

**BEFORE THE
ILLINOIS POLLUTION CONTROL BOARD**

IN THE MATTER OF:)	
)	
PETITION OF THE CITY OF)	AS 2015-_____
COLLINSVILLE FOR AN ADJUSTED)	(Adjusted Standard – Water)
STANDARD FROM)	
35 ILL. ADM. CODE 620.410)	
FOR CERTAIN CONSTITUENTS)	

PETITION FOR ADJUSTED STANDARD

COMES NOW, the Petitioner, City of Collinsville, by its undersigned attorney and pursuant to § 28.1 and consistent with § 27(a) of the Illinois Environmental Protection Act, 415 ILCS 5/28.1, 5/27(a) and 35 Ill. Admin. Code 104.400, et. seq., and hereby petitions the Illinois Pollution Control Board for an Order granting it an Adjusted Standard from the provisions of 35 IL Administrative Code, ¶ 620.410, as more fully outlined in paragraph 17 and Exhibit Eight thereby enabling the City to move toward final and prompt closure of the former City of Collinsville landfill (the “Site”) as more fully set forth herein. In support of its Petition for Adjusted Standard and site closure, Petitioner states as follows:

I. INTRODUCTION

1. Collinsville seeks this relief for its former landfill, which was opened in 1960, was closed in 1984, was officially certified as closed by the IEPA in 1986 and is now in post-closure monitoring. Collinsville believes all issues have been resolved based on prior discussions and communications with IEPA, except for certain “gob” related constituents associated with historical on-site coal mining activities which predated landfill activities. “Gob” is defined as waste from coal mining that cannot be sold. The waste coal contains residual coal with pyrite or other sulfur-containing minerals, and impure coal substances not desired in the final retail combustion product. Additionally, historic and recent monitoring identified three compounds linked to common and widely used herbicides and an explosive compound, perchlorate, common to historic coal mining. The IEPA has taken the position that it cannot certify the Site when groundwater on the Site exceeds the Pollution Control Board’s (“PCB”) groundwater quality standards. Collinsville seeks this relief in order to obtain its certification of completion of post-closure

care as more fully set forth in Exhibit Eight and supported by historical information, monitoring results and other documents presented in Exhibits One through Seven. Collinsville believes this relief is justified because the conditions are due to the historical presence of on-site coal mining activities and post-landfill closure application of herbicides in accordance with federal and state requirements. Historic coal mining activities were identified during an evaluation of historic records, deeds and photographs documented during groundwater assessment activities in 2006-2008 and are presented in Exhibits 1-1, 1-2 and 2-1. The conditions associated with the past coal mining activities have been in existence since mining began in the area (circa 1900) and coal mining wastes were placed in the area now occupied by the landfill prior to 1941 (Exhibit 1-2, Figures B-1 through B5). The conditions linked to herbicide applications were identified during the 2006-2008 assessment monitoring period and the recent inclusion of 31 new constituents in the landfill's groundwater monitoring program. In November 2013, groundwater samples were analyzed for 31 new constituents in accordance with permit requirements based on an amendment to 35 IAC 620.410. One inorganic compound, perchlorate, related to past mining activities and two organic compounds, p-dioxane (also known as 1,4-dioxane) and mecoprop ("MCP"), associated with periodic applications of herbicides were detected in one or more of the November 2013 samples. The herbicide picloram, documented in the 2008 Assessment Monitoring Report, was found in a background well installed in 2006 on residential property adjacent to the landfill. The presence and sources of the recently identified perchlorate, p-dioxane and MCP were documented in a February 2014 report (Exhibit 3-1 and 3-2) and the establishment of background values and evaluation of the validity of the detections and the applicability of background values were presented in an October 2014 report (Exhibit 7-1). Periodic herbicide applications have occurred at the landfill during the growing season for an unknown number of years following completion of the landfill cap and construction of the road and leachate collection structures. The sources of the conditions linked to mining or herbicide use either predate- or post-date operation of the landfill, respectively, and are not associated with the materials in the landfill. The conditions create no impact to human health or the environment, and compliance is not economically

reasonable as evidenced in Paragraph 16 discussing estimates of cleanup efforts necessary to comply with the regulation of General Applicability.

2. Inorganic analytical parameters for which observed exceedances of potentially applicable Class I standards exist are associated with the historic presence of subsurface coal mines and “gob”. These parameters, including pH, total dissolved solids, arsenic, chloride, iron, manganese and sulfate, are linked to the presence of sulfur-containing pyrite or other sulfide minerals in the “gob” or the historic use of blasting agents that contain perchlorate. The sulfur-containing minerals produced acidic conditions in the soil and groundwater and leached or dissolved metals and inorganic compounds from the soil that migrated to the groundwater. Perchlorate, typically present in black powder and ammonium nitrate dynamite used to mine coal prior to 1945, readily dissolves in the groundwater and may remain for decades (Exhibits 3-1 and 3-2). During operation of the landfill (1960-1984) no known natural sources or sources of rocket propellants, munitions, blasting agents, or fireworks were located within 50 miles of the landfill. The site was not used for farming (ammonium nitrate fertilizer) and blasting activities did not occur in the area subsequent to closure of the coal mine. The most likely source of perchlorate in the groundwater at the landfill is coal mining activities associated with improper storage, poor housekeeping practices or incomplete detonation during mine blasting. Perchlorate was not detected in the leachate sample collected in February 2013. The organic compounds, MCP, p-dioxane, and picloram are associated with herbicides. MCP and p-dioxane, like perchlorate, were recently added to the list of constituents to be monitored and were found in the groundwater at the landfill in November 2013. MCP was detected above Class I Groundwater Standards in one duplicate sample collected in November 2013, but was not detected in the corresponding field sample or any samples collected during the first, second or third quarters of 2014 or the February 2013 leachate sample. Recent sampling results and the evaluation of the three new parameters are presented in Exhibits 3-1 and 7-1. MCP is an active ingredient of Scott's Ortho® products used for broadleaf control of weeds in lawns. The adjacent resident acknowledged the use Ortho products. However, based on the lack of reproducibility or multiple detections of MCP, its one-time detection is considered an anomaly – an artifact of field, sample

shipment or laboratory activities (Exhibit 7-1). The organic compound p-dioxane is a constituent of the surfactant included in Roundup® and Roundup Pro®. Roundup Pro® is periodically applied along the perimeter of the landfill road and structures during the growing season by Illinois-Department of Agriculture licensed applicators. The herbicide contains 3% p-dioxane (Exhibit 3-1 and 3-2). The compound was detected in the leachate sample below the Class 1 Groundwater Standards but the adjacent road had been periodically sprayed with Roundup Pro®. The building had not been sprayed because it was constructed in late fall, outside the growing season. The organic parameter, picloram, is a herbicide that is periodically found in a background well, but the concentrations have not exceeded Class I standards, nor was it present in wells downgradient of the landfill.

3. Based on an evaluation of historical 1941-1998 aerial photographs (Exhibit 1-2, Figures B-1 through B-12) discovered during 2006-2008 assessment monitoring activities, “gob”-related groundwater impact is limited to the extent of the former “gob” and coal areas, all of which are owned by the City of Collinsville. The City has owned the landfill and the property located adjacent to Canteen Creek on Lebanon Road since 1960 (Deed – Exhibit 1-1). The groundwater monitoring wells that consistently exceed the Illinois Class I Groundwater Standards for the “gob” related-inorganic parameters identified in paragraph 2 include MW1 and MW4 (Exhibit 1-2, Figure B-12). Other monitoring wells are present at the site, but these are the only wells that are located within the former “gob” coal area that are located just outside the boundary of the landfill waste. The extent of “gob”-related groundwater impact is shown in Exhibit 4-1. The “gob”-related inorganic compounds above Class I standards are limited to the northern half of the landfill (near MW1 and MW4) where “gob” and coal were stored and eventually incorporated into the landfill. Prior to 2006, additional impacts related to inorganic parameters not associated with “gob” were observed in the southeastern corner of landfill in the vicinity of MW3. However, MW3 was incorrectly identified as a background well but was actually located within the landfill. The perchlorate impact is more widespread and was found in the two northern wells (MW1 and MW4) and the background well (MW6), but was not detected in the leachate. Perchlorate-containing blasting agents would have been used mine-wide and the Canteen #2 mine covered the entire area

including locations upgradient of the landfill. The groundwater impact of p-dioxane is also landfill-wide, but is only present above Class I Groundwater Standards at the wells located closest to the road and structures (MW1 and MW4) where Roundup Pro® was applied. The herbicide, MCP, was found in one sample in November 2013 and was not detected in three subsequent quarters or the February 2014 leachate sample. The detection of MCP is believed to be an anomaly – an artifact of field, sample shipment or laboratory activities (Exhibit 7-1). The organic compound, picloram, was periodically detected outside the eastern edge of the landfill in the new background well (MW6), but concentrations did not exceed Class I standards.

4. Groundwater is currently impacted with a variety of inorganic materials, particularly total dissolved solids (“TDS”), chlorides, arsenic, iron, manganese, sulfates, perchlorate and pH, and organic chemicals such as p-dioxane and MCP (not believed to be present) that are present in the groundwater at concentrations above Class I standards. These parameters have exceeded Class I standards since their inclusion in the landfill’s groundwater monitoring program as evidenced by the historic groundwater monitoring results (Exhibits 5-1 through 5-6), the 2013 Assessment Monitoring Report (Exhibit 5-7) and the November 2013, February 2014 monitoring results (Exhibit 5-8) and the recent establishment of background values, evaluation of the validity of the detection perchlorate, 1,4-dioxane and MCP, and the applicability of their corresponding background values (Exhibit 7-1). The herbicide, picloram, has been periodically detected in the background well, MW6, but not at levels of regulatory concern. Picloram is a widely used weed and grass killer that adjacent property owners may have used on their property.

II. DESCRIPTION OF RELIEF

Standard from Which Adjusted Standard is Sought (35 Ill. Adm. Code 104.406(a), (b), (c) and (e))

5. Collinsville seeks relief from 35 Ill. Adm. Code 620.410(a), (b), (c), (e) and 620.440(c) as more fully set forth in Exhibit Seven. This regulation became effective November 25, 1991, amended October 7, 2013.

Statute Which Regulation Is Intended to Implement (35 Ill. Admin. Code 104.406(b))

6. The PCB adopted this regulation pursuant to the Illinois Groundwater Protection Act, 415 ILCS 55/1 et. seq. and not to implement the requirements of the statutes listed at 35 Ill. Adm. Code 104.406(b).

Level of Justification
(35 Ill. Adm. Code 104.406(c))

7. The Groundwater Quality Regulations do not specify a level of justification for seeking an adjusted standard, although they do specify a standard for seeking the reclassification of a given groundwater, 35 Ill. Adm. Codes 620.260. Because the Site closed before 1990, the PCB regulations related to solid waste landfill operations and adapted after 1990 are not applicable to the Site. These standards are at 35 Ill. Adm. Code 811.320(b)(4).

8. Further, 620.440 specifically addresses groundwater within a previously mined area, and 620.420(a)(2) addresses pesticide chemicals applied consistent with the requirements of the Federal Insecticide, Fungicide and Rodenticide Act (7 USC 136 et. seq.) and the Illinois Pesticide Act (415 ILCS 60).

III. DESCRIPTION OF PETITIONER'S ACTIVITY

(35 Ill. Admin. Code 104.406(d))

9. Collinsville, as noted, conducted on-site landfill operations which have since ceased. It now seeks to obtain final and immediate closure and for which this Adjusted Standard's necessary. As more fully set forth in Exhibit Five (landfill groundwater monitoring results, August 2007 - February 2014), the principal activity at the landfill is periodic monitoring. Because the facility is closed, there is no significant on-site activity. The landfill is fenced with a locked access gate.

10. The Site is described as a closed sanitary landfill located along Lebanon Road due east and outside the city limits of Collinsville, Illinois. It is located in the northwest quarter of Section 36, Township 3 North, Range 8 West, Madison County, Illinois. The closed landfill is approximately 22 acres in area and was in operation under the 807 regulations from the early 1970s through 1984 under permit number 1972-71. The Site was closed in October 1986. The IEPA certified the landfill was

satisfactorily closed in a letter dated October 24, 1986. A leachate collection system was installed after closure. Under permit 2010-EP-1106, collected leachate is transported and discharged to the Collinsville Waste Water Treatment Plant. The original system was designed to collect leachate in three subsurface interceptor trenches with individual leachate collection pump systems housed in three separate buildings. In 2012 and 2013, a longitudinal peaked stone toed protection system along the creek and a fourth interceptor trench were installed to address creek erosion adjacent to the landfill and the presence of seeps on the northern perimeter of the landfill. During installation of test pits prior to placement of the new interceptor trench, waste coal or “gob” was identified in three out of seven test pits. The fourth interceptor trench and leachate collection system collects leachate associated with the seeps and the erosion protection will preserve the integrity of the creek bank and prevent the creek from cutting into the landfill. The new leachate collection system was activated in January 2014 and leachate samples will be collected annually for two years and results will be evaluated against previous leachate results to assess the need for additional leachate sampling.

11. Based on previous studies, shallow groundwater at the Site is approximately 10 feet below ground surface (bgs) and appears to be flowing in a northwesterly direction from the landfill toward Canteen Creek as shown in Exhibit 4-1 (Mathes, 1991; Tetra Tech, 2004, Tetra Tech, 2008) and Exhibit 5-7, Appendix A, Figure 2. The surface hydrology at the Site is defined by ponds and creeks. Two small ponds/lakes are located near the landfill; both are considered upgradient of the landfill. One pond is located southeast of the landfill and the other lies southwest of the landfill. There are also two small creeks in the immediate vicinity of the Site. The first creek, known as Canteen Creek, flows west along the northern edge of the landfill (between the landfill and Lebanon Road), and the other flows north along the western edge. The creeks merge at the northwest edge of the City’s property. The creeks are sustained and recharged with groundwater (Tetra Tech, 2008).

12. Based on the results of the 2006-2007 assessment monitoring, the Site and surrounding area were part of the Lumaghi Coal Company’s Canteen Mine No. 2. The entire area beneath the landfill and adjacent properties are considered “mined-out”. Aerial photographs presented in Exhibit One and

summarized below indicate that coal and coal “gob” were stored north and south of Canteen Creek from sometime prior to 1941. This area was part of the property that later became the Collinsville Landfill (Tetra Tech, 2008). The City purchased the property June 24, 1960 from the Lumaghi Coal Company (Deed – Exhibit 1-1). The boundaries of the landfill waste and the former “gob”/coal area are outlined in yellow and orange, respectively, in Exhibit 1-2, Figures B-1 through B12. The Lumaghi Coal Company owned and mined the area that included the landfill from 1900-1950. In the 1956 aerial photograph (Exhibit 1-2, Figure B-2), “gob” and coal are visible as sinuous linear piles (“gob”) and amorphous masses of the black material (coal) located adjacent to Canteen Creek. The “gob” was present on the south side of the creek and the coal on the north side. In 1941 and 1956, Lumaghi Coal Company was the owner of the property. By 1968 (Figures B-3 through B-5), the City owned the property and engaged in landfill activities (Figure B-3). Most of the “gob” and coal remained in place (Figure B-5, outlined in orange). By 1974 (Figure B-7), the coal area is visible north of the creek and outside the northeastern perimeter of the landfill, but the “gob” area is not shown because it was incorporated into the landfill. The remaining aerial photographs show the progression of the landfill from active use to completion of the cover (Figure B-9). The “gob”/coal and landfill areas are shown on each figure present in Exhibit 1-2 (orange and yellow lines).

13. Additional Site information and background can be found in the narrative portions of Exhibit 5-7, dated July, 2013 prepared by Tetra Tech. Information pertaining to the detections of perchlorate, p-dioxane and MCPD is presented in Exhibits 3-1, 3-2, 5-8 and 7-1.

IV. DESCRIPTION OF THE EFFORTS NECESSARY TO COMPLY WITH THE REGULATION OF GENERAL APPLICABILITY

(104.406(e))

14. Collinsville believes there is no feasible, practical way to treat groundwater with dissolved constituents in an area which has had historical subsurface mining activities and where “gob” is present. As Exhibit One clearly shows, the entire area was extensively mined for coal, continuing until 1950. The “gob” piles and mine blasting which are the source of the material producing the observed

measurements in the monitoring wells cannot be effectively removed, nor can the groundwater be effectively treated, in Collinsville's opinion.

15. No exact cost estimate can be made, because of the inherent impracticability of treating such groundwater. However, Collinsville has prepared cost estimates shown in Exhibit 6-1 as required by 104.406(e)

16. Pump and treat, or groundwater trench intercept structures, even if technically feasible, would each cost an estimated \$12,000,000 plus, with minimum operating costs of about \$5,850,000. Complete removal of the landfill would cost even more millions of dollars. Clearly, none of these options are feasible economically.

V. NARRATIVE DESCRIPTION OF THE PROPOSED ADJUSTED STANDARD AS WELL AS PROPOSED LANGUAGE FOR A BOARD ORDER

(104.406(f))

17. Collinsville hereby requests an adjusted standard, consistent with Exhibit Seven, which confirms that certain constituents, as outlined below, be evaluated against the Class II Standards, 620.420, in accordance with 620.440(c) as modified by this Adjusted Standard Petition. The presence of perchlorate and the organic compounds, p-dioxane and MCPP are not associated with the landfill. Based on four quarters of monitoring, establishment of background values and an evaluation of the validity of the detections and the applicability of the background values (Exhibit 7-1), the proposed Adjusted Standards for perchlorate, p-dioxane and MCPP will be based on a value associated with the maximum detected concentrations.

The City of Collinsville closed landfill is currently subjected to Class I Groundwater standards, but based on the highest concentrations observed, Collinsville petitions that the inorganic parameters identified below be subjected to the following proposed standards and for those inorganic parameters not specifically identified, Class II groundwater standards shall apply. Class I groundwater standards shall continue to apply to organic compounds except for those identified below.

<u>Parameter</u>	<u>Class I Standard (mg/L)</u>	<u>Proposed Standard (mg/L)</u>
TDS	1,200	2500 ^a
Chloride	200.0	600 ^a
Iron	5.0	69 ^b
Manganese	0.15	25 ^a
Sulfates	400.0	400 ^a
pH	6.5-9.0 units	5.0-9 units ^a
Perchlorate	0.0049	0.065 ^a
MCPP	0.007	0.020 ^a
p-Dioxane	0.0077	0.025 ^a

^a Based on the highest or lowest (pH concentration) detected and the estimated future concentrations.

^b Based background concentrations established at the site.

Each parameter shall be sampled quarterly for one year commencing with the quarter in which this adjusted standard is approved, after which there shall be two years of annual monitoring, at which point monitoring requirements shall cease. Monitoring results will be compared to the adjusted standards only.

VI. QUANTITATIVE AND QUALITATIVE DESCRIPTION OF THE IMPACT

(104.406(g))

18. Collinsville believes there would be no meaningful difference in off-site impacts between compliance with the regulation of general applicability and compliance with this adjusted standard.

19. There are extensive historical mining impacts and “gob” piles in the entire area and limited impact from post-closure application of herbicides. The applicable requirements, at 620.440, specifically recognize the impact of “gob” piles and coal mine blasting. Additionally, there is an April 25, 2006, Memorandum of Understanding (MOU) between the City of Collinsville and the IEPA entered into for the purpose of satisfying the requirements of 35 Ill Adm Code 742.1015 for the use of groundwater or water well ordinances as environmental institutional controls. Groundwater Use

Ordinance 3747 has been in effect since February 13, 2006. The MOU and Ordinance, presented in Exhibit Two, prohibit the installation or use of private groundwater wells for use as a potable water supply within the corporate boundaries of the City except at points of withdrawal by the City.

20. City water is available to all persons in the general area of the landfill.

21. There are no potable water supply wells within 1,300 feet downgradient of the landfill. All shallow groundwater present beneath the landfill and adjacent to the landfill discharges to Canteen Creek and an unnamed tributary located along the northern and western boundary of the landfill. The relationship of the landfill, Canteen creek and the direction of groundwater flow is shown in Exhibit 5-7, Appendix A, Figure 2. Groundwater on the south side to the creek flows northwesterly toward the creek and groundwater on the north side flows southward also toward the creek. A water well survey was performed in 2000 to identify private potable water wells located within 1,300 feet from the landfill boundary. The survey revealed that property owners, immediately adjacent to and less than 300 feet downgradient of the closed landfill (within the path of the impacted groundwater), used City water. Therefore, groundwater immediately downgradient of the landfill is not used as a source of potable water. Two property owners were identified as using well water for human consumption. However, these properties are located north of Lebanon Road and approximately 1,300 feet north-northeast of the closed landfill on higher ground. Wells located at a higher elevation than the impacted groundwater are considered upgradient and outside the path of impacted groundwater. Additionally, these wells are located north of the creek and groundwater flows south to the creek. These wells would not be affected by the landfill due to their upgradient physical location,

VII. STATEMENT WHICH EXPLAINS HOW THE PETITION SEEKS TO JUSTIFY THE PROPOSED ADJUSTED STANDARD

(104.406(h))

22. The applicable regulations permit consideration of the impact of historical mining activities and application of herbicides in accordance with federal and state regulations. This is the source

of the justification when considered with the clear evidence of on-site mining activities (perchlorate), the presence of "gob" and proper use of herbicides as outlined in more detail on Exhibits 1 and 3.

VIII. BURDEN OF PROOF

(104.426)

23. Because there is no specific burden of proof outlined in the underlying regulation of general applicability, we must turn to Section 104.426 for guidance on the burden of proof consistent with Section 27(a) of the Act.

According to 104.426(a), the Board may grant individual adjusted standards whenever the Board determines, upon adequate proof by petitioner, that:

1) factors relating to that petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to that petitioner;

The general regulations do not contemplate a landfill built upon a subsurface coal mine or a surface "gob" storage area. Accordingly, the impact of "gob" and other mining activities on measured water contamination is not part of the relevant regulation. Therefore, the City of Collinsville believes item (1) is satisfied.

2) the existence of those factors justifies an adjusted standard;

As outlined more fully elsewhere in this Petition and as detailed in the Exhibits, the appropriate application of herbicides, the presence of "gob" and former use of blasting agents during coal mining justifies the adjusted standard because "gob" and coal-mining activities and use of herbicides post-landfill closure clearly have an impact on certain of the measured monitoring well constituents and therefore the City of Collinsville believes item (2) is satisfied.

3) the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and

The City of Collinsville does not believe there will be environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule

of general applicability. Specifically, the landfill is no longer in operation, and the constituents of interests are clearly associated with "gob," or mining activities, not municipal landfill operation. Additionally, after detection of the p-dioxane and the discovery of its inclusion in Roundup Pro®, use of the herbicide has been discontinued at the landfill. Therefore, the City of Collinsville believes item 3) is satisfied.

4) The adjusted standard is consistent with any applicable federal law. [415 ILCS 5/28.1(c)]

As referenced elsewhere, there are no federal standards for underground water except water used for drinking water supply. Therefore, because the water, impacted by mining activities, the "gob" pile and periodic post-closure application of herbicide, cannot legally be used for any potable drinking water supply, due both to the MOU and the Groundwater Ordinance, the continued non-use of the water for drinking water or other potable purposes is fully consistent with federal law in the opinion of the City of Collinsville. Therefore, the City of Collinsville believes item (4) is also satisfied.

IX. ADJUSTED STANDARD AS CONSISTENT WITH FEDERAL LAW

(104.406(i))

24. The 2006 MOU between the City and the IEPA and City Ordinance 3747 prohibits installation or use of private wells as potable water sources (Exhibit 2-1). Additionally, no private drinking water wells are located within the migration path of the impacted groundwater associated with the landfill. Because there are no federal groundwater standards for groundwater not used as a potable water supply, the granting of this Adjusted Standard request will not violate any applicable federal law.

X. STATEMENT WAIVING HEARING

(104.406(j))

25. In view of the extensive record in this matter, the clarity of the presence of "gob" material, former mining activities, routine and periodic application of herbicide at select locations (ceased application since the discovery of p-dioxane), and the ongoing cost to Collinsville of about \$40,000 per

year for groundwater monitoring and reporting to IEPA, Collinsville respectfully requests the hearing be waived.

XI. CONCLUSION

26. As authorized above, Collinsville requests this Adjusted Standard due to the historical presence of “gob” and coal mining on the Site. No potable water supplies will be adversely impacted by approval of this request. The groundwater at the Site is not now, and will not be used for potable water.

27. Wherefore, for the reasons stated, the City of Collinsville requests the Illinois Pollution Control Board grant this Adjusted Standard.

CITY OF COLLINSVILLE

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