

**LIST OF APPROVED DRILLING, GROUTING, REHABILITATION, HEAT EXCHANGE FLUIDS & ABANDONMENT PRODUCTS
(DNR BUREAU OF DRINKING WATER & GROUNDWATER)**

December 10, 2009

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
03-13-1996	"ABI Crumbles"	ABI, Inc.	100% granular sodium bentonite	Clay slurry ingredient; casing sealing material and lost circulation additive	None
03-13-1996	"ABI Gel"	ABI, Inc.	Powdered drilling mud-type bentonite (200-mesh) with polyacrylate polymer	Rotary drilling mud bentonite and clay slurry ingredient	None
03-13-1996	"ABI Granular"	ABI, Inc.	100% granular sodium bentonite	Clay slurry ingredient; casing sealing material for percussion drilling; and lost circulation additive	None
03-13-1996	"ABI Grout"	ABI, Inc.	High solids bentonite grout (NSF Approved)	Bentonite grout-allowed for low capacity wells where neat cement grout is not required	Mixed according to Mfg's instructions
03-13-1996	"ABI Hi Yield"	ABI, Inc.	Powdered drilling mud-type sodium bentonite (200-mesh) with polyacrylate polymer added	Rotary drilling mud bentonite clay; clay slurry ingredient	None
03-13-1996	"ABI Plug"	ABI, Inc.	100% chipped sodium bentonite, slow hydrating chips	Well, drillhole and pit abandonment	None
08-29-1989	"Air Foam"	Wyo-Ben, Inc.	Anionic Surfactant-alkyl ether sulfate	For rotary drilling to help remove drill cuttings, but only for bedrock	None
08-29-1989	"Amfoam"	Desert Drilling Fluids, Inc.	Anionic Surfactant	Foam for rotary drilling to help remove drill cuttings, but only for bedrock	(See approval)
12-04-1998 03-30-2000	"Aqua-Clear AE"	Baroid Industrial Drilling Products	Liquid blend of acid & acid enhancers	Well rehabilitation; to control bacterial slime caused by iron & sulfur reducing bacteria.	* See warning at end of this table.
01-05-2000	"Aqua-Clear MGA"	Baroid Industrial Drilling Products	Dry blend of granular acid with additives	Well rehabilitation; to remove iron, manganese and carbonate scale	* See warning at end of this table.
01-06-2000	"Aqua-Clear MSR"	Baroid Industrial Drilling Products	Dry granular pyrophosphate blended with a dispersant	Well development & rehabilitation; to help remove drilling mud residue and sediment from well screens and other components	None

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04-08-2004	"Aqua-Clear PFD"	Baroid Industrial Drilling Products	Dry granular co-polymer viscosifying agent	Drilling fluid product to be added to mix water to improve drillhole stability for rotary mud-circulation drilling and to improve carrying capacity for air or air/foam drilling.	May only be used as an additive and not as a complete replacement for rotary drilling mud; Also, may not be used in highly porous limestone or dolomite.
01-30-1996	"Aqua Freed Process"	Aqua Freed Water Retrieval Specialists	Carbon dioxide-liquid & gaseous & carbonic acid (created)	Well rehabilitation-removal of mineral encrustation and biofilm slimes	* See warning at end of this table.
05-19-1988	"Aquagel"	N. L. Baroid	Powdered drilling mud-type sodium bentonite (200-mesh) with 0.0125% polyacrylate polymer added	Rotary drilling mud clay; Clay slurry ingredient	(See approval)
04-08-1988	"Aquagel Gold Seal"	N. L. Baroid	Untreated 100% drilling mud sodium bentonite (powder)(200-mesh)	Rotary drilling mud clay; clay slurry ingredient	None
07-08-1993	"AquaGrout Catalyst: a.k.a. "Benseal-AquaGrout Catalyst"	N.L. Baroid	Granular bentonite mixed with a catalyst composed of four inorganic ingredients	High solids bentonite grout. For use where neat cement grout is not required	Allowed only for low cap. private & non-comm. wells where neat cement grout not required.
07-12-1994	"Aqua Guard Grout"	Baroid Drilling Fluids, Inc.	Granular bentonite (30-mesh) mixed with two proprietary inorganic ingredients to delay swelling of granules and to reduce pH	High solids bentonite grout & annular space seal. For use where neat cement grout not required	May not be used where neat cement grout is the required seal
01-30-2009	"AQF-2"	Halliburton (Baroid) Industrial Drilling Products	Anionic Surfactant	Foam for rotary drilling to help remove cuttings, but only for bedrock	None
07-16-2003	"Baroid Granular"	Baroid Industrial Drilling Products	Granular bentonite (30-mesh)	Clay slurry ingredient; lost circulation material for rotary-mud drilling; Seal for mounding around casing during driving	None
01-26-2004	"Barotherm"	Baroid Industrial Drilling Products	High-solids, bentonite grout for heat-exchange drillholes	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
06-05-2009	"Barotherm Gold"	Halliburton (Baroid) Industrial Drilling Products	High-solids thermally conductive bentonite grout for heat-exchange drillholes	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.

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02-02-2009	"Barotherm Plus"	Halliburton (Baroid) Industrial Drilling Products	High-solids thermally conductive bentonite grout for heat-exchange drillholes	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
12-12-1988	"Benseal"	N. L. Baroid	100% coarsely-ground (8-mesh) sodium bentonite	Clay slurry ingredient; lost circulation material for rotary-mud drilling; Seal for mounding around casing during driving	None
09-12-2001	"BH ²⁰ Grout"	Geo Pro, Inc. & Black Hills Bentonite, L.L.C.	High solids (20%) bentonite grout	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
08-06-2002	"BH Ultra"	Geo Pro, Inc. & Black Hills Bentonite, L.L.C.	High solids (20%) bentonite grout	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
08-19-1999	"Bio Purge BD-2000"	Rin Rockford (Stiles-Kem Division)	Biodispersant and biopenetrant	Control biofilms and reduce other biologically related problems in wells	None
08-21-2002	"Bio Sabre"	Calciquest	Sodium-based blend of phosphate ingredients	Well rehabilitation, especially to penetrate and break down biofilms in wells.	None
11-07-2006	"Black Hills Bentonite Plug"	Black Hills Bentonite LLC	100 % Bentonite chips	Well, Drillhole & Pit Abandonment	None
10-22-2004	"Black Hills Gel"	GeoPro, Inc.	Powdered, drilling mud-type bentonite (lower yield) (200-mesh), with polymer	Rotary drilling mud bentonite clay; clay slurry ingredient	None
04-18-1996	"BMR" (Bentonite Mud Remover)	CETCO	Inorganic acid salt (NSF Approved)	Well Development - by breaking down bentonite mud & natural clays and by dispersing and suspending clay particles	None
07-15-2003	"Casing Seal"	Baroid Industrial Drilling Products	Granular bentonite (8-14 mesh)	Clay slurry ingredient; lost circulation material for rotary-mud drilling; Seal for mounding around casing during driving	None
05-17-1989	"CETCO Chips" (Formerly "Volclay Chips")	CETCO	100% chipped sodium bentonite-slow hydrating chips (medium –1/4-3/8") (coarse – 3/8-3/4")	Well, drillhole & pit abandonment	None

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05-19-1993	"CETCO Crumbles" (Formerly "Crumbles" & "Volclay Crumbles")	CETCO	100% ground (8-20 mesh) granular sodium bentonite (No additives) (NSF Approved)	Clay slurry ingredient; seal for driving casing and last circulation material for rotary mud drilling	None
06-25-1987	CETCO Grout" (Formerly "Volclay Grout") (Bentonite Grout)	CETCO	Low yield bentonite single component bentonite grout - no additives (NSF Approved)	High solids bentonite grout for use where neat cement grout is not required	Allowed only where neat cement grout is not required - must be mixed according to instructions with product
09-09-1999	"ChloraPal"	Design Water Technologies	Buffered acid	To control pH during well chlorination procedures	* See warning at end of this table.
10-06-1993	"Clear Well Bacteria Controller" (BC&BE)	CETCO; formerly Clear Well Sales, Inc.	Weak acid plus a proprietary surfactant additive	Acidation product for wells to remove organic screen encrustation	Acid be properly flushed and neutralized. * Also see warning at end of this table.
10-06-1993	"Clear Well Granular Acid" ("GA")	CETCO; formerly Clear Well Sales, Inc.	Weak acid plus a proprietary inhibitor & surfactant	Acidation product for wells to remove inorganic screen encrustation	Acid be properly flushed and neutralized. * Also see warning at end of this table.
07-28-1993	"Clear Well Sediment and Mud Remover" (SR)	CETCO; formerly Clear Well Sales, Inc.	Phosphates	Dispersant for removing drilling mud, sediments and clays from wells during development	None
08-11-1998	"Cowboy Brand Bentonite Chips" (Fine, Medium & Coarse)	Cowboy Mining Co.	100% Bentonite Chips	Well, Drillhole & Pit Abandonment	None
08-12-1998	"Cowboy Brand Granular Seal"	Cowboy Mining Co.	100% Granular Bentonite (8-mesh)	Clay slurry ingredient; casing sealing material for percussion drilling & lost circulation additive	None
08-13-1998	"Cowboy Brand Grout"	Cowboy Mining Co.	High Solids Bentonite Grout (100% Bentonite) (NSF-Approved)	High Solids Bentonite Grout – Allowed for low capacity wells when neat cement grout not required	Mixed according to Mfg.'s instruction
05-19-1993	"Crumbles" (Volclay) (See "CETCO Crumbles")	CETCO	100% ground (8-20 mesh) granular sodium bentonite (No additives) (NSF Approved)	Clay slurry ingredient; seal for driving casing and last circulation material for rotary mud drilling	None

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
05-22-1989	"Custom Seal Granular" (C/S Granular-Volclay)	CETCO	100% ground (40-50 mesh) sodium bentonite (granular)	Clay slurry ingredient & lost circulation material for rotary-mud drilling; Seal for driving casing	None
01-30-1995	"DDF Foamer"	Desert Drilling Fluids, Inc.	Anionic Surfactant	Foam for rotary drilling to help remove cuttings, but only for bedrock	None
12-22-1989	"Detergent; liquid dishwashing-food grade"	Several brands	Liquid surfactant	Cleaning wells contaminated with PCB oils from submersible pumps and capacitors	Food grade; no additives-like color or scent additives
11-20-2008	"DOWFROST"	Dow Chemical Company	Propylene glycol based antifreeze fluid with corrosion inhibitor	Heat exchange transfer fluid for geothermal heat exchange heating/cooling systems	None
09-17-1990	"DPA"	CETCO	Concentrated, white granular nonvolatile inorganic acid (NSF Approved)	Well treatment for cleaning mineral scale from screens, gravel packs and formation material	No additives. * Also see warning at end of this table.
04-08-1988	"Drilfoam"	N. L. Baroid	Anionic surfactant composed of alkyl ether sulfate (ammonium salt)	For rotary drilling to help remove drill cuttings, but only in bedrock	See approval
05-01-2003	"Dril-Sol"	Wyo-Ben, Inc.	Surfactant-based drilling fluid additive	For rotary drilling operations where air or air/foam drilling methods are allowed	None
05-24-1996	"Drispac"	Drilling Specialists Company	Polyanionic cellulose	Drilling fluid additive to be added to clear water for drillhole stability	None
05-29-1997	"Dry Acid"	Cotey Chemical Corp.	Chemical powder that produces sulfuric acid when mixed with water	Well development and rehabilitation	* See warning at end of this table.
05-29-1997	"Dry Acid Special"	Cotey Chemical Corp.	Chemical powder that produces sulfamic acid when mixed with water	Well development and rehabilitation	* See warning at end of this table.
06-25-1990	"Econoplug"	Distributed by Economy Mud Products Co.	100% chipped sodium bentonite - slow hydrating chips; medium (1/4 - 3/8 ") & coarse (3/8 - 3/4")	Well, drillhole & pit abandonment	See instruction sheet
06-28-1990	"Econoplug Grout"	Distributed by Economy Mud Products Co.	High solids (30%) sodium bentonite grout material	High solids bentonite (clay) grout for use where neat cement grout is not required	Mud weight of 9.9 lbs/gal. - check for settling
10-06-2004	"8/25 Granular"	GeoPro, Inc.	Granular bentonite (100%)	Clay slurry ingredient; lost circulation material for rotary-mud drilling; Seal for mounding around casing during driving	None

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1992	"EnviroCoke IV	Loresco; Distributed by Cathodic Engineering Equip. Co., Inc.	Conductive Carbon Grout; High temperature calcined petroleum coke particles and Portland cement.	Grout for deep anode drillholes used for cathodic protection.	NR 812 requires prior department approval for a cathodic protection drillhole.
02-27-2009	"EnviroGard"	Rhomar Water Management, Inc.	Non-toxic propylene glycol based antifreeze fluid.	Heat transfer fluid for ground-coupled, closed-loop geothermal systems	None
09-18-2009	"Environol"	WaterFurnace International	Non-toxic ethanol (grain) alcohol-based antifreeze fluid with additives for lubrication, denaturing and coloring.	Heat exchange transfer fluid for geothermal heat exchange heating/cooling systems	None
05-18-1989	"Enviroplug"	Wyo-Ben, Inc.	100% chipped sodium bentonite, slow hydrating, chips (med. 1/4- 3/8" & coarse 3/8 - 3/4")	Well, drillhole & pit abandonment	See instruction sheet
06-26-1990	"Enviroplug Grout"	Wyo-Ben, Inc.	High solids (30%) sodium bentonite grout material	High solids bentonite (clay) grout for use where neat cement grout is not required	Mud weight of 9.9 lbs/gal. - check for settling
06-29-1990	"Enviroplug No. 8"	Wyo-Ben, Inc.	100% coarsely-ground (8-mesh) granular sodium bentonite	Clay slurry ingredient; lost circulation material for rotary-mud drilling	None
09-18-1991	"Enviroplug No. 16"	Wyo-Ben, Inc.	100% coarsely-ground (16-mesh) (granular) sodium bentonite	Clay slurry ingredient; bentonite grout ingredient; lost circulation material for rotary mud drilling	None
11-20-2009	"Ethanol SDA-3C 200 Proof"	Brenntag Great Lakes, LLC (Auer Steel, Distributor)	Ethanol alcohol antifreeze fluid with isopropyl alcohol as denaturing additive	Heat exchange transfer fluid for geothermal heat exchange heating/cooling systems	None
05-31-1989 & 09-18-1991	"Extra High Yield"	Wyo-Ben, Inc.	Powdered drilling mud-type sodium bentonite (200-mesh) with 2-3 lbs/ton of proprietary polymer added (NSF Approved)	Rotary drilling mud & bentonite slurry ingredient	None
04-27-2001	"E-Z Mud Drilling Polymer"	Baroid Industrial Drilling Products	Co-polymer viscosifying drilling fluid agent	Additive for well drilling fluids	May not be used in highly porous limestone or dolomite formations; nor as a replacement for bentonite drilling mud.

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04-09-2004	"E-Z Mud DP"	Baroid Industrial Drilling Products	Dry granular co-polymer viscosifying agent	Drilling fluid product to be added to mix water to improve drillhole stability for rotary mud-circulation drilling and to improve carrying capacity for air or air/foam drilling.	May only be used as an additive and not as a complete replacement for rotary drilling mud; Also, may not be used in highly porous limestone or dolomite.
02-02-2009	"EZ Mud Gold"	Halliburton (Baroid) Industrial Drilling Products	Dry anionic polymer (beads) - viscosifying agent	Drilling fluid product to be added to mix water to improve drillhole stability for rotary mud-circulation drilling and to improve carrying capacity for air or air/foam drilling.	May only be used as an additive and not as a complete replacement for rotary drilling mud; Also, may not be used in highly porous limestone or dolomite.
07-09-2004	"E-Z Seal"	Baroid Industrial Drilling Products	High solids bentonite grout material (one-sack product)	High solids bentonite grout	Allowed only for low cap. private & non-comm. wells where neat cement grout not required.
03-07-1996	"F-25 Well Conditioner"	The Kjell Corporation	Liquid polymerized anionic phosphate complex	Well rehabilitation-cleaning wells contaminated with biofilms	None
07-18-1991	"Federal 200"; a.k.a. "Federal High Yield"	M-1 Drilling Fluids (Federal)	Powdered (200-mesh) drilling mud-type bentonite with proprietary ingredient additive @ 0.10-0.15%	Drilling mud bentonite; clay slurry ingredient	None
03-03-1993	"Federal-BP-8"	M-1 Drilling Fluids (Federal)	100% Granular sodium Bentonite (8-20 mesh)	Clay slurry ingredient - sealant for driving casing; lost circulation material	None
03-05-1993	"Federal Granular"	M-1 Drilling Fluids (Federal)	100% Granular sodium Bentonite (~48-150 mesh)	Clay slurry ingredient - sealant for driving casing; lost circulation material	None
03-03-1993	"Federal Plug"	M-1 Drilling Fluids (Federal)	100% of chipped sodium bentonite - slow hydrating; medium (1/4" – 3/8") and coarse (3/8 – 3/4inch)	Well, drillhole and pit abandonment	See instruction sheet
09-11-2009	"Fremont 9134FG; 9134FG-25D; 9134FG-30D; 9134FG-35D; 9134FG-40D; 9134FG-45D & FG9134-50G"	Fremont Industries Water Management Solutions	Propylene glycol-based antifreeze fluid with corrosion inhibitor	Heat exchange transfer fluid for geothermal heat exchange heating/cooling systems	None

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
01-26-1998	"Gel Supreme"	Federal Summit	Untreated powdered (200-mesh) drilling mud bentonite (no additives)	Drilling mud, clay slurry ingredient	None
12-08-2009	"Geo SuperGrout"	SuperGrout Products, LLC	Cementitious grout containing Portland Cement and other cement derivatives	Grouting material for closed-loop, heat exchange drillholes.	None
06-07-2004	"Geothermal Grout"	CETCO Drilling Products	High-solids bentonite grout for heat-exchange drillholes	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
05-06-2008	"Gopher Grout"	M-I SWACO HDD Mining and Water Well Group	High solids bentonite grout (NSF Certified)	Bentonite grout. Allowed for low capacity wells where neat cement grout is not required.	Mud weight at least 9.4 lbs/gal.
02-04-1997	"Grout-Well"	Wyo-Ben, Inc.	High solids bentonite grout (NSF Approved)	Bentonite grout. Allowed for low capacity wells where neat cement grout is not required.	Mud weight at least 9.4 lbs/gal.
02-04-1997	"Grout-Well DF"	Wyo-Ben, Inc.	Same as above except grout uses granular.	Bentonite grout. Allowed for low capacity wells where neat cement grout is not required.	Mud weight at least 9.4 lbs/gal.
11-25-2009	"Heat Transfer Fluid-PG-ND"	Wausau Chemical Corporation	Propylene glycol-based antifreeze fluid with corrosion inhibitor	Heat exchange transfer fluid for geothermal heat exchange heating/cooling systems	None
01-23-1998	"Hi-Yield Gel"	Federal Summit	Powdered (200-mesh) drilling mud bentonite with proprietary additive @ 0.10-0.15%	Drilling mud; clay slurry ingredient	None
01-02-1989	"Holeplug"	N. L. Baroid	100% chipped sodium bentonite; 3/8" and 3/4" slow hydrating chips	Well, drillhole and pit abandonment	See instruction sheet
06-26-1990	"Hydrogel"	Wyo-Ben, Inc.	Powdered, drilling mud-type bentonite (200-mesh) with 1/4 - 1/3 lb./ton polyacrylate polymer	Rotary drilling mud clay; clay slurry ingredient	(See approval)
10-21-2004	"HYG 200 GEL"	GeoPro, Inc.	Powdered, drilling mud-type bentonite (high yield) (200-mesh), with polymer	Rotary drilling mud clay; clay slurry ingredient	None
10-29-2001	"IntelliChlor"	Carus Chemical Company	Liquid blend of acid with an additive enhancer	Controlling pH during chlorination disinfection procedures & for well rehab.	* See warning at end of this table.
10-15-2008	"Intercool P-323"	Interstate Chemical Co. Inc.	Propylene glycol based antifreeze fluid with corrosion inhibitor	Heat exchange fluid for geothermal heat exchange heating/cooling systems	None

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04-09-1990	"Interfoam"	International Drilling Fluids, Inc.	Anionic surfactant	Foam for rotary drilling to help remove cuttings, but only in bedrock	None
06-29-1990	"Kwik-Ben"	Distributed by International Drilling Fluids, Inc.	Powdered, drilling mud-type bentonite (200-mesh) with ½ lb./ton proprietary polymer added (NSF Approved)	Rotary drilling mud clay; clay slurry ingredient	None
01-28-1998	"Kwik-Plug Coarse & Medium"	Federal Summit	100% chipped sodium bentonite. coarse (¾") medium (⅜")	Well, drillhole and pit abandonment	None
02-09-1998	"Kwik-Plug Fine"	Federal Summit	Granular bentonite (8-mesh)	High Solids bentonite grout; Annular space seal for driving casing	None
02-09-1998	"Kwik-Plug Micro"	Federal Summit	Granular bentonite (16-20 mesh)	High Solids bentonite grout; Annular space seal for driving casing	None
10-25-1996 01-26-1998	"Kwik-Thik"	Federal Summit (Formerly M-1 Drilling Fluids)	Powdered (200-mesh) bentonite for rotary drilling mud with proprietary ingredient at 0.10-0.15%	Drilling mud bentonite and clay slurry ingredient	None
12-07-2007	"Layne Oximate"	Layne Christensen Company	Liquid acidic/surfactant product	Help control pH of disinfection/rehabilitation solution	None
07-19-1990	"LBA" (Liquid Chelatin Agent) (Formerly Liquid Biofouling Agent)	CETCO	Liquid organic acid chelating agent (NSF Approved)	Well treatment for iron bacteria by removing slime and destroying bacteria	That instructions be supplied with product. * Also see warning at end of this table.
05-29-1997	"Liquid Acid Descaler"	Cotey Chemical Corp.	A mixture of liquid acids (Hydrochloric and glycolic) and a surfactant	Well development and rehabilitation	* See warning at end of this table.
02-02-2001	"Loresco Type SC.3"	Loresco International, Inc.	A base carbon material with a proprietary ingredient for reducing surface tension for compact settling under water.	Conductive backfill material to surround anodes in a cathodic protection drillhole.	NR 812 requires prior department approval for a cathodic protection drillhole.
01-26-1998	"Max-Gel"	Federal Summit	Powered (200-mesh) drilling mud bentonite with proprietary additive @ 0.10-0.15%	Drilling mud; clay slurry ingredient	None
04-22-1989	"Micatex"	N. L. Baroid	Muscovite mica (fluorophlogopite) flakes (powder to small gain consistency)	Restore circulation of rotary drilling fluid after last circulation occurs	To be used only as a last resort to restore circulation

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04-04-2003	"Mud-Gel"	Baroid Industrial Drilling Products	Powdered drilling mud-type sodium bentonite (200-mesh) with 0.0125% polyacrylate polymer added	Rotary drilling mud clay; clay slurry ingredient	None
05-29-1997	"Mud-Nox"	Cotey Chemical Corp.	Nonionic Surfactant	Well development and rehabilitation	None
05-21-2002	"Muriatic Acid 20 degree 103L"	Hydrite Chemical Company	Muriatic acid with an inhibitor	Well rehabilitation and controlling pH during well chlorination.	* See warning at end of this table.
01-27-2004	"N-Seal"	Baroid Industrial Drilling Products	Extrusion spun mineral fiber	Lost circulation material	None
09-18-1991	"Naturalgel"	Wyo-Ben, Inc.	Powdered (200-mesh) western sodium bentonite (montmorillonite)	Rotary drilling mud clay; clay slurry ingredient	None
09-18-1991	"Naturpel"	Wyo-Ben, Inc.	Chipped sodium bentonite	Well, drillhole & pit abandonment.	None
02-22-1980	"Nu-Well"	Johnson Division, UOP, Inc. (now U.S. Filter/Johnson Screen)	Pelletized sulfamic acid with inhibition wetting agent and other ingredients (information confid. held by Department)	Dissolve encrustation on well screens and surrounding formation	* See warning at end of this table.
12-26-2002 01-13-2003	"NW-220"	Water Systems Engineering, Inc.	Polymeric dispersant	Well development and redevelopment – To remove clays, muds and sediment from a well	None
02-11-2000	"NW-310"	U.S. Filter/Johnson Screen	Polymeric acid (To be used in combination with "Nu-Well")	Well rehabilitation. To help break biofilms, disperse mineral salts, maintain acid reaction and hold debris in suspension.	* See warning at end of this table.
02-10-1994	"Opti Seal"	Bentonite Corp.	100% chipped sodium bentonite; 3/8" & 3/4" slow hydrating chips	Well, drillhole and pit abandonment	None
07-24-1989	"PdsCo Granular"	Polymer Drilling System (PdsCo)	100% ground (8-20 mesh) granular sodium bentonite	Clay slurry ingredient & lost circulation material for rotary mud drilling	None
03-13-1996	"PdsCo Grout"	Polymer Drilling systems (PdsCo)	High Solids Bentonite Grout (NSF Approved)	High solids bentonite grout-allowed for low capacity wells where neat cement grout not required	Mixed according to Mfg's instructions
07-24-1989	"PdsCo High Yield"	Polymer Drilling Systems (PdsCo)	Powdered drilling mud-type sodium bentonite (200-mesh) with 2-3 lbs/ton of sodium polyacrylate polymer added	Rotary drilling mud & clay slurry ingredient	(See approval)

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07-23-1989 & 05-26-1989	"PdsCo Plug"	Polymer Drilling Systems (PdsCo)	100% chipped sodium bentonite slow hydrating chips (coarse – 3/4") (medium – 3/8")	Well, drillhole & pit abandonment	None
02-28-1990	"Permaplug"	Loresco. Distributed by Cathodic Engineering Equip. Co., Inc.	100% chipped sodium bentonite - slow hydrating chips; medium (1/4 – 3/8") & coarse (1/2 – 3/4")	Well, drillhole & pit abandonment	None
02-01-2004	"Penetrol"	Baroid Industrial Drilling Products	Non-ionic wetting agent	Drill fluid additive where air or air/foam drilling methods are used	None
05-22-2003	"Plugz-It"	Wyo-Ben, Inc.	Coated granular bentonite (8 to 40 mesh)	Clay slurry ingredient; casing sealing material for percussion drilling & a lost circulation additive for rotary drilling	None
05-23-2003	"Plugz-It Max"	Wyo-Ben, Inc.	Coated granular bentonite (4 to 16 mesh)	Clay slurry ingredient; casing sealing material for percussion drilling & a lost circulation additive for rotary drilling	None
09-20-2005	"Poly-Bore"	Baroid Industrial Drilling Products	100% dry granular polymer (PHPA)	Water based drilling fluid additive for reverse-rotary (and horizontal directional drilling) methods – Designed to improve viscosity characteristics of drilling fluid & to help stabilize drillhole	None
06-26-1990	"Poly-Gel"	Distributed by Economy Mud Products Co.	Powdered, drilling mud-type bentonite (200-mesh) with ½ lb./ton proprietary polymer added (NSF Approved)	Rotary drilling mud clay; clay slurry ingredient	None
12-03-2007	"PowerTEC"	GeoPro, Inc.	Graphite-based product	Additive for approved high solids bentonite grout, but only for closed-loop geothermal drillholes.	To be used only for geothermal drillholes, according to Mfg.'s instructions.
07-17-1989	"Premium Gel"	CETCO	Powdered drilling mud-type sodium bentonite (200-mesh) with ½ -1 lb./ton of sodium polyacrylate polymer added; 90 bbl yield; API Drilling Fluid (NSF Approved)	Rotary drilling mud & clay slurry ingredient	None
07-18-1991	"Pure Gold Gel"	CETCO	Untreated powdered (200-mesh) drilling mud-type bentonite - additive free; 90 bbl yield - organic free (NSF Approved)	Rotary drilling mud clay; clay slurry ingredient esp. for environmental drilling	None

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
07-16-1991	"Pure Gold Grout"	CETCO	Organic-free western sodium bentonite and proprietary mixture of sulfate (NSF Approved)	High solids bentonite grout for use where neat cement grout not required	None
07-18-1991	"Pure Gold Chips"	CETCO	Sodium bentonite chips (Coarse 3/8-3/4" and medium 1/4-3/8")	Well, drillhole & pit abandonment.	None
04-06-1999	"QC-21"	Layne-Northwest, subsidiary of Layne, Inc.	Aqueous solution of organic acid, with chelating agents and a surfactant.	Cleaning & well rehabilitation agent to control mineral precipitants, metal oxides and organic bio-mass deposits in well screens & gravel packs.	* See warning at end of this table.
1973	"Quik Foam"	N. L. Baroid	Anionic surfactant composed of alkyl ether sulfate (ammonium salt)	For rotary drilling to help remove drill cutting, but only in bedrock	None
05-05-1988	"Quik Gel"	N. L. Baroid	Premium grade drilling mud-type sodium bentonite (200-mesh) with 0.11% sodium, polyacrylate polymer	Rotary drilling mud clay; clay slurry ingredient	None
07-12-1994	"Quik Grout"	Baroid Drilling Fluids, Inc.	Granular Bentonite (30-mesh) mixed with two proprietary inorganic ingredients to delay swelling of granules and to reduce pH	High solids bentonite grout & annular space seal for use where neat cement grout not required	May not be used where neat cement grout is the required seal (at least 18% solids)
02-05-2009	"Quik Mud Gold"	Halliburton (Baroid) Industrial Drilling Products	Liquid copolymer – Partially hydrolyzed polyacrylamide-polyacrylate (PHPA) viscosifying agent	Drilling fluid product to be added to mix water to improve drillhole stability for rotary mud-circulation drilling and to improve carrying capacity for air or air/foam drilling.	May only be used as an additive and not as a complete replacement for rotary drilling mud; Also, may not be used in highly porous limestone or dolomite.
02-04-2009	"Quik Mud Gold"	Halliburton (Baroid) Industrial Drilling Products	Dry anionic polymer - viscosifying agent	Drilling fluid product to be added to mix water to improve drillhole stability for rotary mud-circulation drilling and to improve carrying capacity for air or air/foam drilling.	May only be used as an additive and not as a complete replacement for rotary drilling mud; Also, may not be used in highly porous limestone or dolomite.

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
09-12-2005	"Quik-Trol"	Baroid Industrial Drilling Products	Natural cellulosic polymer	Drilling fluid additive for water-based drilling fluids; And as an additive to be used for rotary-mud drilling fluid systems & for rotary air-foam drilling systems – to 'stiffen' the foam	None
02-03-2009	"Quik-Trol Gold"	Halliburton (Baroid) Industrial Drilling Products	Natural cellulosic polymer with a low molecular weight	Drilling fluid additive for water-based drilling fluid systems & as an additive for rotary-mud drilling fluid systems	None
09-13-2005	"Quik-Trol LV"	Baroid Industrial Drilling Products	Natural cellulosic polymer with a low molecular weight	Drilling fluid additive for water-based drilling fluid systems & as an additive for rotary-mud drilling fluid systems	None
02-14-1994	"Redi-Clean 1"	Jacam Chemical Partners, Ltd.	Weak acid & proprietary additives including a salt and a non-hazardous surfactant	Acidation product for wells esp. for screen encrustation	That precautions be provided with product. *Also see warning at end of this table.
01-30-2009	"RhoGard Ultra DP"	Rhomar Water Management, Inc.	Non-toxic propylene glycol based antifreeze fluid.	Heat transfer fluid for ground-coupled, closed-loop geothermal systems	None
05-18-2007	"Safe-T-Therm"	Houghton Chemical Corporation	Propylene glycol based antifreeze fluid	Closed-loop geothermal drillhole heat exchange systems	None
05-23-1996	"SC-200"	CETCO	Non-ionic liquid surfactant wetting agent	Well rehabilitation; enhances dispersing efficiency of other well rehab products and for well development	None
05-06-2008	"Smooth Grout 20"	M-I SWACO HDD Mining and Water Well Group	High solids bentonite grout (NSF Certified)	Bentonite grout. Allowed for low capacity wells where neat cement grout is not required.	Mud weight at least 9.4 lbs/gal.
07-13-1989	"Super Gel-X"	CETCO	High viscosity (200 bbl yield) powdered drilling mud-type sodium bentonite (200-mesh) with ½ -1 lb./ton of sodium polyacrylate polymer added (NSF Approved)	Rotary drilling mud & clay slurry ingredient	(See approval)
05-15-2003	"TD-16"	Wyo-Ben, Inc.	Coated granular bentonite grouting material	High solids bentonite grouting for use where neat cement grout is not required; And for a sealing and heat exchange material for closed-loop heat pump drillholes.	None

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
08-06-2002	"Thermal Grout Lite"	Geo Pro, Inc. & Black Hills Bentonite, L.L.C.	High solids (20%) bentonite grout	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
08-06-2002	"Thermal Grout Select"	Geo Pro, Inc. & Black Hills Bentonite, L.L.C.	High solids (20%) bentonite grout	Grout, sealing or heat exchange material for closed-loop heat pump drillholes.	None – May also be used for water well construction.
10-11-2004	"3/8-inch & 3/4-inch Bentonite Plug" (chips)	GeoPro, Inc.	Bentonite chips (100%)	Well, drillhole & pit abandonment	None
05-05-2003 07-01-2004	"ThinZ-It"	Wyo-Ben, Inc.	Polymeric drilling fluid additive and well development dispersant.	Drilling fluid additive -- to reduce viscosity; Or Well development dispersant -- to help remove clay and sediment from a well	As a drilling additive: May be used where air/foam drilling methods are allowed, Or In drilling mud, but only if drill mud slurry is replaced with neat cement grout at completion of well.
05-30-1989	"Tower Plug"	Black Hills Bentonite Co.	100% chipped bentonite - slow hydrating chips (both 3/8" & 3/4" chips)	Well, drillhole & pit abandonment	None
10-06-2004	"12/40 Granular"	GeoPro, Inc.	Granular bentonite (100%)	Clay slurry ingredient; lost circulation material for rotary-mud drilling; Seal for mounding around casing during driving	None
05-02-2003	"Uni-Drill"	Wyo-Ben, Inc.	Liquid polymer drilling fluid additive	Drill fluid additive where air or air/foam drilling methods are used	None
07-01-1987	"Versafoam"	CETCO	Anionic Surfactant composed of alkyl ether sulfate (ammonium salt)	For rotary drilling to help remove drill cuttings; but only in bedrock	None
05-17-1989	"Volclay Chips" (See CETCO Chips")	CETCO	100% chipped sodium bentonite-slow hydrating chips (medium -1/4-3/8") (coarse - 3/8-3/4")	Well, drillhole & pit abandonment	None
05-19-1989	"Volclay Crumbles" (See "CETCO Crumbles")	CETCO	100% ground (8-20 mesh) granular sodium bentonite	Clay slurry ingredient & lost circulation material for rotary mud drilling	None
06-25-1987	"Volclay Grout" (See CETCO Grout") (Bentonite Grout)	CETCO	Low yield bentonite single component bentonite grout - no additives (NSF Approved)	High solids bentonite grout for use where neat cement grout is not required	Allowed only where neat cement grout is not required - must be mixed according to instructions with product

Approval Date	Product Name	Manufacturer or Distributor	Materials(s)	Uses	Special Conditions
05-29-1997	"Welgicide Cleaner"	Cotey Chemical Corp.	Chemical Powder - containing a silicate, hydroxide and a pyrophosphate	Well rehabilitation	None
05-26-1989	"Well-Plug"	Fluidril Mud Systems (from Black Hills Bentonite)	100% chipped bentonite - slow hydrating chips (both 3/8" & 3/4" chips)	Well, drillhole & pit abandonment	None
08-21-2002	"WS ² 3602 -- Well Conditioner"	Water Well Solutions	Sodium-based blend of phosphate ingredients	Well rehabilitation, especially to penetrate and break down biofilms in wells.	None
04-30-2003	"Wyo-Vis"	Wyo-Ben, Inc.	Liquid polymer viscosifying agent	Drilling fluid additive for both rotary mud and rotary air/foam drilling operations	None
06-11-1997	"XY-12"	Ecolab, Inc.	Primarily sodium hypochlorite	Well disinfection and treatment	None
04-22-1988	"Zeogel"	N. L. Baroid	Ground attapulgite clay - magnesium aluminum silicate ("Fuller's Earth") (a.k.a. sweeping compound)	Rotary drilling mud clay for drilling information with high salt content	None

*** When a product containing an acid is added to a well in combination with a chlorine product, adding too much of the acid or adding it too quickly, can lower the pH of the solution to a point where hazardous chlorine gas can be released. Appropriate safety precautions should be taken in this regard, especially when the well is located within an enclosure. In addition, any acid product must be properly flushed and neutralized following the rehabilitation procedure.**

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