



The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner



*Celebrating 25 Years of Protecting
New Hampshire's Environment*

January 22, 2013

James T. Owens, Director
Office of Site Remediation and Restoration
USEPA - New England, Region I
5 Post Office Square, Suite 100, OSRR07-1
Boston, MA 02109-3912

**SUBJECT: Berlin – Chlor-Alkali Facility Superfund Site
DES Site #199709046, Project #10137**

Groundwater Use and Value Determination

Dear Mr. Owens:

The New Hampshire Department of Environmental Services (Department) has completed a Groundwater Use and Value Determination (Determination) for the Chlor-Alkali Facility Superfund Site located in Berlin, NH (Site). The Department made the Determination at the request of the U.S. Environmental Protection Agency (EPA) using EPA's guidance document entitled, "Groundwater Use and Value Determination Guidance," dated April 3, 1996, and a December 5, 1996 memorandum of agreement between the Department and EPA for implementation of this program.

This Determination is the basis for state and local planning for groundwater use and value in the vicinity of the Site for input to Superfund remedial action decisions. The Determination supports the development of remedial action objectives which will include the restoration of contaminated groundwater to drinking water standards within a timeframe that is reasonable given the particular circumstances of the Site.

Following the procedures outlined in the guidance document, the Department has determined that the groundwater in the vicinity of the Site is **medium use and value**. New Hampshire's Comprehensive State Groundwater Protection Program, which was developed in cooperation with and approved by EPA, provided the majority of documentation for the findings in this Determination. Attached is a worksheet summarizing the site-specific use and value considerations and a list of the sources of information used for the Determination.

There are no public water supply sources within the Review Area (i.e., one mile radius of the Site). Berlin Water Works collects its water from two sources: (1) the Ammonoosuc River located 7.5 miles west of the Site and in a different watershed than the Site; and (2) from a well located less than two miles north of the Site, adjacent to the Androscoggin River. Records show that public water is available for all developed areas within the Review Area (see Figure 1).

A review of records found that 16 drinking water supply wells (all bedrock and shown on Figure 1 and summarized in Table 2) have been installed within the Review Area since 1984 and none could be impacted by the Site due to distance from the Site and/or direction of groundwater flow.

Figure 1 shows the location of 42 known and potential contamination sources within the Review Area (Table 1 provides additional information on these known and potential sources), which is

DES Web Site: www.des.nh.gov

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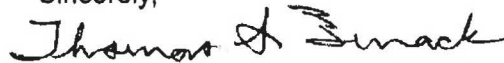
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generally developed with a mix of residential, industrial and commercial uses. Given the existing and past land uses in the area immediately surrounding the Site and the lack of a reasonably transmissive aquifer, it is highly unlikely that a new drinking water supply for a community water system could be sited in the developed area at and around the Site.

The City of Berlin was provided a draft Determination in a letter dated September 27, 2012. A meeting was held with the Berlin Water Works at DES on December 13, 2012, to review and comment on the draft Determination and the City concurred with the medium use and value determination in a December 18, 2012 E-mail.

If you have any questions on this determination, please contact Andrew Hoffman at (603) 271-6778.

Sincerely,



Thomas S. Burack
Commissioner

Enclosures: Figure 1
Table 1
Table 2
Table 3

Waste Management
Division

Digitally signed by Waste Management
Division
DN: cn=Waste Management Division,
o=Environmental Services, ou=HWRB,
email=ellse.hubbard@des.nh.gov, c=US
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Richard Pease, P.E., WMD
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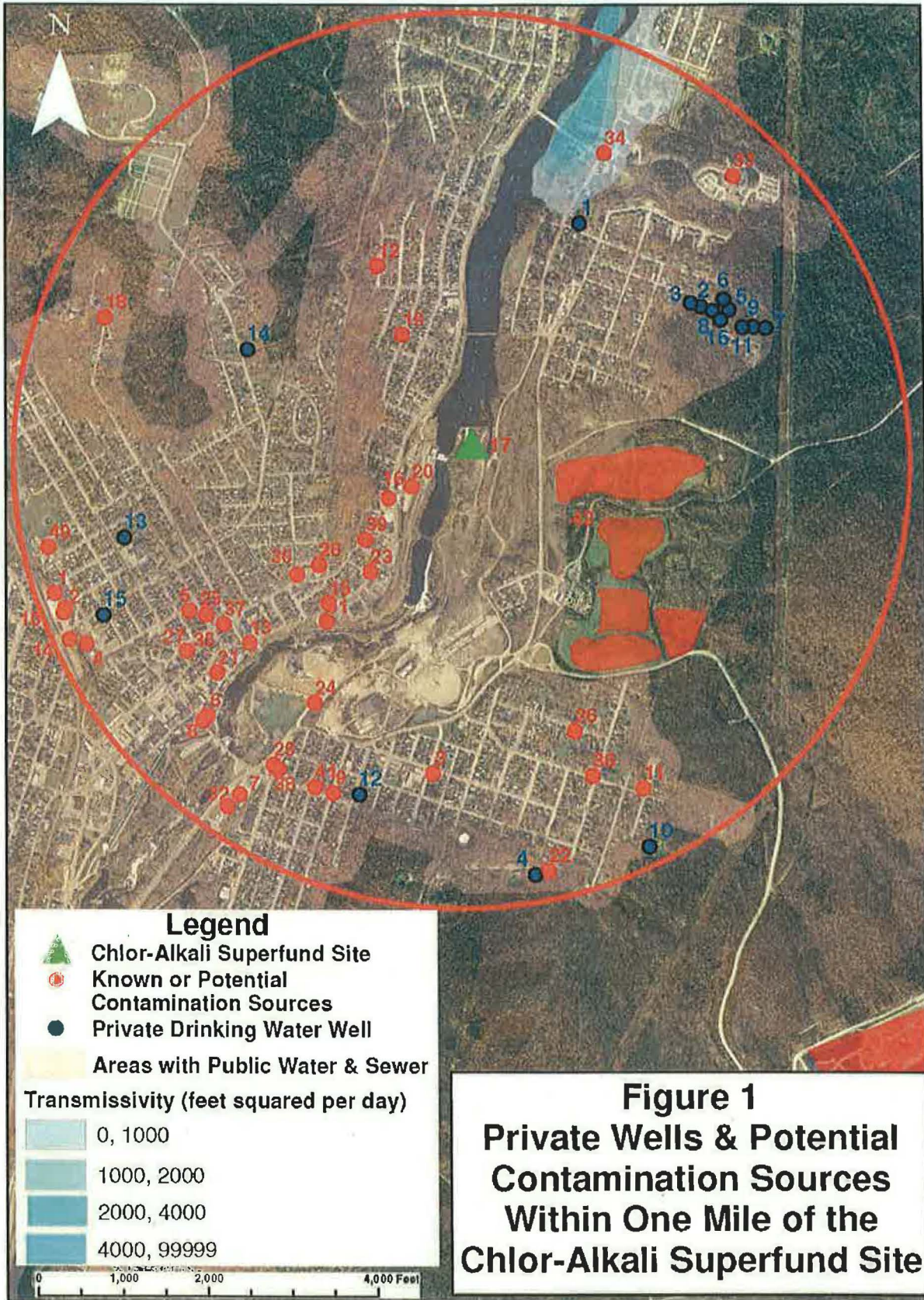


TABLE 1: POTENTIAL CONTAMINATION SOURCES WITHIN ONE MILE OF CHLOR ALKALI FACILITY

MAP ID	SITE NUMBER	SITE NAME	ADDRESS	TOWN	PROJECT TYPE	STATUS
1	199008012	NOTRE DAME ARENA	HILLSIDE AVE	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
2	199008012	NOTRE DAME ARENA	HILLSIDE AVE	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
3	198904028	BLANCHETTE'S GARAGE	300 COOS ST	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
4	198907024	SCORPION DISTRIBUTION	51 WILLOW ST	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
5	199309041	NEW ENGLAND TELEPHONE (FAC. 9212-06)	EMERY & HIGH STREETS	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
6	199309002	CUMBERLAND FARMS 2835	173 MAIN ST	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
7	199406033	CN BROWN BERLIN BULK PLANT	120 E MASON ST	BERLIN	Leaking Above Ground Storage Tank	CLOSED
8	199309002	CUMBERLAND FARMS 2835	173 MAIN ST	BERLIN	SITE WITH NON-PETROLEUM CONTAMINATION	CLOSED
9	199608019	ALBERT PROPERTY	554 HILLSBORO STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
10	199008012	NOTRE DAME ARENA	HILLSIDE AVE	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
11	199605005	SUSAN JOHNSON	559 FORBUSH AVENUE	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
12	199509020	YVES COTNOIR	RFD, BOX 3211	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
13	199601016	LEON'S GARAGE	325 MAIN STREET	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
14	199802027	KENTUCKY FRIED CHICKEN	4 HILLSIDE AVE	BERLIN	SITE WITH NON-PETROLEUM CONTAMINATION	CLOSED
15	199711009	PORTLAND GLASS	569 MAIN STREET	BERLIN	OIL SPILL OR RELEASE, LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
16	199709018	REDS MOBIL	879 MAIN ST	BERLIN	LEAKING UNDERGROUND STORAGE TANK	OPEN

TABLE 1: POTENTIAL CONTAMINATION SOURCES WITHIN ONE MILE OF CHLOR ALKALI FACILITY

18	200005020	RICHARD MASON	38 DEMERS STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
19	200012010	KAREN COTE	111 SWEDEN STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
20	200007033	FORMER RESEARCH & DEVELOPMENT BUILDING	912 MAIN STREET	BERLIN	SITE WITH NON-PETROLEUM CONTAMINATION	OPEN
21	200301004	BERLIN FIRE STATION	263 MAIN ST	BERLIN	LEAKING UNDERGROUND STORAGE TANK	CLOSED
22	200208040	GUY POULIN RESIDENCE	108 ENMAN HILL ROAD	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
23	200205065	FORMER SHAHAB TAJ PROPERTY	729 MAIN STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
24	199009011	FMR FRASER NH LLC BERLIN PULP MILL	650 MAIN ST	BERLIN	OIL SPILL OR RELEASE	CLOSED
25	200402004	REED PROPERTY	88 HIGH STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
26	200401034	PERRY RESIDENCE	446 DERRAH STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
27	200501035	PSNH UPPER HYDRO OFFICE	194 SCHOOL STREET	BERLIN	NON HAZARDOUS, NON SANITARY HOLDING TANK REGISTRATION	REGISTRATION
28	198605173	BURGESS SCHOOL	411 SCHOOL ST	BERLIN	UNSOLICITED SITE ASSESSMENT	CLOSED
29	199406033	CN BROWN BERLIN BULK PLANT	120 E MASON ST	BERLIN	UNDERGROUND INJECTION CONTROL	CLOSED
30	198605173	BURGESS SCHOOL	411 SCHOOL ST	BERLIN	ETHER CONTAMINATION FROM AN UNKNOWN SOURCE	CLOSED
31	199009011	FMR FRASER NH LLC BERLIN PULP MILL	650 MAIN ST	BERLIN	LEAKING BULK STORAGE FACILITIES CONTAINING FUEL	CLOSED
32	199503055	IRVING BERLIN BULK PLANT	23 UNITY ST	BERLIN	LEAKING BULK STORAGE FACILITIES CONTAINING FUEL	CLOSED
33	199709045	ANDROSCOGGIN VALLEY HOSPITAL	59 PAGE HILL RD	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
34	199901018	CHARLES ISAACSON AND SONS	PAGE HILL RD & HUTCHINS ST	BERLIN	INITIAL RESPONSE SPILL	CLOSED
35	200501035	PSNH UPPER HYDRO OFFICE	194 SCHOOL STREET	BERLIN	UNDERGROUND INJECTION CONTROL	CLOSED

TABLE 1: POTENTIAL CONTAMINATION SOURCES WITHIN ONE MILE OF CHLOR ALKALI FACILITY

36	200509020	TAMMY JUDSON RESIDENCE	473 FORBUSH AVENUE	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
37	200609019	ANCTIL RESIDENCE	258 SCHOOL STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	CLOSED
38	200709028	COLBY PROPERTY	576 GOEBEL STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	OPEN
39	200804022	ROBERT NADEAU PROPERTY	31 PEAVEY LANE	BERLIN	INITIAL RESPONSE SPILL	OPEN
40	200603026	APARTMENT BUILDING	212 WILLOW STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	OPEN
41	201007051	YEE PROPERTY	566 BURGESS STREET	BERLIN	LEAKING RESIDENTIAL OR COMMERCIAL HEATING OIL TANKS	OPEN
42	198704035	DUMMER YARD LANDFILL - JAMES RIVER	RTE 16/ HUTCHINS ST	BERLIN	UNSOLICITED SITE ASSESSMENT	OPEN

TABLE 2: PRIVATE DRINKING WATER WELLS WITHIN ONE MILE OF THE CHLOR ALKALI FACILITY (former) SUPERFUND SITE

Map ID	Water Resources Board #	NAME	ADDRESS	TOWN	MAP	PARCEL	DATE COMPLETED	DEPTH OF WELL	DEPTH TO BEDROCK	LENGTH OF CASING
1	24.002	L. TREMBLAY	25 WOOD ST	BERLIN	136	48	12/5/1985	465	4	20
2	24.0023	T. ADDARIO	60 BEMIS ST	BERLIN	135	84	9/12/1986	265	18	29
3	24.0025	R. HOOD	56 BEMIS ST	BERLIN	135	85	4/24/1987	400	20	30
4	24.0029	R. POIRIER	120 ENMAN HILL RD	BERLIN	132	95	7/14/1987	280	15	27
5	24.0036	POPE	79 BEMIS ST	BERLIN	135	75	5/27/1988	360	24	30
6	24.0037	R. LACASSE	75 BEMIS ST	BERLIN	135	74	5/31/1988	300	22	30
7	24.0038	EMERY	84 BEMIS ST	BERLIN	135	78	6/1/1988	240	12	18
8	24.0039	J. LEFEBVRE	64 BEMIS ST	BERLIN	135	83	5/26/1988	180	24	30
9	24.0044	M. BELANGER	80 BEMIS ST	BERLIN	135	79	7/21/1988	785	18	29
10	24.0052	D. BLANCHETTE	630 TRUDEL ST	BERLIN	132	45	3/20/1989	165	14	33
11	24.0057	D. HOOD	76 BEMIS ST	BERLIN	135	80	9/15/1989	165	15	40
12	24.0074	R. GAGNON	572 ROCKINGHAM ST	BERLIN	130	160	4/11/1994	565	12	37
13	24.0083	S. AUBE	193 STATE ST	BERLIN	120	195	8/6/1996	185	5	20
14	24.0089	R. DUMONT	700 HILLSIDE AVE	BERLIN	121	134	6/16/1998	500	105	121
15	24.0097	S. LEMIRE	98 HILLSIDE AVE	BERLIN	119	284	11/15/2000	225	6	20
16	24.0035	TARDIFF	68 BEMIS ST	BERLIN	135	82	5/25/1988	180	17	22

**TABLE 3
 CHLOR-ALKALI FACILITY SUPERFUND SITE, BERLIN NEW HAMPSHIRE
 GROUNDWATER USE AND VALUE DETERMINATION WORKSHEET
 SUMMARY OF GROUNDWATER SITE-SPECIFIC USE AND VALUE CONSIDERATIONS**

FACTORS	HIGH	MEDIUM	LOW	COMMENTS
1. QUANTITY		X		There is a stratified drift aquifer with relatively high transmissivity located approximately 3,100 feet north (up-gradient) of the site (MEDIUM). Given the distance and up-gradient nature of the stratified drift aquifer, the Groundwater Quantity Use and Value are considered <u>MEDIUM</u> .
2. QUALITY		X		The bedrock aquifer within the Review Area is not considered drinking water quality, due to historical land use and the presence of Dummer Yard Landfill up-gradient and to the east (LOW). Although this aquifer is threatened by on-site contamination, all waters of the State are to be drinking water quality (HIGH). The Groundwater Quality Use and Value are considered <u>MEDIUM</u> .
3. CURRENT PUBLIC WATER SUPPLY SYSTEMS (PWSSs)		X		Area served by PWSS. Berlin Water Works gets its water from the Ammonoosuc River, seven miles west of the Site and in a different watershed and from a well located approximately two miles north of the Site adjacent to the Androscoggin River and co-located with a former surface water intake site <u>MEDIUM</u> .
4. CURRENT PRIVATE DRINKING WATER SUPPLY WELLS		X		Records indicate that public water supply is available for almost all areas within one mile of the site (LOW). There are 16 drinking water supply wells (all bedrock) that were installed within one mile of the Site since 1984 <u>MEDIUM</u> .
5. LIKELIHOOD AND IDENTIFICATION OF FUTURE DRINKING WATER USE			X	High yield aquifers in review area are not threatened by Site contamination <u>LOW</u> .

TABLE 3 (continued)

FACTORS	HIGH	MEDIUM	LOW	COMMENTS
6. OTHER CURRENT OR REASONABLY EXPECTED GROUNDWATER USE(S) IN REVIEW AREA		X		Municipal water is available to all properties in the review area. The City is currently exploring a potential expansion of the existing groundwater supply in the stratified drift aquifer in the area of the Brown Farm Well field located, located approximately 1.7 miles north (up-gradient) of the Site (MEDIUM). A Groundwater Management Zone will be established to control the use of groundwater in the future and to ensure that the contaminant concentrations are decreasing, the remaining contamination has not migrated beyond the established boundaries, and that the remediation is progressing effectively over time. <u>MEDIUM</u>
7. ECOLOGICAL VALUE	X			Fractured bedrock is conveying elemental mercury and other contaminants from the Site to the Androscoggin River where it is visibly discharging. The volume of discharge has not been quantified, due to difficulty accessing the discharge points in the river during higher flow periods. The Groundwater impacts to ecological value are considered <u>HIGH</u> .
8. PUBLIC OPINION		X		A 2008 Reuse Planning Report for the Site identified the use of public water, not groundwater, for any reuse scenario at the Site (LOW). City of Berlin Water Works also requested a meeting to review a draft determination and understand Site conditions better as they relate to the City's water supply (MEDIUM).