultation with the other Party when such inquiries are made in a manner that precludes prior notice. Any Party may promptly release technical data as necessary to protect public health, provided

however, that, if possible, the Parties will be given an opportunity to review such information and provide comments on the information's technical accuracy. Any release of such information shall insure that the public is informed in a responsible manner.

23. Incorporation of Documents

Any reports, plans, specifications, and schedules required by the terms of this Order are, upon approval of EPA, incorporated into this Order.

24. Compliance with Applicable Laws

All action required pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations.

25. Endangerment

In the event that activities implementing this Order, an emergency situation, or a release or threat of release not addressed in this Order is creating an imminent and substantial endangerment to the public health, welfare, or the environment, EPA and/or St. Regis may take whatever additional action may be necessary to prevent or abate the endangerment.

26. Release From Liability

Full performance by St. Regis of all commitments made in this Order, including implementation of an approved course of remedial action, shall constitute a full and final disposition of this and any other civil proceeding which may have been

brought by EPA against St. Regis with respect to groundwater contamination in the Study Area. However, as provided herein, in the event of final disapproval of any course of action proposed by St. Regis, EPA retains the right to seek judicial enforcement of this Order or require further action under Section 106 of CERCLA or any other relevant provision of law, and St. Regis retains the right to raise any and all defenses, except as stipulated herein.

27. Enforcement

Compliance with the terms of this Order shall be enforceable by EPA pursuant to Section 106(b) of CERCLA, 42 U.S.C. 9606(b).

Nothing herein shall prevent EPA from taking whatever action may be necessary to prevent or abate any imminent and substantial endangerment to health and the environment.

28. Coordination with Other Government Agencies

EPA and St. Regis shall make all reasonable efforts to coordinate all actions taken under this Order with other appropriate government agencies, including provision of notice and duplicate samples, upon request.

29. Applicability of Order

This Order shall apply to and be binding on St. Regis and its employees, agents, and contractors acting with respect to the Libby Groundwater Site, and to successors and assigns of St. Regis' said Lumber and Plywood Mill.

30. Rights Reserved

EPA retains the right to conduct such other investigations and activities at the Libby Groundwater Site, consistent with the commitments or activities required by this Order, and further retains all rights against third parties which may arise out of the facts on which this Order is based.

31. Other Claims

Nothing in this Order is intended to release any claims, causes of action or demands in law or equity of any party against any entity not a signatory to this document for any liability it may have arising out of or relating in any way to the Libby Groundwater Site.

32. Liabilities

The United States shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by St. Regis or its agents or contractors in carrying out activities pursuant to this Order, nor shall the United States be held as a party to any contract entered into by St. Regis or its agents or contractors in carrying out activities pursuant to this Order.


The St. Regis Corporation shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by the United States or its agents or contractors in carrying out activities pursuant to this Order, nor shall the St. Regis Corporation be held as a party to any contract entered

into by the United States or its agents or contractors in carrying out activities pursuant to this Order.

33. Termination

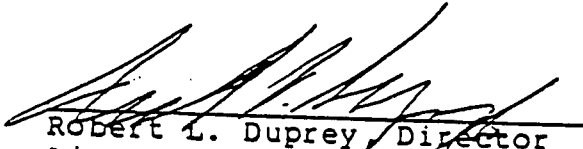
The provisions of this Order shall terminate upon St. Regis' receipt of written notice from EPA that St. Regis has demonstrated, to the satisfaction of the Agency, that all of the terms of the Remedial Investigation/Action Plan have been completed.

It is so agreed:

  
St. Regis Corporation  
by Michael Flannery, Vice President

10/11/83  
Date

It is so Ordered:

  
Robert L. Duprey, Director  
Air and Waste Management Division  
U.S. Environmental Protection  
Agency, Region VIII

10/15/83  
Effective Date

## EXHIBIT A - REMEDIAL INVESTIGATION/ACTION PLAN

### I. Purpose

The purposes of this study are to develop facts and data to:

- a. Characterize the physical and chemical groundwater conditions that exist in the "Study Area", as defined below, through sound, well managed scientific investigations.
- b. Evaluate, to the extent possible, the degree of suspected groundwater contamination in the Study Area.
- c. Identify, to the extent possible, the source or sources of suspected groundwater contamination.
- d. Notify, when and where appropriate, public health officials of potential public health implications associated with the Study Area.
- e. Evaluate remedial action alternatives, recommend alternative(s) as appropriate, and implement any final approved remedial action(s) to address any identified threats to health and the environment from release of hazardous substances in the Study Area.

### II. Objectives

The objectives of the Study are:

- a. Describe the geology and hydrology of the Study Area through the compilation and evaluation of well data.
- b. Utilize well data to estimate the water-bearing characteristics of materials underlying the Study Area, to estimate the rate and direction of groundwater flow, and to develop a water table map for the Study Area.
- c. Sample and analyze groundwater from wells to determine the presence and concentration of Target Substances, as defined in Appendix I of this exhibit, in the Study Area.
- d. Utilize the above data to evaluate, develop, and recommend remedial action alternatives to address any identified threats to health and the environment from release of hazardous substances in the Study Area.



### III. Study Area

The Study Area consists of Sites A and B as described on Map 1:

- a. Site A is a portion of the property owned by St. Regis where the St. Regis Libby Lumber and Plywood Facility operates. Study Site A is defined as follows:
  1. The Southern Boundary runs from a point just south of an irrigation well and near a mill log yard road at the intersection with the Western Boundary, east to the intersection with the Eastern Boundary.
  2. The Eastern Boundary runs along the eastern high-water mark of Libby Creek, from an intersection with the Southern Boundary, north to the intersection with the Fifth Street Extension, which crosses Libby Creek approximately 1,000 feet from the southern bank of the Kootenai River.
  3. The Northern Boundary follows the Fifth Street Extension from the east side of Libby Creek, to an intersection with the St. Regis property line at the plywood plant.
  4. The Western Boundary runs from an intersection with the Northern Boundary, south following the St. Regis property line until it connects with U. S. Highway Number 2, then paralleling U. S. Highway Number 2 to an intersection with the Southern Boundary.
- b. Site B is a section of residential property, located to the west of Site A. Site B is defined as follows:
  1. The Southern Boundary runs west from the western boundary of U. S. Highway Number 2 down the northern right-of-way of Maple Street to the western high-water mark of Flower Creek.
  2. The Eastern Boundary runs along the western right-of-way of U. S. Highway Number 2, where U. S. Highway Number 2 runs north and south within the town of Libby, from an intersection with the Southern Boundary north to an intersection with Minnesota Avenue.

3. The Northern Boundary is the southern right-of-way of U. S. Highway Number 2, where the U. S. Highway Number 2 runs east and west through the town of Libby, running from the intersection of Minnesota Avenue west to the western high-water mark of Flower Creek.
4. The Western Boundary is the western high-water mark of Flower Creek, running north from an intersection with the Southern Boundary to an intersection with the Northern Boundary.

#### IV. STUDY PLAN

##### A. PHASE I - Field Investigation

1. Within ten days after the effective date of this Order, St. Regis shall obtain available well log data on all existing wells located on Map I of this Exhibit. Data collected shall include well construction information (e.g., depth, diameter, elevation, screened intervals, and casing type), and hydrogeologic information (e.g., lithologies, water bearing characteristics and evaluations, and identity of water bearing zone).
2. Within ten days after the effective date of this Order, St. Regis shall measure well depths and static water levels on the wells identified in paragraph 1 above, where possible.
3. Within fifteen days after the effective date of this Order, St. Regis shall submit to EPA for approval a plan for sampling and analysis of all existing wells to evaluate the extent of contamination and describe contamination plumes in the Libby Groundwater Site. Samples will be analyzed for the Target substances listed in Appendix I.
4. Within seven days of EPA's approval, St. Regis shall implement the sampling and analysis Plan submitted pursuant to paragraph 3, above, as approved by EPA.
5. Within fifteen days after the effective date of this Order, St. Regis shall evaluate existing stream flow data from Libby and Flower Creeks to determine the relationship between surface and groundwater in the area.
6. Within thirty days of completion of the activities in Phase I, St. Regis shall submit a report including data

collected, sampling results, and an evaluation of the need for further field investigation to characterize adequately the extent and pathway of contamination at the Libby Groundwater Site.

B. PHASE II - Field Investigation

1. Within thirty days of submittal of the Phase I report, St. Regis shall develop and submit to EPA a plan, including a schedule for implementation, for continuing the sampling, analysis, and other data gathering necessary to evaluate the extent and pathways of groundwater contamination at the Libby Groundwater Site.

The plan will include, inter alia, the design and installation of additional groundwater monitoring wells, and quarterly well sampling for a period of one year.

2. Within thirty days of submittal of the Phase I report, EPA will evaluate alternatives and develop a plan for interim remedial measures to protect public health and the environment as appropriate, including restrictions on use of contaminated groundwater, if any.

C. PHASE III - Field Investigation

1. Within fifteen days of EPA's approval, St. Regis shall implement the Plan submitted in Phase II for continued field investigations and interim remedial measures, as approved by EPA.
2. Within sixteen months after initiating the additional field investigation, St. Regis shall submit to EPA a draft and final field investigation report including the data gathered during Phase III and an evaluation of the extent and the pathways of any groundwater contamination in the study area.

D. PHASE IV - Feasibility Study

1. Within 15 days after submittal of the Phase III Report, St. Regis shall submit to EPA for approval a proposal for studying alternative remedial measures to mitigate and control the release and past release of hazardous substances at the Libby Groundwater Site. The proposal shall provide for any additional data gathering that may be necessary to evaluate alternatives. The Study

shall be conducted in accordance with the National Oil and Hazardous Substances Contingency Plan, 40 C.F.R. 300.68. The proposal shall identify alternative measures, including source control and off-site action, necessary to provide a permanent remedy to prevent effectively or minimize to the greatest extent feasible the migration of a release of hazardous substances into the environment.

The alternative measures proposed for study will include among others, containment, on-site treatment, removal, management alternatives such as continued monitoring, and may include no action.

2. Within sixty days of EPA's approval of the feasibility proposal, St. Regis shall complete the study of remedial alternatives, recommend a preferred alternative(s) for remedial action, and submit a final report to EPA for approval.

#### E. PHASE V - Remedial Action

1. Within thirty days of EPA's approval of remedial measures proposed pursuant to paragraph D.2., above, St. Regis shall submit to EPA for approval detailed plans which include specifications for and operation, maintenance, and monitoring of remedial measures, and a proposed implementation schedule.
2. Within fourteen days of EPA's approval of the remedial action plans, specifications, and schedules, St. Regis shall initiate the approved remedial actions.
3. St. Regis shall operate, maintain, and monitor quarterly the performance of the remedial actions in accordance with the approved plan.

F. Milestones

	<u>Milestone</u>	<u>Date</u>
Phase I	Initiate Phase I	Completed
	Submit sampling and analysis plan	Completed
	Complete Phase I data collection	Completed
	Submit Phase I Report	Sept. 15, 1983
Phase II	Submit plan for supplemental field investigation	Oct. 15, 1983
	Evaluate and develop plan for interim remedial measures	Oct. 15, 1983
Phase III	Initiate supplemental field investigation and interim remedial measures	Nov. 15, 1983
	Submit Phase III report	March 15, 1985
Phase IV	Submit proposal for feasibility study	March 30, 1985
	Submit feasibility study report	June 15, 1985
Phase V	Submit plans, specifications, implementation schedule for approved remedial alternative(s)	July 30, 1985
	Implement remedial alternative(s)	as scheduled

## APPENDIX I - PROTOCOL

### I. Sampling

Groundwater elevation measurements and well sampling will be performed in accordance with the following procedures:

#### a. Log book

All the field observations noted during the well evaluations shall be recorded in a Field Sample Log Book used for well studies. The Field Sample Log Book shall be kept at St. Regis offices in Libby.

#### b. Ground water elevation measurements

Ground water elevations shall be determined by sounding the water depth with an electronic sounder that will measure the level to a reference point on top of the well. This reference point will be surveyed to the nearest 0.01 foot elevation. The elevations will be recorded on the "Water Well Information Form," Figure 1.

#### c. Sample Protocol

(1) Water sample bottles will be obtained from Laucks Lab and will contain all the necessary preservatives as outlined in Table II, 44 Fed. Reg. 69464 (December 3, 1979), and Laucks Laboratory Manual, Attachment 1. No residual chlorine is anticipated in the well water and therefore additives will not be necessary for these water samples. The sample bottles, specific preservatives, and holding times to be used with each target compound are listed in the table below:

<u>PARAMETER</u>	<u>CONTAINER</u>	<u>PRESERVATIVE</u>	<u>HOLDING TIME</u>
Pentachlorophenol	amber glass bottle	Cool to 4 C	7 days to extract 30 days to analysis
PAH/Compounds	amber glass bottle	Cool to 4 C	7 days to extract 30 days to analysis
Total Phenols	glass bottle	CuSO <sub>4</sub> H <sub>3</sub> PO <sub>4</sub>	28 days

The bottles shall be assembled into specific well packets, containing the bottles required for the water analyses at each well. The well packets shall be shipped in storage and shipment cooler boxes to St. Regis Co., Libby, by common carrier for each sample series.

(2) Prior to well sampling, the static water level of the well will be measured.

(3) Each well will be purged according to the instructions found on the "Water Well Information Form," Figure 1.

(4) Each purge will consist of discharging between 3 to 5 well volumes as determined in the well elevation study. Any well having insufficient water for the specified purge shall be discharged until a stable pH, temperature, and conductivity is obtained.

(5) Labels on each bottle will be completed during the purging. The sample label is shown in Figure 2.

(6) After purging, all the sample bottles in the well packets shall be filled to the top with water using a bailer or submersible pump, either of which must be stainless steel. The bottles shall not be flushed or allowed to run over as preservatives have been pre-added to each bottle.

(7) The chain-of-custody record, Figure 3, shall be completed and a seal attached to the top of each bottle and signed by the sample collector.

(8) The filled water bottles shall be placed in the cooler box containing ice for storage.

(9) The Field Sample Log Book shall be completed, including, but not limited to, the following data: date; time; well name; location; samples taken; sampling team; well owner; sample splits taken; on-site water analysis results, if completed; water physical characteristics; and remarks.

(10) One additional sample shall be taken by St. Regis for a random field replica and a field blank will be carried with all samples.

(11) After all the wells are sampled, the cooler boxes will be checked for ice and prepared for shipment to Laucks Lab in Seattle.

(12) Two copies of the Field Sample Log Book will be placed in a water tight plastic bag and accompany the samples.

(13) If the samples are to be hand delivered to Laucks, a copy of the chain-of-custody form will be placed in one of the containers. If the samples are to be shipped by common carrier, the chain-of-custody form for each cooler box shall be attached to the top inside of the box and signed by the common carrier.

(14) The cooler boxes will be sealed and shipped to Laucks Lab, Seattle, within 48 hours of collection.

(15) The Field Sample Log Books will be placed in a secure location at St. Regis plant at Libby.

## II. Analysis

### a. Target Substances

Unless otherwise approved by EPA, all samples will be analyzed for the following Target Substances:

Total phenols	Anthracene
Pentachlorophenol	Total polynuclear aromatic
Napthalene	hydrocarbons (PAH) as
Penathrene	identified by Method 610

### b. Field Analysis

Field analyses will follow "Standard Methods for Evaluating Water and Waste Water," 15th Edition 1980, or manufacturers recommendations as approved by EPA. Each instrument will be calibrated or internally calibrated at least every morning, noon, and after the last sample of the day. The calibration results will be recorded prior to adjusting the instrument. The results of each well sampled shall be noted on the "Field Chemical Analysis Form," Figure 4.

### c. Laboratory Analysis

Upon receipt of the samples, the boxes will be examined for broken seals. The boxes will be opened, the chain-of-custody record signed, and any broken seals on the boxes or bottles noted. A laboratory number will be assigned and the bottles placed in storage for preparation and analysis. The methods used for the analyses of the targeted compounds are outlined in 40 C.F.R. 136.3, Tables 1B and C, as specified below:



### Description of Methods and Comments

### Reference

1. Pentachlorophenol Solvent extraction of sample followed by methylation of extract. GC analysis will be performed using packed column methodology and ECD detector.

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, U.S. EPA, July, 1982. Method 604, or EPA-approved equivalent.

2. PAH/Specific compounds. Solvent extraction of sample followed by HPLC analysis of extract. Specific compounds quantified by reference to a calibrated curve. Compounds include, but are not limited to Naphthalene, Phenanthrene and Anthracene.

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, U.S. EPA, July, 1982. Method 610, or EPA-approved equivalent

3. Total PAH

"Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, U.S. EPA, July, 1982. Method 610, or EPA-approved equivalent

4. Total Phenols. Automated distillation colorimetric 4-aminoantipyrine

"Methods for Chemical Analysis of Water and Wastes," U.S. EPA, March, 1983. Method 420.2, or EPA-approved equivalent.

Surrogate compounds will be added to samples prior to extraction in the pentachlorophenol and PAH analysis. One each duplicate, spike, field blank and field replicate will be analyzed for all parameters. Reagent blanks will be processed for all determinations.

### III. Quality Assurance/Quality Control (QA/QC)

QA/QC procedures shall be in accordance with EPA document SW 846, "Test Methods for Evaluating Solid Waste," Section 10, Second Edition, July 1982.

#### IV. Training and Safety

Before the sampling is started and before the first sample of the day, training on the correct sampling procedures and QA/QC will be provided by the person in charge of the sampling team.

No chemicals hazardous to the level warranting special equipment have been detected and therefore no special safety requirements are necessary at this time.



LAB# \_\_\_\_\_ SAMPLE# \_\_\_\_\_

SAMPLE LOCATION \_\_\_\_\_

SAMPLED BY \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

WITNESSED BY \_\_\_\_\_

RES. \_\_\_\_\_ ADDED BY \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_

LAUCKS TESTING LABS., INC.

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME				NO OF CONTAINERS	REMARKS					
SAMPLERS (Signature)												
SA NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION							
						/ / / / / / / / / / / / / / / /	REMARKS					
Relinquished by: (Signature)			Date / Time		Received by: (Signature)	Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
Relinquished by: (Signature)			Date / Time		Received by: (Signature)	Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
Relinquished by: (Signature)			Date / Time		Received for Laboratory by: (Signature)	Date / Time		Remarks				

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

6 / SAMPLING - Chain of Custody

Figure 3. Example of chain-of-custody record.

3- 0605

LIBBY, MONTANA  
FIELD CHEMICAL ANALYSIS FORM

Well Owner \_\_\_\_\_ Well Project No. \_\_\_\_\_  
 Address \_\_\_\_\_ Date \_\_\_\_\_  
 City/State \_\_\_\_\_ Time \_\_\_\_\_  
 Location T \_\_\_\_\_ N, R \_\_\_\_\_ W \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4, Sec \_\_\_\_\_  
 County \_\_\_\_\_ Quad \_\_\_\_\_

Sampling Data

Sample taken from: \_\_\_\_\_  
 \_\_\_\_\_  
 Pump operated \_\_\_\_\_ minutes before sampling.  
 Sample is marked: \_\_\_\_\_

Field Chemical Analysis

Analyst	Time	Date	Conductance micro mhos/cm	Total Hardness as Ca CO <sub>3</sub>	ph	Dissolved Oxygen	iron (Total mg/l)	
1								
2								
3								
4								
5								
6								

Scheduled by \_\_\_\_\_  
 J.R. Carr/Associates